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ARTICLE

Correlates of dispositional flow and emotional intelligence: an exploratory study with ballet dancers

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ABSTRACT

This work explored the dynamics of trait emotional intelligence (EI) and dispositional flow in a sample of ballet dancers since research on these topics is scarce in the artistic domain. This study analyses whether EI correlates and predicts flow experiences and whether dancers' experience influences their levels of EI and flow. One hundred and fifty-two Portuguese ballet dancers, mostly females (90.7%), aged 15–18 years-old (69.7%), and students (87.4%), answered the Trait Emotional Intelligence Questionnaire – Short Form (TEIQue SF), Dispositional Flow Scale (DFS2), a dance practice questionnaire and a sociodemographic questionnaire. The results confirmed the positive correlation between trait EI and flow ($r = .43$) and the predictive effect of dancers' trait EI on their flow experiences ($ß = .43$). Moreover, differences on dancer's trait EI and flow were found according to their experience. This study corroborates previous associations and reinforces research in the artistic domain as a privileged context of optimal human achievement.

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Positive psychology; emotional intelligence; dispositional flow; ballet; experience

Introduction

Dance acts as a manifestation of the individual's emotional world through artistic-expressive, gestural, and corporal movement. Whatever its main purpose (e.g. educational, economic, recreational or aesthetic), dance is seen as an element that favours the individuals affective and personal development, since acts as a tool for self-awareness, self-knowledge and self-reflection (San-Juan-Ferrer and Hípola 2020).

In fact, dancers face a great deal of psychological and physical tension in their professional training and development, which implies besides optimal psychical abilities and practice, enhanced motivation and positive emotional states, since those affect directly their performances (Rubaltelli, Maggnolia, and Leo 2018).

Based on the notion that positive emotions, experiences and regulation processes are relevant since they broaden individuals' thought-action repertoires and enhance optimal functioning in human realization while promote a satisfying and fulfilling life (Seligman and Csikszentmihalyi 2000), this study intends to shed light on how two so-called positive psychological variables as emotional intelligence and dispositional flow can have an effect on dancers.

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First defined in the 1990s by Salovey and Mayer (1990), emotional intelligence (EI) has progressed greatly both conceptually and empirically in the last few decades, and currently, one can argue that EI has achieved maturity as a theoretical construct.

As a multidimensional phenomenon, EI encompasses individuals' perceptions, appraisals and expressions of emotion, use of emotion to facilitate thought, and understanding and regulation of emotions in themselves and others (Mayer and Salovey 1997). According to the trait or mixed model, EI corresponds to the affective dimension of personality and it comprises relatively stable traits and dispositions, such as empathy, optimism, social awareness, self-control, self-esteem and self-motivation (Petrides and Mavroveli 2018; Petrides et al. 2016), which can only truly be assessed by self-report measures (Petrides, Pita, and Kokkinaki 2007). There is enough evidence to suggest that trait EI has an impact on virtually every aspect of day-to-day life: Recent systematic reviews by Petrides et al. (2016) and Sánchez-Álvarez, Extremera, and Fernandez-Berrocal (2016) concluded that trait EI correlates and often predicts positive outcomes that range from health-promoting behaviours, interpersonal relationship quality, stress management, positive parenting practices, job satisfaction and leadership skills to positive dispositions such as psychological well-being, optimism, happiness and life satisfaction (Petrides et al. 2016; Sánchez-Álvarez, Extremera, and Fernandez-Berrocal 2016).

In addition, trait EI acts as a relevant factor of self-perceptions of mental health (r= .36), well-being (r= .51) and happiness (r= .80) in adulthood (Martins, Ramalho, and Morin 2010; Moutinho et al. 2019; Sánchez-Álvarez, Extremera, and Fernandez-Berrocal 2016). Subsequently, trait EI is a negative correlate of depression (r= −.46), perceived burden (r= −.42) and anxiety (r= −.44) in vulnerable adults, i.e. persons daily exposed to high amounts of pressure (Martins, Ramalho, and Morin 2010; Weaving et al. 2014).

Research on trait EI in the field of competitive sports shows associations not only with performance achievements and competitive accomplishments but also with stress management, emotional management and positive attitudes (Laborde, Dosseville, and Allen 2016; Wenn et al. 2018). Moreover, trait EI correlates positively with athletes' motivation ($ß$= −.18 amotivated regulation to $ß$ = .45 integrated regulation; Sukys et al. 2019). Among artists and students, this variable also presents strong associations with creativity (r= .29; Sánchez-Ruiz et al. 2011; r=. 47; Tu et al. 2018). In a study with students from different college areas, the results identified that arts students scored significantly higher in emotionality when compared with technical studies, as well as scored higher than all other groups in wellbeing and global trait EI (Sánchez-Ruiz, Pérez-González, and Petrides 2010).

Among the experiences that facilitate human optimal functioning is a psychological phenomenon that Csikszentmihalyi (1975) described as flow: this mental state is characterized by an intensely satisfying absorption in a pleasing task accompanied by a dissociative disconnection from the surrounding reality (Csikszentmihalyi 1975; Marin and Bhattacharya 2013). Flow leads to a sense of fulfilling, euphoric enjoyment derived from a feeling often described as if everything – body, mind and task – had just merged perfectly together, generating an optimal experience (Csikszentmihalyi 1990; Hefferon and Ollis 2006; Swann et al. 2012). Csikszentmihalyi (1975, 1990) listed nine features of the flow state: *skill-challenge balance*, *merging of action and awareness*, *unambiguous feedback, complete focus*, *clear goals*, *loss of self-consciousness*, *paradox of control*, *transformation of time*, and *autotelic experience*.

Flow is commonly associated with peak performances and performance optimization (Norsworthy, Gorczynski, and Jackson 2017), and for that reason, this mental phenomenon has been extensively investigated in the domains of music and sport. The proneness to experience flow seems to derive both from individual personality factors as well as from task characteristics: on a personal level, factors extroversion, conscientiousness, intrinsic motivation, adaptive perfectionism, self-esteem, self-concept and self-perceived ability seem to facilitate flow the most (Chirico et al. 2015; Jackson et al. 1998; Ljubin-Golub, Rijavec, and Jurčec 2018; Ullén et al. 2012), as do perceptions of life satisfaction (r= .21, Asakawa 2010) and well-being (r= .64, Moutinho et al. 2019). Additionally, task characteristics, such as the amount of daily practice, years of experience and specific features of the activity play an essential role in the occurrence of flow (Baker and MacDonald 2013; Hefferon and Ollis 2006; Marin and Bhattacharya 2013).

Ballet Practice: Studies on EI and Flow

Although research regarding trait EI associations with flow is scarce, there is evidence that both constructs are positively associated at a moderate magnitude and that trait EI is a predictor of flow (Chirico et al. 2015; Srinivasan and Gingras 2014). Marin and Bhattacharya's (2013) work concluded that pianists' experiences of flow were significantly predicted by trait EI and by amount of daily practice (adjusted R^2 = .27) but not by sex, age, years of experience or age of first lesson. Moreover, this study allowed for further insights into the cognitive processes involved in the experience of flow, namely, attentional focus, and on the role of trait EI's dimension self-control (Srinivasan and Gingras 2014). Recently, Moutinho et al. (2019) concluded that EI and flow were significantly correlated (r = .56) and that some dimensions of flow were significant predictors of Portuguese students' academic achievements (objective and subjective achievement) and subjective well-being (Moutinho et al. 2019). The literature has highlighted that EI influence achievement and performance mainly by increasing the level of motivation and engagement in the task (Erez and Judge 2001; Rich, LePine, and Crawford 2010).

To master the highly demanding technical and artistic specificities of this dance modality, ballet dancers, as an idiosyncratic group of performing artists, are constantly under permanent pressure derived from a persistent demand for technical flawlessness, emotional and physical tenacity, and a demandingly firm – yet fluctuating – aesthetic ideal (Chirban and Rowan 2017; Petrides, Niven, and Mouskounti 2006). It has been argued that this process triggers and endorse the development of particular personality mechanisms, such as perfectionism and self-control (Cumming and Duda 2012).

In this sense, there is a paucity of investigation regarding positive psychological variables among ballet dancers, as the investigation among this group of artists has been mainly focused on negative, often pathological aspects (Chirban and Rowan 2017). However, some efforts have been made. For instance, Petrides, Niven, and Mouskounti (2006) found a positive correlation between high trait EI and traits ambitiousness, sensitivity, emotional expressivity and self-motivation, as well as a strong association between those factors and performance quality in ballet dancers. More recently, Cumming and Duda (2012) concluded that positive affect, such as adaptive perfectionism and self-satisfaction, has an impact on ballet dancers' psychological health and psychological well-being.

In a recent systematic review, it was found that individuals who practice dance in some way displayed higher levels of emotional development when compared to

individuals who do not practice this type of artistic-expressive physical activity. These results emphasize that dance, as a complex multidimensional activity, can promote the development of EI: dance is a strong component for the development of non-verbal language, due to the corporal and gestural expression and transmission of different emotions and feelings, which is essential to the understanding of emotions, including the identification of the emotions of others (San-Juan-Ferrer and Hípola 2020).

Moreover, dance can promote the emotional behaviour and experiences that base different positive traits such as self-knowledge, self-control, adaptability and satisfaction in life, concentration, self-confidence, self-esteem, subjective well-being, self-efficacy, emotional maturity, optimism, motivation (San-Juan-Ferrer and Hípola 2020; Schwender et al. 2018).

Meanwhile, studies (Flower 2016; Hefferon and Ollis 2006) found that ballet dancers are highly prone to experience certain dimensions of the state of flow, such as the balance between skill and challenge and that mimicry is one of the strongest facilitators of flow in this artform. Moreover, Radell et al. (2017) found that experience for a dancer is highly associated with the flow dimension loss of self-awareness, as beginner ballet dancers present as more self-conscious, more self-aware and more engaged in self-depreciative comparisons with other dancers, in contrast with advanced dancers who relate more to intrinsic characteristics of the task, such as music and movement (Radell et al. 2017). Nonetheless, entering into a state of flow does not inevitably produce peak performance. This fact poses particular challenges to performing arts flow assessment since it operates in highly subjective and personal dimensions (Norsworthy, Gorczynski, and Jackson 2017).

In conclusion, trait EI has a positive impact on the most desirable and adaptive personality traits, dispositions and behaviours and appears to predict the experience of flow, a mental state of euphoric enjoyment derived from absolute focus on a specific task.

These results suggest that a more precise understanding of how these variables work among specific populations will allow professionals to increase the conditions under which these phenomena are more prone to occur, thus generating not only performance improvements but also more satisfying, positive experiences. On the other hand, dance training is a complex artistic, technical and emotional-based process of development which can stimulate the promotion of emotional skills as well as to elicit pleasing experiences of total absorption in the task. Thus, this study represents an attempt to address the lack of studies focusing on the relationship of EI and flow in the artistic domain, particularly in the ballet subculture where, to the best of our knowledge, the correlates of these variables to ballet practice have never been explored. Moreover, it is intended to explore whether experience on dance activity will affect ballet dancers' perceptions of emotional intelligence and dispositional flow.

Therefore, different hypotheses and research questions were established:

H1: Trait emotional intelligence is positively correlated with experiences of flow in ballet dancers.

H2: Trait emotional intelligence predicts the experience of flow in ballet dancers.

RQ1: Are ballet dancers with higher trait EI more prone to experience dispositional flow?

RQ2: Do ballet dancers' levels of trait EI and flow differ considering their experience (years of activity or amount of weekly practice)?

Method

Participants

In this study, the participants' inclusion criteria were: practice ballet for at least 1 year and to be at least 15 years old or have reached 15 years of age at the time the study was conducted. Thus, 152 Portuguese participants were included in this study, of whom the majority were females (90.7%) and belonged to the 15- to 18-year-old age group (69.7%). A total of 87.4% of the sample identified themselves as ballet students, either in recreational (44.6%) or specialized ballet schools (41.2%). Only 12.6% of the participants identified themselves as professional ballet dancers. In general, 30% of the participants initiated ballet classes at age 3, and 60.7% had invested in this activity for more than 10 years. In terms of weekly practice, 37.2% of the participants practiced from 7 to 10 hours per week, whereas 32.4% practiced for more than 10 hours.

Instruments

The Trait Emotional Intelligence Questionnaire – Short Form (TEIQue SF) was developed by Petrides and Furnham (2006) and adapted and validated for the Portuguese context by Carvalho, Neto, and Mavroveli (2010). This 30-item self-report scale covers 4 dimensions: emotionality (e.g. 'Expressing my emotions with words is not a problem for me'); sociability (e.g. 'I'm normally able to "get into someone's shoes" and experience their emotions.'); self-control (e.g. 'I can deal effectively with people'); and well-being (e.g. 'On the whole, I'm pleased with my life.'). It has a 7-point Likert answering scale ranging from 1= Completely Disagree to 7= Completely Agree.

In previous studies, the TEIQue SF presented excellent psychometric properties, including strong incremental validity, and its subscales and factors showed high internal consistency (Andrei et al. 2016; Petrides, Pita, and Kokkinaki 2007). In this study, the measure presented good correlations between the dimensions, varying from .17 (sociability x self-control) to .40 (well-being x self-control). The exploratory factorial analysis (EFA) demonstrated that the 4 proposed factors presented 41% of the explained total variance. In general, the communalities values were above .30 and the factor loading was above .42. This scale also showed good internal consistency (Cronbach's *alpha* = .81)

The Dispositional Flow Scale adapted for Physical Activity (DFS2) was originally developed by Jackson and Eklund (2002) and translated and adapted by Gouveia et al. (2012) to the Portuguese population. In this study, the 36-item version of the DFS2 was used, with a 5-point Likert-type answering scale (1= never; 5 = always). This measure reflects the 9 dimensions of flow proposed by Csikszentmihalyi (1990): Skill-challenge balance (e.g. 'I was challenged, but I believed my skills would allow me to meet the

challenge'); clear goals (e.g. 'I knew clearly what I wanted to do.'); time transformation (e.g. 'The way time passed seemed to be different from normal.'); unambiguous feedback (e.g. 'It is truly clear to me how my performance is going.'); concentration on task (e.g. 'My attention was focused entirely on what I was doing.'); sense of control (e.g. 'I have a sense of control over what I am doing.'); loss of self-consciousness (e.g. 'I was not concerned with what others may have been thinking of me.'); action-awareness merging (e.g. 'I made the correct movements without thinking about trying to do so.'); and autotelic experience (e.g. 'I loved the feeling of that performance and want to capture it again.'). In previous research in the Portuguese context, the DFS2 presented adequate psychometric qualities (Gouveia et al. 2012; Moutinho et al. 2019). In the present study, the dimensions showed adequate correlations, varying from .16 (loss of self-awareness x clear goals) to .54 (time transformation x autotelic experience). The EFA confirmed the 9 theoretical dimensions, which together explained 72% of the total variance. The communalities values ranged from .60 to .87 maximum, and the factor loadings were above .56 with a maximum of .91. Moreover, the measure demonstrated excellent internal consistency (α =.91).

The Dance Practice Questionnaire is a 3-item scale designed to evaluate ballet practice, specifically developed for this study. This scale assesses individuals' years of practice, time spent dancing weekly, and type of dancer (student or professional).

Finally, the Sociodemographic Questionnaire is a 4-item questionnaire to record gender, age category, academic qualifications and type of course regime attended (articulated or free).

Procedure

The Ethical Committee of the Faculty approved the execution of this study since it guaranteed that its objectives, method and data treatment followed the General Data Protection Regulation (GDPR).

First, ballet schools and conservatories were contacted via e-mail to explore the possibility of collaborating in this study. After availability was confirmed, a formal invitation letter where the study was presented and all the ethical principles were assured was directed at the schools. Confidentiality and anonymity of the data collected were guaranteed to the participants. Moreover, the participants were informed about their right to leave the study when desired, without incurring any consequences. The participants had to have authorization by signed informed consent (one version for underage participants and another for participants over 18 years old) to be included in this study. The questionnaires were administered collectively after ballet classes in their respective dance schools by the researcher. The completion of the questionnaires took an average of 20 minutes.

In terms of data analysis, preliminary analyses were conducted to obtain descriptive statistics to confirm the assumption of the variables' normal distribution. Cronbach's *alpha* and EFA were conducted to determine each instrument's internal consistency and psychometric properties. The Pearson product-moment correlation coefficient was calculated to explore correlations between the main variables assessed. To investigate the predictive effect of EI on flow, linear regression analyses were conducted. To explore potential differences on dancers' EI and flow according to their dance experience (years of ballet practice and hours of weekly ballet practice), several Factorial ANOVA were conducted to

test main and interaction effects and all the statistical assumptions for the procedure were met (variables normal distribution and variances' homogeneity tested by the non-significance of Levene Test). The Bonferroni *post hoc* test was performed when testing differences between three or more groups and partial eta squared was calculated to assess analyses' effect size. The cuff-off-points to interpret the partial eta squared (η_p^2) were the following: .01 small; .06 medium; .14 large. All the statistical procedures considered .05 as a priori *alpha* significance level. The different statistical analyses were performed using SPSS, version 26.

Results

To test for the proposed procedures' statistical assumptions, normal distribution analyses were previously conducted and it was confirmed that all the variables were within the acceptable limits of univariate normality (skewness and kurtosis values < |1|, respectively).

Correlational analysis

The correlational analysis between the variables in the study is presented in Table 1. The total scores of the TEIQue SF and the DFS2 showed a positive correlation (r =.43, p < .001), and every dimension of the TEIQue SF correlated to the total score of the DFS2 and to every dimension of the flow measure, except time transformation. The strongest correlation between the dimensions of the two instruments was found between well-being and challenge-skill balance (r =.36, p < .001). According to these findings, H1, which stated that trait emotional intelligence and dispositional flow were significantly correlated among ballet dancers, was confirmed.

To extend on the relationship established between EI and flow experiences, this study analysed whether TEIQue SF predicts the experience of DFS2 in ballet dancers. The first model of linear regression demonstrated that trait EI total score ($ß$ = .429; t (150) = 5.822, p < .001) predicted the flow experience of the ballet dancers (R^2 = 17.9%). Subsequently, a second model of multiple linear regression allowed us to identify emotionality ($ß$ = .187; t (147) = 2.250, p= .026) and well-being ($ß$= .241; t (147) = 2.711, p =.008) as significant predictors of ballet dancers' experiences of flow (R^2 = 16.3%), confirming the predictive power of EI over dispositional flow in the artistic context.

Differential Analysis

Additionally, we examined whether ballet dancers with higher levels of EI differed from their peers with lower emotional competencies in their flow experiences. In general, dancers with higher emotional competencies' perceptions also had better perceptions of flow (M = 121.95, SD = 15.37 vs. M = 133.31, SD = 13.74, F(1,151) = 22.85, p < .001, η_p^2= .133; cf. Table 2). Specifically, dancers with better EI levels presented increased perceptions of action awareness, autotelic experience, challenge-skill balance, clear goals, loss of self-conscientiousness and unambiguous feedback (cf. Table 2).

Moreover, this study also intended to explore whether experience as a dancer, both on years of ballet practice as on hours of weekly ballet practice, have differential main and interaction effects on levels of EI and flow. On the one hand, although main effects were

Table 1. Correlations between trait EI and flow total score and dimensions.

	Descriptive Analysis	Correlations													
	M (SD)	1	2	3	4	5	6	7	8	9	10	11	12	13	14
(1) TEIQ total	145.05 (18.98)	1													
(2) TEIQ emotionality	5.02 (.82)	.73**	1												
(3) TEIQ self-control	4.28 (1.03)	.69**	.30**	1											
(4) TEIQ well-being	5.35 (.98)	.78**	.39**	.41**	1										
(5) TEIQ sociability	4.45 (.66)	.55**	.30**	.17*	.37**	1									
(6) Flow total	127.46 (15.58)	.43**	.32**	.27**	.37**	.20*	1								
(7) Flow action awareness	12.69 (2.62)	.26**	.20*	.02	.34**	.26**	.60**	1							
(8) Flow autotelic experience	17.32 (2.92)	.32**	.17*	.17*	.35**	.10	.68**	.25**	1						
(9) Flow challenge skill balance	13.56 (2.40)	.37**	.14	.26**	.36**	.22**	.69**	.49**	.52**	1					
(10) Flow clear goals	14.92 (3.35)	.34**	.32**	.32**	.19*	.08	.62**	.27**	.18*	.38**	1				
(11) Flow concentration on task	13.92 (2.72)	.19*	.16	.16*	.14	−.06	.64**	.20*	.49**	.32**	.38**	1			
(12) Flow loss of self-consciousness	11.11 (3.57)	.24**	.27**	.09	.18*	.13	.45**	.22**	.17*	.17*	.16*	.14	1		
(13) Flow sense of control	13.81 (2.38)	.29**	.21*	.29**	.17*	.16*	.62**	.34**	.24**	.40**	.49**	.39**	.10	1	
(14) Flow time transformation	15.27 (3.21)	.10	.10	−.03	.11	.08	.57**	.28**	.55**	.21*	.03	.36**	.26**	.18*	1
(15) Flow unambiguous feedback	14.86 (2.59)	.26**	.16	.22**	.23**	.17*	.63**	.31**	.35**	.48**	.48**	.29**	.02	.44**	.20*

* $p < .05$; ** $p < .001$.

Table 2. ANOVA according to dancers' level of emotional intelligence.

				Anova			
	Level of EI	N	M (SD)	*F*	*df*	*p*	η_p^2
Flow total	1	73	121.95(15.37)	22.85	1	.001	.133
	2	78	133.31(13.74)				
Flow action awareness	1	73	12.14(2.59)	7.60	1	.007	.049
	2	78	13.29(2.54)				
Flow autotelic experience	1	73	16.44(3.22)	15.41	1	.001	.094
	2	78	18.23(2.25)				
Flow challenge skill balance	1	73	12.94(2.35)	10.64	1	.001	.067
	2	78	14.17(2.29)				
Flow clear goals	1	73	14.03(3.72)	12.43	1	.001	.077
	2	78	15.89(2.63)				
Flow concentration on task	1	73	13.59(2.75)	2.29	1	.133	.015
	2	78	14.26(2.67)				
Flow loss of self-consciousness	1	73	10.16(3.62)	12.62	1	.001	.078
	2	78	12.15(3.24)				
Flow sense of control	1	73	13.47(2.20)	2.87	1	.092	.019
	2	78	14.12(2.50)				
Flow time transformation	1	73	14.88(3.49)	2.62	1	.108	.017
	2	78	15.73(2.84)				
Flow unambiguous feedback	1	73	14.28(2.72)	8.27	1	.005	.053
	2	78	15.47(2.34)				

1) Group of ballet dancers with lower levels of trait EI, $N = 73$; 2) Group of ballet dancers with higher levels of trait EI, $N = 78$.

not confirmed, the interaction effects' results indicated that participants that practiced ballet for less than 10 years and trained ballet between 4 to 6 hours per week exhibited higher levels of emotionality, when compared to their peers that practiced more than 10 hours a week ($M = 5.55$, SD=.31 vs. $M = 4.83$, SD=.21, $F(1,148) = 3.36$, p=.038; η_p^2 =.053; cf. Table 3). Additionally, participants who had more than 10 years of ballet experience and practiced for more than 10 hours had better levels of sociability than their counterparts (i.e. dancers that practiced from 7 to 10 hours $M = 4.72$, SD=.11 vs. $M = 4.27$, SD=.12, $F(1,148) = 3.34$, p=.039; η_p^2 =.053; cf. Table 3).

On the other hand, participants who spent 4 to 6 hours ($M = 18.08$, SD=.67) and more than 10 hours ($M = 17.55$, SD=.47) per week in ballet classes, rehearsals or performances showed higher levels of autotelic experience than those who practised for 7 to 10 hours per week ($M = 16.23$, SD=.41, $F(2,123) = 3.78$, p=.026; η_p^2=.059; cf. Table 4). Moreover, dancers that practiced ballet for more than 10 years had higher levels of unambiguous feedback when compared with less experienced dancers ($M = 15.54$, SD=.30 vs. $M =$ 14.07, SD.43, $F(1,123)7.88$, p=.006; η_p^2=.062; cf. Table 4).

Discussion

The present research analysed ballet dancers' trait emotional intelligence and flow dynamics. This may constitute relevant work in the field since the artistic domain lacks studies exploring the effects of positive variables on the psychological and behavioural functioning of artists. In particular, to the best of our knowledge, no other study has explored the relationship between EI and flow in the subculture of ballet.

First, in this research, it was established that trait EI and dispositional flow were positively correlated among ballet dancers. The hypothesis was confirmed with a moderate correlation between the TEIQue SF and the DFS2 (r =.43), findings that

Table 3. Factorial ANOVA according to dancers' experience of ballet practice using TEIQ total score and dimensions as criterion.

Predictor		Sum of Squares	*df*	Mean Square	*F*	*p*	η_p^2
TEIQ total	(Intercept)	2029587.06	1	2029587.06	5581.45		.979
	a	308.66	2	154.33	.42	.655	.007
	b	34.70	1	34.70	.06	.758	.001
	axb	1656.08	2	828.04	2.28	.107	.037
	Error	43635.68	120	363.04			
TEIQ emotionality	(Intercept)	2466.49	1	2466.49	3688.74		.968
	a	.57	2	.28	.43	.655	.007
	b	.66	1	.66	.99	.322	.008
	axb	4.49	2	2.244	3.36	.038	.053
	Error	80.24	120	.67			
TEIQ self-control	(Intercept)	1720.42	1	1720.42	1543.55		.928
	a	.85	2	.42	.38	.684	.006
	b	1.04	1	1.04	.93	.337	.008
	axb	2.22	2	1.11	.96	.373	.016
	Error	133.75	120	1.12			
TEIQ well-being	(Intercept)	2770.51	1	2770.51	2705.27		.958
	a	2.17	2	1.09	1.06	.349	.017
	b	.23	1	.23	.22	.639	.002
	axb	.954	2	.48	.47	.629	.008
	Error	122.89	120	1.02			
TEIQ sociability	(Intercept)	1923.96	1	1923.96	4739.04		.975
	a	.70	2	.35	.86	.428	.014
	b	.01	1	.01	.03	.875	.000
	axb	2.71	2	1.36	3.34	.039	.053
	Error	48.72	120	.41			

a – dancers' hours of weekly ballet practice; b – dancers' years of ballet practice; axb – dancers' hours of weekly ballet practice x dancers' years of ballet practice.

were expected based on the strong evidence in the available literature (Chirico et al. 2015; Marin and Bhattacharya 2013; Moutinho et al. 2019; Srinivasan and Gingras 2014).

Moreover, this study intended to go further in the analysis of these two variables and explore whether dancers' levels of EI could have an effect on their flow experiences while dancing. In general, H2 was confirmed and supported (Marin and Bhattacharya 2013; Moutinho et al. 2019): dancers who had better levels of EI were indeed able to experience more flow during their practice, specifically dancers who exhibited higher emotionality and well-being. These findings seem to be fairly expected since dancers who have better levels of trait emotionality and well-being may connect more easily to the experiences that entail such positive perceptions of enjoyment and absorption.

Additionally, it was also found that ballet dancers with higher levels of EI had better perceptions of flow during dance practice in 6 out of 9 dimensions of flow (large effect size for flow total score and small to medium effects for flow dimensions). According to the previous results mentioned in this study, EI tends to elicit dancer flow experiences and potentiate several aspects of the flow dispositional state due mostly to the emotional clarity provided to the individual, whether in terms of activity awareness, balance or goals. It is been also established that increased EI affects performance through motivation and engagement with the activity, which can be the case of dance, at professional or recreational artistic level (Erez and Judge 2001; Rich, LePine, and Crawford 2010).

Another aspect relevant to the artistic context was to analyse whether experienced dancers would present higher levels of trait EI and dispositional flow. This research question was supported by the evidence that regular practice and experience in an activity

Table 4. Factorial ANOVA according to dancers' experience of ballet practice using Flow total score and dimensions as criterion.

Predictor		Sum of Squares	*df*	Mean Square	*F*	*p*	η_p^2
Flow total	(Intercept)	1573727.90	1	1573727.90	6529.70		.982
	a	630.40	2	315.20	1.31	.274	.021
	b	517.44	1	517.44	2.15	.145	.018
	axb	163.81	2	81.91	.34	.713	.006
	Error	28921.30	120	241.01			
Flow action awareness	(Intercept)	15754.50	1	15754.50	2151.67		.947
	a	6.31	2	3.16	.43	.651	.007
	b	.01	1	.01	.01	.978	.000
	axb	1.153	2	.58	.08	.924	.001
	Error	878.64	120	7.32			
Flow autotelic experience	(Intercept)	29030.12	1	29030.12	3218.08		.964
	a	68.20	2	34.10	3.78	.026	.059
	b	7.27	1	7.27	.81	.371	.007
	axb	6.49	2	3.24	.36	.699	.006
	Error	1082.52	120	9.02			
Flow challenge skill balance	(Intercept)	18038.19	1	18038.19	2903.05		.960
	a	16.13	2	8.06	1.30	.277	.021
	b	.91	1	.91	.15	.703	.001
	axb	4.50	2	2.25	.36	.697	.006
	Error	745.62	120	6.21			
Flow clear goals	(Intercept)	21868.16	1	21868.16	1864.77		.940
	a	3.22	2	1.61	.137	.872	.002
	b	20.76	1	20.75	1.77	.186	.015
	axb	2.96	2	1.48	.13	.881	.002
	Error	1407.24	120	11.73			
Flow concentration on task	(Intercept)	18634.82	1	18634.82	2375.01		.952
	a	10.23	2	5.12	.65	.523	.011
	b	14.19	1	14.19	1.81	.181	.015
	axb	7.76	2	3.88	.50	.611	.008
	Error	941.54	120	7.85			
Flow loss of self-consciousness	(Intercept)	11697.50	1	11697.50	929.51		.886
	a	7.42	2	3.71	.30	.745	.005
	b	10.33	1	10.33	.82	.367	.007
	axb	41.37	2	20.69	1.64	.198	.027
	Error	1510.15	120	12.56			
Flow sense of control	(Intercept)	18535.84	1	18535.84	3249.46		.964
	a	4.99	2	2.50	.44	.647	.007
	b	6.68	1	6.68	1.17	.281	.010
	axb	6.20	2	3.10	.54	.582	.009
	Error	684.51	120	5.70			
Flow time transformation	(Intercept)	22399.99	1	22399.99	2178.91		.948
	a	43.04	2	21.52	2.09	.128	.034
	b	17.76	1	17.76	1.73	.191	.014
	axb	2.23	2	1.11	.11	.898	.002
	Error	1233.64	120				
Flow unambiguous feedback	(Intercept)	21293.14	1	21293.14	3176.66		.964
	a	5.28	2	2.64	.39	.675	.007
	b	52.81	1	52.81	7.88	.006	.062
	axb	14.36	2	7.18	1.07	.346	.018
	Error	804.36	120	6.70			

Note: a – dancers' hours of weekly ballet practice; b – dancers' years of ballet practice; axb – dancers' hours of weekly ballet practice x dancers' years of ballet practice.

are correlated to flow proneness (Marin and Bhattacharya 2013; Radell et al. 2017) and that trait EI is a predictor of flow (Marin and Bhattacharya 2013; Moutinho et al. 2019).

In general, regarding the levels of EI, this study found that participants who practiced ballet for less than 10 years and trained less hours a week (4 to 6 hours) had higher levels of emotionality than their peers with more hours of practice. Although this could be an

unexpected finding, it could suggest that the more experienced dancers attend to particular challenging demands that this level of routine and number of hours of practice entails, such as more pressure, stress or tiredness. These factors might not affect the dancers' levels of control and abilities over the specific practice but their perceptions of enjoyment, motivation and, ultimately, the levels of emotionality that the dance experience implies. In contrast, the less experienced dancers are perhaps less aware or less burdened with the psychological and physical investment on the activity and therefore, at this point, are more likely to adopt an enthusiastic and emotional perspective of their dance experience.

On the other side, dancers with more than 10 years of ballet experience and that practiced for more than 10 hours had better levels of sociability than their peers with less practice per week and this difference achieved virtually a moderate magnitude. In this case, dancers that invest a great amount of time and effort on practice and training are likely to share a significant part of this experience with their peers, be it in rehearsals, routines or performances. This greater exposition to social contact and interpersonal support might lead to dancers' increased sense of sociability.

Considering the experience of flow, the differential results supported in general moderate magnitudes. This study found that participants who practice for more than 10 years revealed higher levels of unambiguous feedback. This result supports the idea made explicit in the RQ2 that experience in the task leads to better self-perceptions of flow (Marin and Bhattacharya 2013; Radell et al. 2017). Additionally, since unambiguous feedback is a dimension dependent on knowledge as on practice, it is expected that the ballet dancers that practice for less than 10 years might lack the appropriate level of experience or practice to enter the zone and experience flow.

Moreover, in this study, dancers who engage in ballet-related activities for less than 6 hours or more than 10 hours per week displayed more autotelic experiences than those who practice for 7 to 10 hours. These findings suggest that those who dance for more than 10 hours tend to achieve a higher degree of enjoyment and control over the task that endorse the proneness to experience flow as expected, in particular, the autotelic experience. However, these findings also evidence the fact that less experienced or recreational dancers might also attain specific flow states based perhaps on their adequate balance between eagerness or excitement with the practice and the demands of the level of routine.

Thus, the results tend to partially confirm RQ2, favouring experienced dancers (i.e. years of practice or hours of practice per week) with better levels of EI sociability and unambiguous feedback or autotelic experience, yet some results related with less experienced dancers or recent practitioners should be further detailed.

The present study had limitations that further research should continue to address. Due to the asymmetry of the sample, the researchers were unable to analyse gender groups' specificities and the role of students and professional dancers in the ballet subculture. Additionally, differential analysis between distinct teaching modalities would be of interest, especially given the results of this research. Thus, important moderators as dancers' professional or student status, public performances experience, teaching experience, social support or dancers' age, gender, academic qualifications or even dance performance assessment should be included in further research to extend empirical evidence. Moreover, the cross-sectional nature of the study limited the analysis of causal relationships between the variables and extended the predictive validity of variables on other psychological factors or even in career achievements. Additionally, the inclusion of objective

measurement of performance and achievements in the artistic context would be appealing so that the influence of psychological variables such as trait EI or flow could be reported.

This was the first study in which trait emotional intelligence and dispositional flow were examined in a specific sample of ballet dancers. It represents a significant step towards the growing need for further research on ballet subculture, specifically on the affective and dispositional factors involved in the experience of dancing and how psychology and psychologists may help improve well-being and satisfaction among this group of performing artists. However, in order to generalize these results, further larger-scale studies that include a broader variety of dancers and different moderators should confirm and extend the external validity of these findings.

The aim of this study, although exploratory, was to investigate the relevance of EI and its relationship to flow in ballet dancers. The results of this study put into evidence the importance of providing positive emotional conditions for ballet dancers, as it may act as a protective factor against the emotional and physical challenges faced by these athletes, in particular the more experienced ones, both in intensive training and in competition.

Furthermore, the findings support the need to consider the importance of EI dimensions (e.g. emotionality and well-being) for dancers' optimal technical and artistic performance. Recent literature in dance education has consistently suggested the importance of incorporating EI to promote both effective teaching and students' performance and practices (Wenn et al. 2018).

Therefore, the evidence presented supports the need for dance education researchers and teachers to focus on developing efforts to integrate EI training into dance education programmes, curricula and/or mentoring. Moreover, adequate and positive teaching styles, empathic communication in schools and artistic settings are of major importance for the development of emotional and artistic expression. In addition, arts and dance organisations could provide interventions at an individual and collective level to improve dancers' subjective well-being and satisfaction through the development of positive emotional conditions, which are likely to support a range of protective psychological factors and enhance dancers' performance and practice.

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