Climate Change in the Dance Studio: Findings From the UK Centres for Advanced Training

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Little is known regarding the stability of motivational climate perceptions, or how changes in climate perceptions affect performers. As a result, dancers’ perceptions of the prevailing climate within both regional centers for talented young people and local dance schools were assessed longitudinally and in relation to dance class anxiety and self-esteem. Dancers (Mage = 14.41, SD = 2.10; 75.7% female) completed standardized questionnaires approximately 6 months apart (Time 1 n = 327; Time 2 n = 264). Both climates were perceived as more task- than ego-involving, but talent center climates were perceived as more task-involving and less ego-involving than local climates. However, dancers found that talent centers became more ego-involving from the middle to the end of the school year, and this change predicted increases in anxiety. Changes in climate perceptions did not predict changes in self-esteem. Results point to the benefits of climates low in ego-involving features if dancers are to experience less anxiety around performance time.

Keywords: motivational climate, anxiety, self-esteem, dancing, longitudinal

It is well recognized that coaches, through the way in which they interact with their athletes, have a major impact on young people’s experiences in sport (e.g., Smith, Smoll, & Cumming, 2007). A main approach to examining such impact has been to study motivational climates. The creation of a task-involving climate involves a focus on self-referenced criteria for competence and success; hence, individual effort and improvement are valued, as is cooperative learning (Ames, 1992; Newton, Duda, & Yin, 2000). By contrast, ego-involving climates focus on other-referenced criteria and value objective success. Therefore, participants may be encouraged to outperform one another and mistakes are more likely to be punished. A plethora of studies undertaken in the sporting context have found that coaches who create a primarily task-involving climate for their participants are most likely to nurture healthy and positive sport involvement (e.g., Harwood, Spray, & Keegan, 2008).

Findings relating to the potential consequences of training in different motivational climates are not limited to sport; indeed, similar results have been found in physical education (Barkoukis, Ntoumanis, & Thøgersen-Ntoumani, 2010; Digelidis, Papaioannou, Laparidis, & Christodoulidis, 2003; Harwood et al., 2008).
and academic classrooms (e.g., Ames, 1992). It makes intuitive sense, therefore, that the principles would also apply in dance, and the little research that does exist suggests this to be the case. In one of the first studies of this topic with dancers, Carr and Wyon (2003) found that an aspect of ego-involving motivational climates (the perception that teachers punished mistakes) was associated with anxiety symptoms as well as elements of perfectionism (concern over mistakes, doubts about actions) among university dance students. Unexpectedly, however, they found that a dimension of a task-involving motivational climate (the perception that teachers emphasized effort and learning) predicted both the setting of high standards and worry. More recently, Quested and Duda (2009) established that hip hop dancers who perceived higher degrees of task-involving features in the motivational climate were also more likely to experience basic psychological needs satisfaction (i.e., autonomy, competence, relatedness; Deci & Ryan, 2000). In contrast, dancers who perceived the motivational climate to be more ego-involving were also more likely to report low satisfaction of the need for relatedness. In a larger follow-up study involving dancers from vocational ballet and contemporary schools, perceived ego-involving motivational climate features were related to lesser satisfaction of the needs for both competence and relatedness (Quested & Duda, 2010). Across these two studies, dancers who felt greater need satisfaction reported higher positive and lower negative affect (Quested & Duda, 2009, 2010). Research findings to date thus suggest that the importance of creating a task-involving motivational climate is a premise that extends to dance contexts.

As pointed out by Barkoukis et al. (2010), the evidence indicating that task-involving motivational climates are psychologically healthier than ego-involving climates suggests that it is important to examine whether such climates are stable over time; indeed, if motivational climate perceptions change, does this in turn relate to changes in important psychological outcomes? To date, longitudinal studies of the perceived motivational climate are rare. In one informative study, Reinboth and Duda (2006) found that across a competitive season university athletes generally perceived task-involving motivational climate features to increase whereas the extent to which the climate was perceived as ego-involving decreased. Moreover, increases in the perceived task-involving features were predictive of increases in subjective vitality, an indicator of well-being. In another longitudinal study, Le Bars, Germigon, and Ninot (2009) found that for young elite judokas, perceptions of task-involving motivational climate features decreased while perceptions of ego-involving climate features of the coach-created motivational climate increased over a 2-year period. The authors suggested that, in elite contexts, climates are prone to degrade in this manner and strongly advocated that coaches as well as other social agents should promote task-involving features, or else athletes may become more likely to drop out of their sport altogether. Most recently Barkoukis et al. (2010) found secondary school physical education students’ perceptions of task-involving motivational climates to decrease and perceived ego-involving climates to increase over a 3-year period. It was hypothesized that the results may have been due to teachers placing an increased emphasis on competition and team selection as students became older.

More longitudinal research into the correlates of changes in perceived motivational climate is required, especially given that findings to date may be activity- or context-specific. Both Carr and Wyon (2003) and Quested and Duda (2009) also recommended longitudinal study of motivational climates in dance. Although no such studies exist to date, one recent dance investigation is noteworthy. In a longitudinal investigation spanning one dance school year, Quested and Duda (2011) examined the relationship between changes in perceived autonomy support and reported burnout among vocational dance students. Over the year, decreases were noted in the dancers’ perceptions of autonomy support (the extent to which teachers provided students with meaningful rationales, choices, and input); moreover, this change was associated with increases in symptoms of burnout. Autonomy supportive teacher behaviors are likely to help create a task-involving motivational climate (e.g., Ntoumanis, 2001). However, although positively correlated, these two environmental features are conceptually distinct and have been found to predict unique variance as regards the well- and ill-being experiences of dancers (Quested & Duda, 2010). To date, researchers
have not examined the consequences of potential changes in perceptions of the task- and ego-involving features of dance climate perceptions over time. Doing so would be of value if the social-environmental determinants of changes in dancers’ well- and ill-being are to be fully understood. Such evidence-based information can then be used to generate practical suggestions for effective well-being promotion among dancers.

The main aim of this study was to examine whether dancers’ perceptions of the motivational climate changed across a 6-month period, at the end of which there was a performance. This opportunity was afforded to us as part of an ongoing longitudinal study into the development of talent among young dancers in the UK Centres for Advanced Training (CAT), all of whom were part of the research project. The CATs aim to provide talented and committed young people with high-quality, tailor-made teaching and links to the dance profession (e.g., by working with choreographers; Department for Education, 2011). It was of particular interest to examine motivational climates in this context because the CATs themselves claim to provide high-quality teaching. For instance, the prospectus for one CAT states that they “endeavor to employ professional dance practitioners of the highest caliber in order to provide a safe yet inspiring environment in which to train” (The Place, 2009, p. 4). Based on achievement goal theory, one could argue that high-caliber teaching involves creating a task-involving motivational climate; in this way, our study represented an attempt to link theoretical and applied descriptions of high-quality teaching.

Many young people train in multiple contexts, such as in more than one dance style or on two sports teams. We were aware, therefore, that the dancers might regularly be experiencing different motivational climates. As a result, a secondary aim of the present study was to examine whether dancers perceived any differences in the motivational climates they experienced at the CAT and in their local classes. Because each motivational climate could potentially influence the dancers’ well-being, we included both as part of our third aim; namely, to examine whether changes in motivational climate perceptions in either setting were predictive of two well-being indicators: anxiety and self-esteem. To our knowledge, this is a unique approach not previously adopted in the literature.

Several sport researchers have found trait anxiety to be related to perceptions of an ego-involving motivational climate in sport (e.g., Vazou, Ntoumanis, & Duda, 2006). Taking such findings one step further, Smith et al. (2007) established that athletes training with coaches who had been taught how to create a task-involving motivational climate reported decreases in sport trait anxiety across a competitive season. A control group of athletes, training under coaches who had not received such teaching, reported increased anxiety as the season went on. As argued by Smith et al. (2007), it is logical that coaches can affect athletes’ anxiety because a main part of coaching is giving evaluative feedback. This notion is especially interesting to examine in a dance context, because dance teachers have been criticized for being negative, harsh, and authoritarian (e.g., Robson, Book, & Wilmerding, 2002; Smith, 1998). Additionally, and unlike athletes who often gain feedback from objective markers such as times and distances, dancers frequently have no objective way of assessing their own performance and progress. Instead, they have to rely on the subjective judgments of themselves and others; a situation which may exaggerate the impact of teacher-created motivational climate features (Quested & Duda, 2010). For instance, the unequal recognition given by a teacher may be one of the few sources of competence information available to his or her dancers, and they may feel unsure of their progress and consequently more anxious if they are not receiving as much feedback as another dancer.

Research findings suggest that anxiety is a common experience among dancers (e.g., Barrell & Terry, 2003; Hays, 2002) and one that can increase in intensity with age (Walker & Nordin-Bates, 2010). Such findings indicate that determinants of dancers’ anxiety experiences are worthy of further examination. In particular, one of the limitations in current literature is the focus on competition or performance anxiety. Although interesting and pertinent, anxiety around such events does not reflect performers’ everyday experiences; most nonprofessional dancers perform only irregularly, spending a vastly greater amount of time in classes. Therefore,
we chose to focus our investigation on social-environmental predictors of anxiety experienced in dance classes.

Similar to the findings for anxiety, sport researchers have found that young athletes’ self-esteem can be enhanced if they train under coaches who have received coaching behavior training (Coatsworth & Conroy, 2006; Smoll, Smith, Barnett, & Everett, 1993). These findings are important, because self-esteem is a life-wide construct concerned with overall appraisals of oneself as a person (i.e., it is not specific to a context such as dance or sport). In contrast, anxiety has typically been conceptualized in relation to the performance activity. In other words, self-esteem, as typically conceptualized and measured, is presumably more robust than situation-specific anxiety. Because female dancers in particular have been said to experience low levels of self-esteem (Bakker, 1991; Buckroyd, 2000; Neumärker, Bettle, Neumärker, & Bettle, 2000), it would be valuable to know if motivational climates could affect this important, but assumedly fairly stable, aspect of well-being. Considering social-environmental predictors of self-esteem in addition to anxiety also ensured a somewhat more rounded examination of the potential impact any changes in the perceived motivational climate may have on well-being. Including self-esteem as an indicator of well-being extends the work of Quested and Duda (2009, 2010) who examined the impact of the perceived motivational climate on dancers’ reported affective states and emotional and physical exhaustion.

In summary, the present study was a longitudinal examination of the motivational climates perceived by young talented dancers in the UK Centres for Advanced Training. The main aim was to examine whether dancers’ perceptions of the task- and ego-involving features of their training climates in two contexts changed across a period of approximately 6 months. A secondary aim was to examine whether the motivational climates created in these talent centers (the CATs) differed from those in the dancers’ local dance schools. A third and final aim was to examine whether changes in motivational climate perceptions were predictive of changes in the targeted indices of dancers’ well-being (anxiety and self-esteem).

Method

Participants

A total of 383 dancers completed questionnaires at one or both time points (88.5% at Time 1, 72.6% at Time 2). Dancers were 75.7% female and aged 10–18 years, at Time 1 averaging 14.41 years of age ($SD = 2.10$). They had attended one of eight Centres for Advanced Training for an average of 13.26 months ($SD = 14.75$), and had spent an average of 8.10 ($SD = 3.73$) years in dance overall. One CAT focuses on ballet while the majority (seven) focus on contemporary (modern) dance. Two of the CATs have additional strands training young performers in urban or South Asian dance styles (Department for Education, 2011). Notably, all students take classes in more than one dance style, and all contemporary students have ballet classes and vice versa. Weekly CAT training averaged 7.93 hours ($SD = 3.31$) at Time 1 and 7.76 hours at Time 2 ($SD = 3.42$). Dancers also undertook approximately 4.81 hours (Time 1) and 4.22 hours (Time 2) of training in their local dance schools, but the range was wide (0–35 hours; $SD = 4.94$ at Time 1, 4.20 at Time 2). Local dance schools included private dance schools and regular dance within school curricula (e.g., if the student was training and studying toward an academic qualification in dance).

Measures

Motivational climate. The Perceived Motivational Climate in Sport Questionnaire–2 (PMCSQ–2; Newton et al., 2000) was used to capture the dancers’ climate perceptions. To make the scale as relevant as possible, we used a version of the original PMCSQ–2 adapted for dance by Quested and Duda (2009, 2010). Hence, the questionnaire comprised five subscales: cooperative learning, a focus on effort and improvement, everybody having an important role in the group, there being punishment for mistakes, and unequal recognition based on ability. The former three subscales combine to form a measure of task-involving climate features, and the latter two combine to capture ego-involving features. An example of a task-involvement item (from the subscale coopera-
tive learning) is “The teachers encourage dancers to help each other”, and an example of an ego-involvement item (from the subscale unequal recognition) is “Only the best dancers get praise.” The 24 items are scored on a 5-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree).

In the present study, the scale was used to measure the dancers’ perceptions of the motivational climate in their two dance training climates (CAT and local dance schools): the first versions’ stem read In this CAT . . . and the second In my HOME dance classes . . . Cronbach’s alpha scores for the modified PMCSQ—2 were good for both motivational climates at both time points (α range individual subscales = .72—.93). The exception was punishment for mistakes for the CAT climate at Time 1; upon deleting one item (“Dancers are afraid to make mistakes”) however, the Cronbach’s alpha value was improved from .66 to .74. For the overall task and ego factors used in analyses, the α range was .87—.91. The original PMCSQ—2 has established validity and reliability when used with athletes of similar age to the dancers in this study (Newton et al., 2000) and the psychometric properties of the adapted version have been supported in recent work with vocational dancers (Quested & Duda, 2010).

Anxiety. Experiences of anxiety were measured using the Sport Anxiety Scale–2 (SAS—2; Smith, Smoll, Cumming, & Grossbard, 2006), slightly modified to capture anxiety during dance class. Consequently, the stem read “Before or while I do CAT dance sessions . . .” The SAS-2 has 15 items in three subscales: worry (e.g., “I worry that I will not dance well”), somatic anxiety (e.g., “I feel tense in my stomach”), and concentration disruption (e.g., “It is hard for me to focus on what I am supposed to do”). Items are scored on a 4-point Likert scale ranging from 1 (Not at all) to 4 (Very much). Thus, the potential range of scores is 15–60 for the total of all items. Cronbach’s alpha scores for the SAS-2 subscales were acceptable at both time points (α = .66—.91). Unfortunately, the somatic anxiety subscale obtained alpha values < .70 at both times (both α = .66) but item deletion did not improve this score; therefore, all items were retained but no analyses were performed with individual SAS—2 subscales. For the overall anxiety score used in analyses, α was .85 (Time 1) and .86 (Time 2). Validity and reliability information has been published for the SAS—2 (Smith et al., 2006).

Self-esteem. The Rosenberg self-esteem scale (RSES; Rosenberg, 1965) was used to capture dancers’ feelings about themselves in general life. The scale has 10 items scored on a 4-point Likert scale ranging from 1 (Strongly disagree) to 4 (Strongly agree). An example item is “On the whole, I am satisfied with myself”. The RSES has established validity and reliability (Blascovich & Tomaka, 1991) and internal reliability was very good also in the present study (Time 1 α = .82; Time 2 α = .87).

Procedures

As part of a larger project, the current study obtained ethical approval from an institutional review board. Information was provided to dancers, parents, and dance centers, and informed consent was obtained from all participants and from parents of those under 16 years of age. Dancers completed packs of questionnaires in groups at specifically set-aside times within class timetables with a researcher present for questions and clarification. Teachers were asked not to be present. ID code lists were used to enable matching of data over time without the need to ask for student names to be written on the questionnaires. The first data collection was in winter 2008–2009 and the second in summer 2009. Intervals between data collections were kept as close to 6 months as possible, and research visits commenced approximately 2 months after the start of a new recruitment year (September 2008), thus enabling a motivational climate to have been established (Miller & Roberts, 2004; Reinboth & Duda, 2006).

Results

Preliminary Analysis

Few studies have used the version of the PMCSQ—2 modified for dance. Therefore AMOS version 17 (Arbuckle, 1999) was used to test the construct validity of this scale via confirmatory factor analysis (CFA). With minor
modifications\textsuperscript{1}, a model specifying the first and second-order factors of this questionnaire demonstrated acceptable fit to the data ($\chi^2(220) = 563.62, p < .01$; CFI = .90, RMSEA = .07, SRMR = .07).

Comparing Home Versus Local Motivational Climates and Their Changes Over Time

To address our first aim of examining whether dancers’ perceptions of two motivational climates changed across time, a series of analyses were performed. First, descriptive statistics were calculated, and these are presented in Table 1. As may be seen, scores describing task-involving climate perceptions were higher than those describing ego-involving climate perceptions at both times and in both settings.

Next, we examined differences between motivational climate perceptions over time. This also afforded an opportunity to investigate whether there were any differences between male and female dancers in this regard. A mixed between-within participants analysis of variance was conducted using a doubly multivariate repeated measures model. Levene’s test of equality of error variances was violated for one variable; therefore the more restrictive statistic of Pillai’s trace is reported. There was a marginally significant, fairly small effect interaction between sex and time, Pillai’s Trace = .07, $F(4, 134) = 2.41, p = .05, \eta^2 = .07$. Inspection of Time X sex plots, variable means, and within-participant contrast statistics indicated that although males perceived the CAT climate to be less ego-involving than the females did at Time 1, they were similar at Time 2, $F(1, 137) = 9.09, p < .01, \eta^2 = .06$. Plots also indicated that for both sexes combined, perceptions of an ego-involving motivational climate generally increased over time; this observation was reinforced by a large main effect for time, Pillai’s Trace = .29, $F(4, 134) = 13.45, p < .01, \eta^2 = .29$. Tests of within-participant contrasts highlighted that dancers perceived the CAT climate to be significantly more ego-involving at Time 2 than at Time 1, $F(1, 137) = 54.54, p < .01, \eta^2 = .29$. No other motivational climate perceptions changed significantly over time. There was no main effect for sex, indicating that male and female dancers reported largely similar motivational climate perceptions, with the exception of what has already been reported. To examine in more detail which ego-involving aspects of the CAT climate were perceived to increase, two paired $t$ tests were performed. It was found that both unequal recognition and punishment for mistakes were reported to be more salient at Time 2 than at Time 1, $t(205) = 5.44$ and $t(205) = 7.74$, respectively; both $p < .01$. Finally, descriptive data suggested that anxiety and self-esteem had remained largely constant across time; two paired $t$ tests confirmed that this was the case ($t(205) = 1.15$ and $t(207) = .66$, respectively; both $p > .05$).

To examine our second aim, whether dancers perceived the motivational climates of the two settings differently, a repeated measures general linear model was specified to compare scores for the two climates at Time 1 (see Table 1). The two climates (CAT, local) and perceptions of the two motivational climate dimensions

\textsuperscript{1} The modification indices recommended that three correlations be specified among error terms. Further details are available from the authors.

Table 1

\textit{Means, Standard Deviations and Sample Sizes For All Study Variables}

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<tr>
<td>Task-involving</td>
<td>327</td>
<td>4.31</td>
<td>0.49</td>
<td>260</td>
<td>4.26</td>
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<td>Ego-involving</td>
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<td>1.96</td>
<td>0.71</td>
<td>262</td>
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<tr>
<td>Task-involving</td>
<td>249</td>
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<td>0.63</td>
<td>214</td>
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<td>Ego-involving</td>
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<td>Anxiety</td>
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<td>22.94</td>
<td>5.57</td>
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<td>Self-esteem</td>
<td>326</td>
<td>30.33</td>
<td>4.16</td>
<td>264</td>
<td>30.50</td>
<td>4.51</td>
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\textit{Note.} Climate scores are measured on a 5-point scale and are reported as averages, while self-esteem and anxiety are measured on 4-point scales and are reported as totals (range = 15–60 for anxiety, 10–40 for self-esteem). The $Ns$ for local climate scores are lower than for other variables because some participants do not take classes outside the CATs. Data presented here are descriptive statistics for the entire samples at each time point; for analyses reported in the text, only participants who provided data at both times 1 and 2 were included.
(task, ego) both represented within-participant factors; no between-participants factors were used. The analysis revealed a substantial multivariate effect, Pillai’s Trace = .87, $F(3, 245) = 532.23, p < .01, \eta^2 = .87$. Pairwise comparisons indicated that all scores differed significantly from each other; of relevance to our research questions was that both climates were perceived to be more task- than ego-involving, and that CAT climates were perceived to be both more task- and less ego-involving than local climates (all $p < .01$).

**Relationships Between Variables**

To explore how the dancers’ motivational climate perceptions were related to each other as well as to age, hours in dance, anxiety, and self-esteem, bivariate correlations were computed; the results are displayed in Table 2. Task- and ego-climate perceptions in each setting correlated negatively and fairly strongly at each time point ($-.47$ to $-.56$; all $p < .01$). Correlations between CAT and local climates (keeping task-perceptions and ego-perceptions separate, e.g., CAT task vs. local task) were moderate at each time point (.25 to .33; all $p < .01$), suggesting that dancers distinguished between their dance environments in a meaningful way. Task-involving motivational climate perceptions were generally negatively correlated with anxiety and positively correlated with self-esteem, while ego-involving climate perceptions were generally positively correlated with anxiety and negatively correlated with self-esteem (see Table 2 for details). This was true for both CAT and local climates, which provided a rationale for including both climates as potential predictor variables in the regressions presented below. Self-esteem and anxiety were negatively and fairly strongly correlated at both time points (Time 1 $r = -.51$, Time 2 $r = -.53$; both $p < .01$). It is also notable that age was positively correlated with several ego climate perceptions and with anxiety at Time 1, but negatively correlated with self-esteem at both times. While hours in dance training were unrelated to most variables of interest, some positive correlations with motivational climate perceptions were noted. Age and hours in training were consequently included in the below regressions.

**Predicting Changes in Anxiety and Self-Esteem**

Two hierarchical regressions were performed to address our third aim of examining whether changes in motivational climate perceptions could predict changes in anxiety and self-esteem. First, outliers were detected by inspection of Mahalanobis distances, and three cases were removed. The first regression focused on whether changes in motivational climate perceptions were predictive of changes in anxiety. The first step was used to control for climate perceptions at Time 1 (both for CAT and local schools) as well as anxiety scores at Time 1, self-esteem at Time 2, age, sex, and hours in training. Hours within each setting were highly correlated across time, however ($r = .91$ for CAT and $r = .71$ for local schools), which could have caused multicollinearity problems. Therefore, only training hours at Time 2 were included. The second step included the dancers’ perceptions of the task- and ego-involving features of their CAT climate at Time 2. Finally, the third step included perceptions of the local climate at Time 2, in order to see whether adding the local climate perceptions added significantly to the prediction. The dependent variable was anxiety at Time 2. As noted by Reinboth and Duda (2006), this type of analysis helps illuminate how changes in motivational climate perceptions are linked to changes in an outcome variable: because scores at Time 1 are controlled for, the latter steps represent prediction of residual variance in the outcome variable, unexplained by its initial level.

Results are presented in Table 3 and, as shown, the overall model for anxiety was significant but only steps one and two represented significant F-changes. Together, these steps accounted for 55.8% of the variance in Time 2 anxiety. When controlling for the Step 1 variables, it emerged that changes in ego-involving

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2 This was considered more prudent than self-esteem at time 1, as self-esteem at time 2 is more strongly correlated with the dependent variable (anxiety at time 2) at the bivariate level.

3 This was considered most appropriate as it would reflect hours in training near the time of capturing the dependent variable (time 2).

4 Regressions were also specified with local climate perceptions in step 2 and CAT climate perceptions in step 3; the same significant findings emerged.
Table 2
Correlations Between Age, Hours of Dance Training, and All Questionnaire Variables

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<td>3. Hours Local 1</td>
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<td>4. Hours CAT 2</td>
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<td>5. Hours Local 2</td>
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<td>.18**</td>
<td>−.27**</td>
<td>−.44**</td>
<td>−.33**</td>
<td>.67**</td>
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</table>

Note. CAT = Centres for Advanced Training; Hours CAT = hours of weekly dance training in CAT; Hours local = hours of weekly dance training in local dance schools; task = task-climate perceptions and ego = ego climate perceptions; 1 = time 1 and 2 = time 2.

*p < .05. **p < .01.
Table 3
Results From Regression Analyses Predicting Changes in Anxiety and Self-Esteem

<table>
<thead>
<tr>
<th></th>
<th>Predicting Changes in Anxiety</th>
<th></th>
<th>Predicting Changes in Self-Esteem</th>
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<td></td>
<td>B</td>
<td>SEB</td>
<td>β</td>
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<td>Hours local 2</td>
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<td>-.07</td>
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<td>Self-Esteemb</td>
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<td>.07</td>
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<tr>
<td>Local ego 1</td>
<td>.88</td>
<td>.54</td>
<td>.13</td>
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<tr>
<td>Step 2</td>
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<td>.96</td>
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<td>Local ego 2</td>
<td>1.07</td>
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Note. B and SEB [Standard Error B] are unstandardized coefficients; β is the standardized coefficient. P-values for the three steps refer to whether these steps represented significant F-changes; p-values for each variable refer to whether these represented significant, independent predictors (β coefficients); CAT = Centre for Advanced Training; task = perceptions of task-involving motivational climate; ego = perceptions of ego-involving motivational climate; 1 = time 1 and 2 = time 2.

a In the regression predicting changes in anxiety, this is anxiety at time 1; in the regression predicting changes in self-esteem, it is anxiety at time 2, because it is the most highly correlated with the dependent variable.

b In the regression predicting changes in self-esteem, this is self-esteem at time 1; in the regression predicting changes in anxiety, it is self-esteem at time 2 because it is the most highly correlated with the dependent variable.
CAT climate perceptions positively predicted changes in dancers’ anxiety. Perceptions of the dancers’ local dance climates did not add to this prediction.

The second regression examined whether motivational climate perceptions were predictive of changes in the dancers’ self-esteem. The model specification followed the same pattern as that for anxiety (see Footnote 2), and is outlined in Table 3. As noted there, the overall model was significant, but neither steps two or three represented significant F-changes. Thus, changes in motivational climate perceptions were not predictive of changes in self-esteem.

Discussion

The aim of the present study was to conduct a longitudinal examination of potential changes in the perceptions of two motivational climates: one high-level dance training context, the UK Centres for Advanced Training (CAT), and participants’ local dance schools. Additionally, potential differences between motivational climates in CATs and in the local schools were examined. Finally, we explored whether any changes in motivational climate perceptions in either setting were predictive of changes in dance class anxiety and self-esteem.

While pursuing our main aim of examining motivational climate change, it was found that the CAT climate was perceived as staying highly task-involving across time, while becoming more ego-involving. Previous longitudinal research concerning perceived changes in motivational climates has been undertaken with vastly different populations including Greek PE students, UK university athletes, and French elite judoka, over different time frames and using varying instruments (Barkoukis et al., 2010; Le Bars et al., 2009; Reinboth & Duda, 2006). It is perhaps unsurprising, therefore, that their findings differ. Working with the population most similar to our own (young high-level athletes), Le Bars et al. (2009) hypothesized that elite training environments are “prone to degrade” (p. 283), becoming more ego-involving over time as competition increases. Similarly, one might hypothesize that a reason that the behavior of dance teachers might change across a season is because of approaching performances. For instance, they may focus more on dancers with leading roles, thus contributing to perceptions of unequal recognition; they might also become less tolerant of mistakes as performances are looming. In line with such speculation, it was found that CAT climates were perceived as becoming significantly more unequal in the recognition given to dancers and more punitive of mistakes—perhaps because the second data collection was near the time of the CATs’ end of year shows. It was also the time when many of the local schools had their performances. It is notable that although the significant increases in ego-involving climate features over time demonstrated here are similar to those found by Le Bars et al. (2009) over a longer time period, we did not observe the simultaneous decrease in perceived task-involving climate features reported by those authors. Further research is required to establish whether the continued promotion of task-involvement by dance teachers serves to buffer the potentially undesirable effects that simultaneous increases in ego-involving climate features may have (Le Bars et al., 2009). Indeed, even after increases in perceptions of ego-involving climate, the CAT climate was still only perceived to be moderately ego-involving and remained highly task-involving. Results may differ between studies for a variety of reasons including level of performance, age, and coach-related factors such as their philosophies, training, and well-being (Stebbings, Taylor, & Spray, 2011). Much research remains to be undertaken before any such differences can be better understood.

Our second aim was to compare the dancers’ perceptions of two motivational climates. The particularly high ratings for perceived task-involving and low ratings for ego-involving motivational climate features in CATs were notable. Dance education in CATs, being of high quality by their own description, thus appears to concur with the concept of quality environments as outlined by achievement goal theory (Ames, 1992; Harwood et al., 2008). Interestingly, CAT climates were perceived to be significantly more task-involving and significantly less ego-involving than the climates of the dancers’ local dance schools. This study therefore contributes to the literature by being the first to compare perceptions of two motivational climates and their relative influence on indices of well-being over time. Although not compared statistically, it is also intriguing that the task-climate perception scores for CATs appear
higher and the ego-climate perception scores lower than those reported in other studies with athletes (Boyce, Gano-Overway, & Campbell, 2009; Reinboth & Duda, 2006; Smith, Fry, Ethington, & Li, 2005; Vazou et al., 2006) and dancers (Carr & Wyon, 2003; de Bruin, Bakker & Oudejans, 2009; Quested & Duda, 2009, 2010). Thus, it seems that CATs work to develop talent through an emphasis on effort, individual learning and cooperation. It is conceivable that others try to develop talent in a more competitive way, which may account for the differences in the scores reported here and in other studies.

In relation to our third aim, it was found that changes in the perceived motivational climate were predictive of changes in anxiety. Specifically, dancers who perceived the CAT climate to become more ego-involving also reported feeling slightly more anxious in their dance classes over time. This finding extends previous research which has indicated that ego-involving motivational climate perceptions are positively related to trait anxiety (e.g., Carr & Wyon, 2003; Smith et al., 2007; Vazou et al., 2006). It is notable that the amount of variance in anxiety change predicted by change in perceived motivational climate is low. This is perhaps unsurprising given that the changes in climate perceptions are themselves not large: the CAT climate remained highly task-involving and low in ego-involving cues. The amount of variance explained is also similar to previous studies which report motivational climate perceptions to predict at or around 10% of the variance for a range of outcomes (e.g., Carr & Wyon, 2003; Reinboth & Duda, 2006). Finally, the finding should not be confused with small or weak relationships between climate perceptions and anxiety or self-esteem; only the climate change was a weak predictor, not the perceived climate at a given point in time.

Although perceived motivational climate changes were predictive of anxiety in the current study, the same was not true for self-esteem. Thus, it appears that the dancers’ relatively high and stable levels of self-esteem were robust enough to withstand the perceived change in the CAT climate. Indeed, both anxiety and self-esteem were stable over time for the sample as a whole, and it is possible that the consistently high and stable perceptions of task-involving features contributed to such stability.Smith et al. (2007) found that although anxiety generally increases in line with competitive pressures across a season, this can likely be counteracted through the creation of a highly task-involving climate. As conceptualized in the present study, self-esteem is also logically more stable than anxiety, but it is nevertheless feasible that self-esteem may be undermined in the long term if the ego-involving features continue to become more prominent. Our future research with this same sample will help to illuminate this issue. For the time being, however, our finding of high levels of dancer self-esteem stands as an encouraging contrast to some earlier reports in research involving dancers (Bakker, 1991; Buckroyd, 2000; Neumärker et al., 2000). Future research should examine the potential reasons for such discrepancies, perhaps by examining differences between dance styles and age groups.

Results indicated that male dancers perceived their CAT climate to be marginally less ego-involving at Time 1 than did females. However, the effect was small and no other differences between males and females in relation to motivational climate perceptions were found. This contradicts research in several different physical activity contexts and in several cultures (e.g., Barkoukis et al., 2010; Flores, Salguero, & Marquez, 2008; Le Bars et al., 2009; Moreno Murcia, Cervelló Gimeno, & González-Cutre Coll, 2008; Vazou et al., 2006). It is possible that dance teachers simply treat both sexes the same—that is, the extent to which motivational climates are task- and/or ego-involving is equally salient for males and females. The exception, with males in our study perceiving fewer ego-involving motivational climate features at one time point, may be due to their lower number compared to females causing lower levels of perceived competition. Further research is required to establish whether our findings extend beyond the present sample and to examine what may explain sex differences if and when they are found.

It would be intriguing to deliver and evaluate an intervention focused on helping dance teachers to foster a task-involving climate while downplaying ego-involving features. In sport and exercise, several such interventions have been developed, with positive results noted on a range of outcomes (e.g., Digelidis et al., 2003; Duda, Quested, & Appleton, 2010; Smith et al.,...
It may be that such an intervention could halt the perceived increase in ego-involving cues over time that was evident in the present study. That being said, CAT dancers already report high perceptions of task-involving features, high self-esteem, and low anxiety scores. By contrast, other studies (Carr & Wyon, 2003; de Bruin et al., 2009; Quested & Duda, 2009, 2010) indicate that not all dancers are fortunate enough to benefit from the high-quality motivational climates present in CATs. Such dancers may better benefit from an intervention where task-involvement is encouraged and ego-involvement downplayed.

Dance has lagged significantly behind sport regarding psychology research, and work investigating motivational climates is no exception. Based on the similarity of findings in dance and sport, however, we believe that the sentiment expressed by Smith et al. (2005), that it is time to focus more on how task-involving motivational climates may be created than on why, applies also in dance. For instance, Smith et al.’s (2005) study indicated that athletes who perceive their coaches to provide positive feedback and do not ignore mistakes were more likely to find the climate task-involving. These authors also recommended case studies of highly task-involving coaches; as part of our larger study, qualitative work has started to provide insights into how CAT dance faculty (regular teachers, visiting artists, and managerial) promote a task-involving motivational climate and, as a result, nurture positive outcomes such as creativity, enjoyment and commitment (Walker, Nordin, & Redding, 2010; Watson, Nordin-Bates, & Chappell, 2010).

In the present study, increased perceptions of an ego-involving motivational climate were shown to predict increases in dance class anxiety. A potential next step in this line of research would be to investigate further the mechanism(s) through which this change occurred. For example, do achievement goals mediate the perceived motivational climate change—well-being change relationship? Several previous studies have found that ego-involving climate features are related to students being more ego-oriented, and vice versa (e.g., Barkoukis et al., 2010; Carr & Wyon, 2003; de Bruin et al., 2009; Flores et al., 2008; Le Bars et al., 2009). By contrast, Barkoukis et al. (2010) found that although perceived motivational climate changes were predictive of well-being over time, PE students’ achievement goals were not. Moreover, Le Bars et al. (2009) found that judokas’ ego-orientations did not increase in line with increases in ego-climate features. Studies have also indicated that psychological needs satisfaction mediates the relationship between perceptions of the motivational climate and indices of well- and ill-being (e.g., Quested & Duda, 2009, 2010, 2011; Reinboth & Duda, 2006). Thus, the mediators between changes in dancers’ perceptions of the motivational climate and changes in indices in well- and ill-being warrant further attention. It is also likely that not all performers are affected equally: those most likely to change are probably those whose goal orientation differs to the dominant motivational climate (Boyce et al., 2009; Gano-Overway & Ewing, 2004). Future research could usefully examine motivational climate exposure to a greater extent, as well as consider whether dancers of different ages are affected differently by their motivational climates.

A second potential limitation of the present study concerned measurement of the perceived motivational climate. Dance psychology as a research area is small and does not, as yet, have measurement tools specifically developed for assessing variables such as the perceived social environment. Based on previous work in dance (Quested & Duda, 2010), therefore, we used a slightly shortened version of the PMCSQ—2 (Newton et al., 2000). Because this measure has not been subject to full psychometric evaluation, however, a confirmatory factor analysis (CFA) was used to examine its factor structure. Given that the fit indices obtained were satisfactory, we believe that our participants’ perceptions of their motivational climates were adequately captured. Nevertheless, the quality of the measurement could likely be enhanced if the items were developed specifically for the context of dance, rather than adapted from sport. It is also notable that dancers at all levels, including those in this study, typically have multiple teachers. This may affect the validity and reliability of the motivational climate perceptions they report.

In conclusion, the present study demonstrated that dancers in the UK Centres for Advanced Training perceive their training climates to be highly task-involving. Findings suggest that, within the constraints of the variables consid-
er, this high-level training environment might be more motivationally sound than the training that these young talented dancers receive elsewhere, and than other sport and dance environments reported in the literature to date. Ego-involving climate features were perceived to be less in evidence, but increased significantly during a 6-month period. This motivational climate change predicted increases in students’ anxiety levels, while self-esteem levels were unaffected. Some results resemble those from research with athletes while others appear to be more dance-specific, thereby indicating the value of further research in this still understudied domain.

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