Teacher-created social environment, basic psychological needs, and dancers' affective states during class: A diary study

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Abstract

Grounded in Basic Psychological Needs Theory (BPNT; Deci & Ryan, 2000) and drawing from Duda's (2013) conceptualisation of the teacher-created social environment as a multidimensional construct, this study examined, at the within-personal level, the interrelations between dancers' perceptions of teacher-created empowering and disempowering social environments, basic psychological needs and changes in dancers' affective states during class. Vocational dancers (n = 135) completed self-report measures before (affective states) and after (affective states, teacher-created social environment, basic need satisfaction/thwarting) dance technique classes for 5 consecutive days. Multivariate multilevel modelling analyses revealed basic need satisfaction to mediate the relation between dancers' perceptions of empowering environments and dancers' changes in positive affect during class. Basic need thwarting mediated the relation between disempowering environments and changes in dancers' negative affect during class. Findings support the tenets of BPNT at the inter-individual level, advancing current understanding of the social-psychological mechanisms that may underpin dancers' optimal and compromised functioning within classes.

Keywords: Motivational climate; Empowering; Disempowering; Basic psychological needs; Dance class.

1. Introduction

Changes in affective (emotional) states are a part of students' everyday life. The extent to which affective states vary above and below a person's typical level is considered an essential component of subjective well-being (Diener, 2000). Taking a hedonic perspective, Diener (2000) denotes that individuals who experience higher levels of positive affect and lower levels of negative affect, are likely to have a higher level of subjective well-being. Furthermore, students' affective states have been found to be related to quality of learning and achievement in education contexts (Pekrun, Elliot, & Maier, 2009; Villavicencio & Bernardo, 2013), with higher levels of positive affect and lower levels of negative affect being related to more adaptive outcomes. An achievement context in which motivation and affective states has important implications in terms of individuals' performance and well-being, but which has received scant attention, is dance.

Dance is an increasingly popular vocational pursuit with approximately 17,000 young people studying GCSE dance and around 10,000 students pursuing dance in higher education in any one year (ACE, 2009). A vocational dancer is a student dancer training to be a professional. Starting as young as 11 years of age, vocational dancers attend a specialised dance school in which they train for approximately 9 hours a day 5 or 6 days a week. These dancers take a variety of classes, have a number of different teachers, and have to master various styles/genres. Despite the potential physical and psychological benefits of dance, concerns regarding vocational dancers' health and welfare have been recognised anecdotally and documented in research for many years. For example, a nationwide survey by Dance UK (Laws, 2005) revealed elite dance students to be highly susceptible to a number of undesirable psychological and emotional states including, general anxiety, low self-confidence, depression and burnout.

Elite dance education environments have typically been regarded as characterised by rivalry and control (Van Rossum, 2004). Former professional dancers have described teachers as often exerting control and humiliating dancers (Hamilton, 1997). A survey of 1000 dancers revealed 48% to have been unjustly humiliated during class (Hamilton, Hamilton, Warren, Keller, & Molnar, 1997). Thus, insights into the mechanisms underlying within-person fluctuations in dancers' affective states could contribute towards the development of dance education environments which foster day-to-day wellbeing and are conducive to high quality learning and achievement.

1.1. Theoretical Underpinnings

Contemporary theories of motivation, namely achievement goal theory (AGT; Ames, 1992; Nicholls, 1989) and self-determination theory (SDT; Deci & Ryan, 1985, 2000) have focused on the role of significant others, such as the teacher, in creating a social environment that is conducive to the enhancement of individuals' optimal engagement and psychological well-being. Duda (2013) proposed a framework that allows theoretical integration regarding key concepts within AGT and SDT. Duda (2013) posits that the social environment can be more or less 'empowering' and/or 'disempowering' depending on which social-environmental characteristics are emphasised. An empowering environment is one that is more autonomy supportive (teachers provide rationale, promote meaningful choice, and solicit input; Mageau & Vallerand, 2003), task-involving (teachers positively reinforce student development, encourage co-operation, and emphasise self-referenced competence; Ames, 1992; Newton, Duda, & Yin, 2000), and socially supportive (teachers value their students as individuals; Reinboth et al., 2004; Sarason, Sarason, Shearin, & Pierce, 1987). In contrast, a disempowering environment is more controlling (teachers exhibit coercive behaviours and pressurise students into performing certain behaviours; Bartholomew,

Ntoumanis, & Thøgersen-Ntoumani, 2009) and highly ego-involving (teachers may punish mistakes, give unequal recognition, and encourage normative comparisons of ability (Ames, 1992; Newton et al., 2000).

According to Basic Psychological Needs Theory (BPNT; Deci & Ryan, 2000), a mini-theory of SDT, particular aspects of the teacher-created social environment (i.e., autonomy support, social support, and control) influence individuals' affective, cognitive, and behavioural outcomes via the satisfaction and/or thwarting of three basic psychological needs: autonomy (feeling that behaviours are self-initiated and volitional), competence (feeling capable of meeting environmental demands), and relatedness (feeling meaningfully connected and cared for by significant others; Deci & Ryan, 2000). A critical component of Deci and Ryan's (2000) BPNT is that the basic needs are proposed to mediate the relation between social-environmental factors and individual's subjective well-being and/or experienced ill-being.

AGT proposes that an important prerequisite for motivated behaviour is a desire to feel competent. When judgements of ability are self-referenced and mastery and improvement considered criteria for success, success will always be possible, as long as effort is exerted. In contrast, when ability is other-referenced, individuals compare their performance to others and feel successful only when their performance is superior (Nicholls, 1989).

1.2. Empowering Environments, Basic Need Satisfaction and Affective States

Duda (2013) proposed that an empowering environment would promote individuals' optimal engagement and psychological well-being via satisfaction of the three basic psychological needs. The predictive utility of conjointly considering facets of the social environment underscored by SDT and AGT has been supported in research at the cross-

sectional level (e.g., Reinboth, Duda, & Ntoumanis, 2004; Standage, Duda, & Ntoumanis, 2003). However, cross-sectional designs are limited by their ability to only capture a snap shot in time and tend to be used to examine whether social-environmental factors predict variation *between individuals* in terms of certain affective, behavioural, and/or cognitive outcomes. Less research (e.g., Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani, 2011a; Gagne, Ryan, & Bargmann, 2003; Quested, Duda, Ntoumanis, & Maxwell, 2013) has explored the social-environmental factors that may underlie *within-person* variability in reported indices of well- and ill-being over time. Examination of within-person variation can determine the antecedents and consequences of individuals' dynamic experiences, such as fluctuations in affective states. Furthermore, within-person analyses reduce errors associated with between-person confounds, such as, the effect of *individual differences* (Singer & Willet, 2003).

The only feature of an empowering environment that has been previously examined at the within-person level is autonomy support (Bartholomew et al., 2011a; Quested et al., 2013), a dimension of the teacher/coach-created social environment emphasised in SDT. Bartholomew et al. (2011a) and Quested and colleagues (2013) found coach/teacher autonomy support provided in training/class to predict athletes'/dancers' basic need satisfaction and, changes in positive affect during training/class. Thus, based on Duda's (2013) proposal and building on the findings of Bartholomew et al. (2011a) and Quested et al. (2013), the current study makes a unique contribution to the literature by examining whether dancers' perceptions of an empowering teacher-created social environment (i.e., autonomy support, social support and task-involvement) in class would positively predict changes *over time* in dancers' positive affect from the beginning to the end of the class.

To date, only one study (Quested, 2010) has specifically examined the mediating role of need satisfaction at the within-person level. Quested (2010) found relatedness and

competence satisfaction to mediate the relation between dancers' perceptions of autonomy support in class and changes in positive affect realised during the class. Building on the findings of Quested (2010) the current study will examine whether basic need satisfaction mediates the relation between dancers' perceptions of an empowering environment in class and changes in dancers' positive affect during class.

1.3. Disempowering Climates, Basic Need Thwarting and Affective States

Duda (2013) posits that a disempowering environment will be predictive of maladaptive psychological functioning via the thwarting of the basic psychological needs. To date, no research has examined the 'darker side' of dance (i.e., dancers' perceptions of disempowering facets of the motivational environment) at the within-individual level. One study within the context of sport (Bartholomew et al., 2011a), has investigated coaches' controlling behaviours on a daily basis. Bartholomew et al. (2011a) reported coach controlling behaviours to positively predict athletes' basic need thwarting (as opposed to need satisfaction) during training and, in turn, predict changes in athletes' negative affect pre- to post-training. Building on the findings of Bartholomew et al. (2011a) and drawing from Duda's (2013) proposal that a disempowering environment will be predictive of maladaptive psychological functioning, the current study will examine the relation between dancers' perceptions of a disempowering teacher-created social environment (i.e., control and ego-involvement) during class and changes in dancers' negative affect from the beginning to the end of the class.

Bartholomew and colleagues (2011a) did not test the theoretically assumed mediating role of athletes' basic need satisfaction and/or thwarting in the social environment to affective states relation. Cross-sectional research with physical education teachers (Bartholomew, Ntoumanis, Cuevas & Lonsdale, 2014) has supported the mediating role of basic need

thwarting between job pressure and burnout. However, this is the first study to examine the mediating role of individuals' perceptions of basic need thwarting at the within-person level, thus testing a unique model and adding to the SDT literature.

1.4. Hypotheses

It was hypothesised that:

1. Dancers' perceptions of an empowering teacher-created social environment in class would positively predict changes in dancers' positive affect during class.
2. Dancers' perceptions of a disempowering teacher-created social environment would positively predict changes in dancers' negative affect during class.
3. Dancers' basic need satisfaction would mediate the relation between dancers' perceptions of an empowering teacher-created social environment in class and changes in positive affect during class.
4. Dancers' basic psychological need thwarting would mediate the relation between dancers' perceptions of a disempowering teacher-created social environment in class and changes in negative affect during class.

2. Method

2.1. Participants and Procedure

One hundred and thirty-five dancers (21 male, 110 female, 4 gender unspecified, *Mage* = 15.57 years, *SD* = 2.48) were recruited from four different full-time vocational dance schools within the UK. The dancers had been at the school for an average of 2.38 years (*SD* = 2.05) and had been dancing, on average, since they were 4.97 years old (*SD* = 2.95).

Ethical approval was gained prior to commencement of the study. Written informed consent was gained from all dancers who were willing to participate. For dance schools with

pupils less than 16 years of age, parental consent was gained prior to the dancers being given information letters.

All dancers completed a demographic questionnaire (measuring age, gender, years of dance experience, and years at current school), under the supervision of a trained researcher. One week later the dancers were given a diary booklet. Dancers were asked to complete the diary booklet immediately before and after two dance technique classes a day, for 5 consecutive days (Monday to Friday). At the end of the week, dancers were asked to either place their completed diary in a secure 'drop box' or hand it directly to the primary researcher. A diary methodology was employed to capture dancers' dynamic experiences of emotional states in the natural context in which they occurred. Furthermore, diary studies minimise bias from retrospective accounts of thoughts, feelings and occurrences, typically problematic with traditional cross-sectional questionnaire methodologies (Bolger, Davis, & Rafaeli, 2003; Reis & Gable, 2000).

Each of the four vocational dance schools offered classes in a variety of dance genres. In order to ensure consistency across schools, only those genres which all four vocational dance schools offered classes in (i.e., Ballet, Jazz, Contemporary, Choreography and Modern) were included in the analysis. Thirteen dancer diaries were excluded due to being deemed to have an insufficient number of completed class entries (< 5). The final sample consisted of 122 dancers and a total of 1071 completed class entries. The number of class entries per participant ranged from 5-10, with a mode of 7.

2.2. Measures

The diaries consisted of selected items from validated questionnaires measuring individuals' perceptions of the teacher-created social environment, basic need satisfaction and thwarting, and affective states. Items were chosen based on their strong content validity and/or factor loadings in previous research with dancers (e.g., Hancox, 2014; Quested &

Duda, 2009a, 2009b, 2010). Shortened versions of measures were used due to the practical constraints of dancers having very little time between classes to complete the diaries. Dancers were asked to record the time, date and genre of each class for which they completed a diary entry.

2.2.1. Empowering and Disempowering Teacher-Created Environments. Immediately post-class, dancers' perceptions of the social environment created by the teacher in the class that they had just attended was assessed using items selected from the Empowering and Disempowering Motivational Climate Questionnaire-Coach (EDMCQ-C; Appleton, Ntoumanis, Quested, Viladrich, & Duda, 2016). This measure includes three subscales tapping the empowering dimensions of the coach-created social environment which draw from previously validated measures. For the diaries, one item was selected to measure autonomy support ("My teacher gave dancers choices and options"; Williams, Grow, Freedman, Ryan, & Deci, 1996), one to assess task-involving features ("My teacher acknowledged dancers who tried hard"; Newton et al., 2000), and one to measure social support ("My teacher listened openly and did not judge dancers' personal feelings"; Sarason, et al., 1987). The EDMCQ-C includes two subscales tapping disempowering dimensions of the teacher-created social environment. One item from each of these subscales was utilised to measure teacher control ("My teacher shouted at dancers in front of others to make them do certain things"; Bartholomew, Ntoumanis & Thøgersen-Ntoumani, 2010) and ego-involving climates ("My teacher had his or her favourite dancers"; Newton et al., 2000). The factorial validity and internal reliability of EDMCQ-C has been supported with young athletes (Appleton et al., 2016). The subscales of the multi-dimensional measure have been previously validated with dancers in separate studies (e.g., Quested & Duda, 2009a, 2009b, 2010). The stem "In this class…" preceded the five items and dancers were asked to respond on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*). Scores from the autonomy support,

task-involving, and social support items were averaged to create a composite score for dancers' perceptions of empowering class environments. A composite score for dancers' perceptions of disempowering class climates was created by averaging scores from the teacher control and ego-involving items.

2.2.2. Basic Psychological Need Satisfaction. Dancers' basic need satisfaction was assessed post-class using three items, one from each of the following measures; the autonomy scale ("I felt free to express my ideas and opinions"; Deci et al., 2001), the competence subscale from the Intrinsic Motivation Inventory ("I felt I was satisfied with my dancing"; McAuley, Duncan, & Tammen, 1989), and the acceptance subscale from the Need for Relatedness Scale ("I felt people valued me"; Richer & Vallerand, 1998). The psychometric properties of these measures have all been previously supported with vocational dancers (Quested et al., 2013). The stem "In this class" preceded items which dancers were asked to respond to on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Aligned with previous research (e.g., Bartholomew et al., 2011a) the three items were used to create a composite basic psychological need satisfaction score.

2.2.3. Basic Psychological Need Thwarting. The extent to which dancers felt that their basic psychological needs for autonomy, competence and relatedness were thwarted during the class was measured using 3-items from the Psychological Need Thwarting Scale (PNTS; Bartholomew et al., 2011b). The stem "In this class…" was used before items (e.g., "I felt rejected by those around me"). All items were rated on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*). A composite basic need thwarting score was created by averaging all 3 items. The PNTS has been found to have acceptable reliability and validity with athletes (Bartholomew et al., 2011b).

2.2.4. Positive and Negative Affect. Immediately prior to and post-class, dancers completed the short form Positive and Negative Affect Schedule (PANAS; MacKinnon et al., 1999).

The short form of the PANAS includes five items measuring positive affect (e.g., "excited") and five items measuring negative affect (e.g., "upset"). Dancers were asked to respond to the items in terms of how they feel "right now/at this moment" on a 5-point scale from 1 (*not at all*) to 5 (*extremely*). The factorial validity of the short form of the PANAS has been previously supported (MacKinnon et al., 1999).

2.3. Data analysis

Multilevel Modelling (MLM) was employed using version 2.26 of the MLwiN software (Rasbash, Steele, Browne, & Goldstein, 2012). Data were screened for errors, univariate and multivariate outliers, and normality following the guidelines of Tabachnick and Fidell (2007). Skewness and kurtosis values are displayed in Table 1 and meet the criteria for univariate normality (Kline, 2005). Mahalanobis distances revealed six multivariate outliers that were subsequently removed. Missing data were not imputed in this study as multilevel modelling can make use of all available data in the estimation of model parameter without deleting cases with missing values (Kwok et al., 2008).

Data were analysed using multivariate multilevel modelling (MVML). A multivariate multilevel model has several dependent variables. Snijders and Bosker (2012) explain that the multivariate approach is more powerful than the univariate approach, especially if the dependent variables are correlated. This approach reduces the possibility for Type I error, which is inherent when carrying out separate tests for each dependent variable. The MVML model has one more level than the number of levels of hierarchy in the data. Level 1 (measurement level) includes the dependent variables (positive and negative affect). These were nested within occasions at level 2 (time level) which, in turn, were nested within individuals at level 3 (person level).

Prior to analyses, data were converted to z-scores so that the all regression coefficients in the multilevel modelling analyses were standardized coefficients. All level 2

predictors (e.g., perceptions of empowering climate) were centered on each dancer's individual mean, and dancers' age (a Level 3 predictor) was centered on the grand mean (Singer & Willet, 2003). In the model testing, first the effects of demographic variables on changes in dancers' positive and negative affect from pre-class to post-class (by controlling for pre-class affect) were examined. Significant predictors were included in subsequent analyses.

To examine the interrelationships specified in BPNT (Deci & Ryan, 2000), three MVML models were tested, based on the recommendations of Krull and MacKinnon (1999, 2001). The first MVML model (Table 2, Model 1) examined whether dancers' perceptions of an empowering teacher-created environment predict changes in dancers' positive affect during class, and whether dancers' perceptions of a disempowering teacher-created environment predict changes in negative affect during class. The second MVML model (Table 2, Model 2) examined whether dancers' perceptions of an empowering teacher-created environment predict dancers' basic need satisfaction during class, and whether dancers' perceptions of a disempowering teacher-created environment predict dancers' basic need thwarting during class. The third MVML (Table 2, Model 3) examined whether when controlling for an empowering teacher-created environment, dancers' basic need satisfaction predict dancers' changes in positive affect during class, and whether when controlling for a disempowering teacher-created environment, dancers' basic need thwarting predict dancers' changes in negative affect during class.

The mediating role of basic need satisfaction between empowering teacher-created environments and dancers' changes in positive affect during class, and the mediating role of basic need thwarting in the relation between disempowering teacher-created environments and dancers' changes in negative affect during class, were tested following the recommendations of Krull and MacKinnon (1999, 2001) for single level multiple mediator

models with fixed effects. The indirect effect via each mediator was calculated as the product of βaβb; where βa is the path predicting the mediator from the independent variable (Table 2, Model 2), and βb is the path predicting the dependent variable from the independent variable and the mediator (Table 2, Model 3).

3. Results

3.1. Preliminary analyses

Prior to the main analysis, class data for each variable was averaged across days to create aggregate scores. Descriptive statistics and bivariate correlations between aggregated class measures are displayed in Table 1. The positive and negative affect subscales demonstrated acceptable internal consistency with Cronbach alpha's > .70. The alphas for the empowering, disempowering, basic need satisfaction, and basic need thwarting subscales were modest and considered to be within the lower level of acceptability for established scales with few items (Hair, Black, Babin, Anderson, & Tatham, 2006). Hence, results stemming from these subscales should be interpreted with caution.

Non-aggregated data was used for the main analysis Examination of the intra-class correlation coefficients indicated that 58% of the variance in dancers' reported changes in positive affect and 41% of dancers' reported changes in negative affect during class are explained at the intra-individual level, supporting the use of multilevel modelling to control for the dependency of scores within individuals. A series of multilevel models were conducted to test for differences in dancers' affective states after class (controlling for pre-class affective states), as a result of various demographic variables, such as age, gender, years of dance experience, years at current school, time of day of dance class (i.e., morning or afternoon), genre, and school. Analyses revealed no significant differences in dancers' reported change in negative affect during class as a function of any tested demographic

variables. Differences in changes in positive affect were evident as a result of dancers' age (β = -.13, *SE* = .04, $p < .001$), with younger dancers reporting greater changes in positive affect during class. Out of the 4 schools included in the study, there was a significant difference between school 1 and 3 (β = -.44, *SE* = .16, $p = .003$), with dancers' in school 3 reporting significantly less changes in positive affect during classes compared to the dancers at school 1. Furthermore, there were significant differences between dancers' reported changes in positive affect as a result of class genre (Ballet = 0, Jazz = 1, Contemporary = 2, Choreography = 3, Modern = 4), with dancers in modern classes reporting less changes in positive affect in comparison to dancers in ballet classes (β = -.28, *SE* = .13, $p = .03$). Hence, dancers' age, school, and class genre were included in a baseline model (along with pre-class affect) upon which all subsequent models were built.

3.2. Empowering Teacher-Created Environment, Basic Need Satisfaction and Changes in Positive Affect

Dancers' perceptions of an empowering environment in class positively predicted dancers' changes in positive affect (β = .26, *SE* = .03, $p < .001$) during class (Table 2, Model 1). Dancers' perceptions of an empowering environment positively predicted (β = .40, *SE* = .03, $p < .001$) dancers' basic need satisfaction during class (Table 2, Model 2). When controlling for an empowering environment (Table 2, Model 3), basic need satisfaction positively (β = .24, *SE* = .04, $p < .001$) predicted dancers' changes in positive affect during class. Over and above the baseline model, dancers' perceptions of an empowering environment within class and basic need satisfaction during class explained 19.04% of within-person variation in dancers' changes in positive affect during class. Results revealed a significant indirect effect of dancers' perceptions of an empowering environment within class on changes in positive affect during class via basic need satisfaction (β = .09, *SE* = .02, *z* = 5.38, C.I. = .06 - .13).

3.3. Disempowering Teacher-Created Environment, Basic Needs and Changes in Affective States

Dancers' perceptions of a disempowering environment positively predicted changes in dancers' negative affect (β = .11, *SE* = .04, $p < .01$) during class (Table 2, Model 1). Dancers' perceptions of a disempowering environment positively predicted (β = .28, *SE* = .04, $p < .001$) dancers' basic need thwarting during class (Table 2, Model 2). When controlling for a disempowering environment (Table 2, Model 3), basic need thwarting positively (β = .23, *SE* = .04, $p < .001$) predicted dancers' changes in negative affect during class. Over and above the baseline model, dancers' perceptions of a disempowering environment and basic need thwarting within class explained 42.74% of within-person variation in dancers' changes in negative affect during class. Results revealed a significant total mediating effect of dancers' basic need thwarting between perceptions of a disempowering environment and dancers' changes in negative affect during class (β = .06, *SE* = .01, *z* = 4.65, C.I. = .04 - .09).

4. Discussion

Grounded in BPNT (Deci & Ryan, 2000) and pulling from Duda's (2013) conceptualisation of the social environment as a multi-dimensional construct, the purpose of the current study was to examine the processes via which the teacher-created social environment may account for within-person variations in dancers' affective states during class. In support of the first hypothesis, dancers' perceptions of an empowering teacher-created social environment positively predicted changes in dancers' positive affect during classes. Furthermore, in support of the second hypothesis dancers' perceptions of a disempowering teacher-created environment positively predicted changes in dancers' negative affect during classes. These results are aligned with previous research with athletes (Bartholomew et al., 2011a; Gagne et al., 2003) and vocational dancers (Quested et al., 2013)

that independently examined relations between autonomy supportive and controlling dimensions of the coach/teacher-created social environment and changes in individuals' affective states pre- to post-training. However, this study builds on previous research (Bartholomew et al., 2011a; Gagne et al., 2003; Quested et al., 2013) by consolidating the prominent social-environmental dimensions emphasised in AGT and SDT, to create a more comprehensive picture of the types of teacher behaviours that may have relevance for students' changes in affective states during class.

4.1. The Mediating Role of the Basic Psychological Needs

The findings support hypotheses 3 and 4, in that basic need satisfaction mediated the relation between dancers' perceptions of an empowering teacher-created environment and changes in dancers' positive affect during class (hypothesis 3), and need thwarting mediated the relation between dancers' perceptions of disempowering teacher-created environment and changes in dancers' negative affect during class (hypothesis 4). The results support the tenets of BPNT (Deci & Ryan, 2000) and suggest that when dance teachers promote self-initiated strivings, individual-referenced ability, and create a caring environment in class, this fosters dancers' autonomy, competence and relatedness during lessons. Heightened satisfaction of these needs, in turn, leads to dancers experiencing more positive emotions within class.

Being the first to examine the mediating role of basic need thwarting at the within-person level, this study reveals that dancers who perceive their teacher to exhibit controlling behaviours and stress normative comparisons in class are more likely to perceive their basic needs for autonomy, competence, and relatedness as being obstructed and actively undermined. Such need thwarting may, in turn, lead to dancers experiencing more negative emotions.

Overall, in support of SDT, these findings allude to the possibility that teachers may influence their students' affective states via the extent to which they emphasise specific facets

of the social environment (i.e., autonomy support, social support, and/or control), and whether these facets satisfy and/or thwart students' basic psychological needs. Furthermore, building on previous research with athletes (Bartholomew et al., 2011a; Gagne et al., 2003) and vocational dancers (Quested et al., 2013), this study highlights the importance of how competence is evaluated in class. Aligned with AGT, the results imply that it is not just enough for teachers to promote competence, but it is also important to use appropriate criteria for evaluating it (i.e., self-referenced criteria).

4.2. Limitations

This study specifically considered the teacher-created social environment within dance classes. However, it is possible that other factors, such as the social environment created by peers, could have impacted dancers' basic psychological needs, and in turn, changes in affective states. Future research capturing the peer-created social environment alongside that created by the teacher would be beneficial and may explain more variance in the targeted outcomes. Furthermore, the present study adopts a hedonistic perspective, and considers the maximisation of positive affect and minimisation of negative affect as fundamental to well-being. However, in terms of learning and engagement it has been argued that unpleasant emotions can be useful. For example, Tulis and Fulmer (2013) found negative-activating emotions (e.g., a slight increase in anxiety) to be beneficial for persistence on a challenging math task. Moreover, research in work contexts (Bledow, Rosing, & Frese, 2013) revealed creativity to be influenced by the dynamic interplay of positive and negative affect. Creativity is regarded as a key skill and ability for dancers to exhibit (Watson, Nordin-Bates, & Chappell, 2012). Thus examination of the interplay between changes in affect during class and outcomes, such as persistence at difficult tasks and creativity, would shed light on the dynamic processes involved in nurturing and facilitating dancers' optimal performance and well-being. Future research also including measures of eudaimonic well-being (e.g., vitality,

burnout) would contribute to a more comprehensive understanding of dancers' day-to-day well-being.

4.3. Practical Implications

The results of this study suggest that the type of social environment that teachers create in class has implications for students' changes in emotional states during class. Considering the important implications of students' emotional/mood states for quality of learning and achievement in education contexts (Pekrun et al., 2009; Villavicencio & Bernardo, 2013) an understanding of the social-psychological mechanisms that may underpin individuals' optimal and compromised functioning within classes is essential. An in-depth knowledge of these processes can inform interventions which aim to educate teachers as to how they can support young individuals' optimal development and psychological well-being on a daily basis. An education training programme theoretically grounded in the multi-dimensional conceptualisation of the social environment (based on AGT and SDT), such as that described by Duda (2013), would be beneficial in education contexts.

4.4. Conclusion

In summary, the results of this study support the tenets of BPNT (Deci & Ryan, 2000), indicating that the same processes which have been evidenced to operate at the between-person level may also may also explain why a student dancer may be feeling better or worse than their own baseline at a given time (within-person variation). This study advances current knowledge by taking a multi-dimensional approach to the measurement of the social environment and being the first to examine the mediating role of basic need thwarting at the within-person level. From an applied perspective, the findings advance understanding of the social-psychological mechanisms that may underpin individuals' optimal and compromised functioning within classes.

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