



## The Guangdong–SDT Paradox: Learning Climate and the Cultural Internalization of Motivation in Elite Dance Education

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**ABSTRACT:** This study investigates the interplay between motivational orientations, learning climate, and student engagement within elite undergraduate dance programs in Guangdong, China. While Self-Determination Theory (SDT) typically frames controlled motivation as maladaptive, this research posits a “Guangdong–SDT Paradox,” where culturally embedded obligations support persistence. Using a cross-sectional design, data were collected from 509 dance students across six institutions and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results identify learning climate as the dominant predictor of multidimensional engagement, explaining over 70% of the variance. Consistent with SDT, autonomous motivation strongly predicted engagement and partially mediated the influence of the learning climate. However, contrary to Western-centric models, controlled motivation exhibited a significant positive effect on engagement, suggesting that collectivist values such as filial piety and institutional “face” function as adaptive mechanisms in high-performance contexts. These findings support a theory of “contextualized universality,” where basic psychological needs are universal but their expression is culturally modulated. The study concludes that instructor-led autonomy support is essential for internalizing both intrinsic and culturally sanctioned motivations, offering a framework for sustaining engagement in elite arts education.

**KEYWORDS:** Self-Determination Theory; student engagement; learning climate; dance education; Guangdong–SDT Paradox; cultural internalization; collectivism.

### INTRODUCTION

Dance education extends far beyond the acquisition of technical proficiency, functioning as a multidimensional pedagogical enterprise that cultivates creativity, aesthetic discernment, emotional expressiveness, and identity formation [1]–[3]. Within higher education, dance operates not only as an artistic discipline but also as a site of cultural transmission, socialization, and meaning-making [1], [2]. This expanded understanding is particularly salient in regions where dance is historically embedded in collective rituals and communal values. Guangdong Province, located in southern China, represents one such context, where dance education is uniquely positioned at the intersection of artistic excellence, cultural preservation, and national identity formation [9], [10].

### Historical and Cultural Context of Guangdong Dance

Guangdong’s dance culture is deeply rooted in the province’s long-standing traditions of ritual, performance, and communal celebration. Historically, dance in Guangdong was not merely an artistic pursuit but a vital component of social life, tied to agricultural cycles, religious ceremonies, and community festivals [11]. Among the most prominent forms is Yingge dance, a martial-arts-infused folk performance originating in the Chaoshan region. Yingge is characterized by vigorous movements, rhythmic drumming, and symbolic enactments of historical narratives, often performed during temple fairs or festive occasions to ward off evil and celebrate collective resilience [11], [12]. Its emphasis on synchronization and collective rhythm reflects the communal ethos of Guangdong society, where dance serves as both entertainment and moral instruction [13].

Another significant tradition is Nanyin, a classical musical and dance form that integrates lyrical singing, instrumental accompaniment, and stylized movement. Nanyin, often described as the “living fossil” of Chinese music, embodies refined aesthetic values and is recognized by UNESCO as intangible cultural heritage [14]. In Guangdong, Nanyin is taught not only as a performance art but also as a cultural practice that connects students to centuries-old traditions of poetic expression and moral cultivation [14],



[15]. Similarly, classical Chinese dance, with its codified techniques and emphasis on expressive movement, provides students with a foundation in national heritage while fostering creativity and interpretive skill [16].

These traditional forms are not preserved as static artifacts but are actively integrated into modern curricula. Undergraduate dance programs in Guangdong deliberately foreground tradition as a living practice, embedding Yingge, Nanyin, and classical dance alongside contemporary techniques such as ballet and modern choreography [2], [3], [10]. This integration reflects a pedagogical philosophy that views cultural heritage as dynamic, requiring continual reinterpretation and renewal through education. Students are thus socialized not merely as technically competent performers but as cultural bearers and ambassadors tasked with sustaining collective memory through embodied practice [3], [10].

### **Institutional Practices and Policy Frameworks**

This pedagogical orientation aligns closely with broader national and provincial policies that frame cultural heritage preservation as a strategic priority in higher education [10], [12]. The Chinese government has emphasized the role of universities in safeguarding intangible cultural heritage, positioning dance education as a vehicle for cultural transmission and national identity formation [12], [17]. In Guangdong, institutions such as the Guangdong Dance Academy and major universities have developed curricula that balance technical rigor with cultural preservation, reflecting both artistic and ideological objectives [18].

However, while these policies articulate clear cultural goals, less attention has been devoted to understanding the motivational mechanisms through which students engage with demanding and culturally laden curricula. Dance education in Guangdong is intensive, highly structured, and emotionally demanding, requiring sustained commitment, physical endurance, and psychological resilience [19]–[21]. Under these conditions, student engagement cannot be assumed to emerge automatically from cultural obligation or institutional expectations alone [22].

### **Research Gap and Theoretical Challenges**

Despite these holistic aspirations, a significant research gap persists in understanding how motivation and engagement function in this culturally specific context. Much of the foundational research informing these constructs has been developed in Western, individualistic contexts, where autonomy is conceptualized primarily as personal choice and self-expression [8], [14]. Applying these frameworks to collectivist contexts like Guangdong risks overlooking relational, moral, and social dimensions of motivation, such as the influence of filial piety (xiào) or institutional “face” (mianzi) [9]–[11]. These cultural values shape how students perceive their responsibilities, interpret institutional demands, and internalize external expectations [23].

Student engagement in dance encompasses sustained physical participation (behavioral engagement), deep cognitive investment (cognitive engagement), and emotional attachment to both the art form and the learning community (emotional engagement) [18]–[22]. In ensemble-based practices such as Yingge dance, engagement is also inherently relational, emerging through synchronization, mutual responsiveness, and shared responsibility [11], [16]. Yet empirical research has rarely examined how these multidimensional forms of engagement are shaped simultaneously by motivational orientations and perceived learning climate within non-Western dance education settings [24].

To fully appreciate why Guangdong provides a distinctive case for examining motivation and engagement, it is essential to situate its dance education within the region’s historical traditions, policy frameworks, and contrasts with other Chinese conservatories. This contextual background highlights how cultural heritage and institutional priorities shape the motivational ecosystem that frames the present study.

Guangdong’s dance traditions are not only artistic practices but also cultural rituals deeply embedded in community life. For example, Yingge dance, originating in the Chaoshan region, is performed during temple fairs and festive occasions to ward off evil spirits and celebrate collective resilience [11]. Its martial-arts-infused movements, rhythmic drumming, and symbolic enactments of historical narratives embody both physical discipline and cultural storytelling. Similarly, Nanyin, often described as a “living fossil” of Chinese music, integrates lyrical singing, instrumental accompaniment, and stylized movement, and has been recognized by UNESCO as intangible cultural heritage [14]. In Guangdong, Nanyin performances are not confined to the stage; they are woven into festivals, ancestral rituals, and community gatherings, reinforcing continuity between past and present. Classical Chinese dance, with its codified techniques and expressive vocabulary, further anchors students in national heritage, while simultaneously offering interpretive freedom that bridges tradition and modernity [16].



Institutional preservation of these forms has been reinforced by national and provincial cultural heritage **policies**. The Ministry of Education of China has emphasized safeguarding intangible cultural heritage as a strategic priority, mandating universities to integrate traditional arts into curricula [10]. Guangdong's institutions, such as the Xinghai Conservatory of Music and Guangdong Dance and Drama Vocational College, have responded by embedding Yingge and Nanyin into formal training programs, ensuring that students are not only technically proficient but also culturally literate. These policies frame dance education as a vehicle for cultural transmission, positioning students as custodians of collective memory and national identity [12]. The alignment between policy and pedagogy underscores the deliberate effort to sustain tradition as a living practice rather than a static artifact.

A brief cross-cultural comparison highlights Guangdong's uniqueness. In Beijing and Shanghai, dance education increasingly emphasizes contemporary choreography, ballet, and commercially oriented performance styles, reflecting globalized artistic trends [14], [15]. While these institutions excel in technical innovation, they often prioritize individual expression and international competitiveness. By contrast, Guangdong deliberately foregrounds tradition, embedding ensemble-based practices and cultural obligations into its curricula. This distinction illustrates how regional identity shapes pedagogical priorities: Guangdong's conservatories cultivate dancers as cultural ambassadors, whereas Beijing and Shanghai emphasize global artistic integration. Such contrasts highlight the theoretical richness of Guangdong as a case study, where collectivist values and cultural preservation intersect with motivational dynamics in ways that differ from more individualistic, cosmopolitan models.

Against this backdrop of rich cultural heritage, institutional preservation, and regional distinctiveness, the present study positions Guangdong's dance conservatories as an ideal context for examining how Self-Determination Theory operates in performance-intensive, collectivist environments. Building on this foundation, the following sections outline the study's objectives, methodological approach, and contributions to both theory and practice.

Accordingly, the study proceeds by first reviewing relevant motivational and engagement theories, then outlining hypotheses, methodology, and results before turning to discussion and implications.

## Study Objectives and Conceptual Framework

To address this gap, the present study investigates the interplay among motivational orientations, learning climate, and student engagement among undergraduate dance students in Guangdong Province. Specifically:

- Learning climate is conceptualized as students' perceptions of autonomy support and relatedness support within their instructional environment [16], [17].
- Motivational orientations are examined along the Self-Determination Theory (SDT) continuum, ranging from autonomous motivation to controlled motivation and amotivation [1]–[4].
- Student engagement is operationalized as a multidimensional construct encompassing behavioral, cognitive, and emotional components [18]–[22].

The academic significance of this inquiry lies in its potential to refine and extend SDT within a collectivist, culturally embedded educational context. While SDT has been widely validated across domains, consistently demonstrating that autonomous motivation is associated with higher-quality engagement, persistence, and well-being [1], [3], [8], critics have noted that much of its empirical support derives from Western samples, raising questions about cultural universality [14], [15]. Guangdong's dance education system, with its strong emphasis on collective practice, cultural duty, and hierarchical instruction, provides a theoretically rich setting to examine these dynamics [9], [10].

## The Role of Learning Climate

Within this context, the learning climate is expected to play a particularly pivotal role. Autonomy- and relatedness-supportive instructional practices may function not simply as facilitators of individual choice but as structural conditions that enable students to internalize external demands—such as cultural preservation and institutional expectations—into personally endorsed values [16], [17]. Ensemble-based pedagogies common in Guangdong dance education may further amplify this process by embedding individual effort within shared goals and collective identity [11], [15]. Thus, rather than undermining SDT, collectivist practices may reveal alternative pathways through which motivation becomes self-determined over time [24].



## Practical Significance

From a practical perspective, this study responds to an urgent need for evidence-based pedagogical strategies in elite arts education. Dance instructors in Guangdong are often tasked with balancing technical rigor, cultural transmission, and student well-being, yet receive limited empirical guidance on how motivational processes operate within their classrooms [20], [21]. By identifying how learning climate shapes engagement through different motivational orientations, this research offers actionable insights for curriculum design, instructional training, and institutional policy [25]. In doing so, it contributes to the development of learning environments that produce technically proficient dancers while sustaining long-term engagement and cultural commitment [18], [20], [30].

## Conclusion to the Introduction

In sum, this study positions Guangdong's dance education system as a critical case for examining the intersection of culture, motivation, and engagement. By integrating SDT with culturally grounded understandings of learning climate and collective practice, it seeks to advance a more context-sensitive motivational framework—one that acknowledges both the universality of psychological needs and the cultural specificity of their fulfillment [14], [23]. Through this lens, dance education emerges not merely as skill training but as a dynamic process of motivational development, cultural internalization, and artistic identity formation [1]–[3].

## 2. LITERATURE REVIEW AND HYPOTHESES

### 2.1 Theoretical Framework: Self-Determination Theory (SDT)

The present study is grounded in Self-Determination Theory (SDT), a widely validated framework for understanding human motivation across domains [1]–[4]. SDT posits that motivation exists along a continuum ranging from intrinsic motivation, where engagement arises from inherent enjoyment or personal interest, to extrinsic motivation, which is driven by external pressures or rewards, and ultimately to amotivation, reflecting a complete lack of intent or purpose [1], [2]. Critically, SDT emphasizes that the satisfaction of three basic psychological needs—autonomy, competence, and relatedness—is essential for high-quality engagement, persistence, and well-being [3], [4].

In the context of dance education, these needs manifest in discipline-specific ways. Autonomy may be experienced as interpretive freedom within structured choreography, competence is cultivated through progressive mastery of technical and expressive skills, and relatedness emerges through ensemble collaboration and social cohesion [18]–[20]. In Guangdong, traditional forms like Yingge dance intensify the relational dimension of learning: success is not merely individual but collectively defined, as students are accountable to peers, instructors, and the cultural legacy they embody [11], [15]. This suggests that the expression of SDT's psychological needs may be culturally embedded, highlighting the importance of examining motivational dynamics within context rather than assuming universality derived solely from Western populations [14], [15].

Autonomous motivation in SDT encompasses intrinsic motivation, integrated regulation, and identified regulation, reflecting behaviors that are self-endorsed and congruent with personal or internalized values [1], [2], [8]. Controlled motivation, including introjected and external regulation, reflects behaviors driven by internal pressures (e.g., guilt, pride) or external contingencies (e.g., evaluations, rewards). While traditional SDT research frames controlled motivation as less desirable, emerging cross-cultural studies suggest that in collectivist contexts, socially grounded external pressures—such as filial piety (xiào) or institutional “face” (mianzi)—may serve adaptive functions, supporting persistence and engagement without undermining autonomy [9]–[12], [15].

### 2.2 Integrating Astin's Theory of Involvement and Kuh's Engagement Theory

While SDT provides a psychological foundation, the study also draws on Astin's Theory of Involvement and Kuh's Engagement Theory to conceptualize student engagement more comprehensively. Astin defines involvement as “the investment of physical and psychological energy in academic and social experiences” [18]. This theory emphasizes that student learning and development are directly proportional to the quality and quantity of involvement. In dance education, involvement is visible in rehearsal hours, physical exertion, and emotional investment in performance preparation.

Kuh's Engagement Theory extends this perspective by framing engagement as both behavioral participation and psychological investment in learning activities [19]. Kuh highlights institutional responsibility, arguing that engagement is shaped not only by student effort but also by the opportunities and support structures provided by the learning environment. In Guangdong's dance



studios, where students train intensively (25–35 hours weekly), engagement is structured through rehearsal routines, ensemble practices, and performance expectations [16], [18].

Together, SDT, Astin, and Kuh provide a multidimensional framework:

- SDT explains the motivational quality underlying engagement.
- Astin emphasizes the energy and effort students invest.
- Kuh highlights institutional and pedagogical structures that scaffold engagement.

This integration allows for a culturally sensitive analysis of how motivation and learning climate interact to shape multidimensional engagement in Guangdong dance education.

### 2.3 Multidimensional Engagement in Dance Education

Student engagement is a multidimensional construct, comprising behavioral, cognitive, emotional, and agentic dimensions [20]–[22].

- **Behavioral engagement** refers to participation in rehearsals, technique classes, and performance activities. In Guangdong, this often involves long hours of repetitive practice, ensemble synchronization, and adherence to strict rehearsal schedules.
- **Cognitive engagement** reflects investment in understanding choreography, historical context, and aesthetic principles. Students must not only memorize steps but also interpret symbolic meanings embedded in traditional forms such as Yingge or Nanyin [11], [15].
- **Emotional engagement** denotes affective attachment to the art form, instructors, and peer group. Emotional resonance is particularly strong in ensemble-based practices, where collective pride and cultural duty reinforce commitment [19].
- **Agentic engagement** involves proactive contributions to learning processes, such as suggesting interpretive choices, assisting peers, or negotiating meaning with instructors [20]–[22]. In collectivist contexts, agentic engagement may manifest less as individual assertion and more as collaborative initiative aligned with group goals.

In ensemble-based dance education, engagement is not purely individual but interdependent: individual effort is inseparable from group cohesion, peer feedback, and collective performance outcomes. This relational nature of engagement aligns with SDT's relatedness need and highlights the importance of assessing engagement in multidimensional and culturally sensitive ways [11], [15], [19].

A central aim of this study is to examine how Self-Determination Theory (SDT) operates within Guangdong's performance-intensive, collectivist dance education. SDT posits that the satisfaction of autonomy, competence, and relatedness is essential for sustaining motivation and engagement [1]–[4]. Yet, while SDT has been validated across diverse educational contexts, much of the literature remains Western-centric, emphasizing individual choice and personal agency as the primary markers of autonomy [14], [15]. This raises questions about how SDT's principles manifest in collectivist environments, where obligations to family, institution, and cultural heritage are deeply embedded in motivational structures [9]–[12].

The hypotheses in this study are grounded in both universal and contextualized expectations. For instance, H1 (Learning Climate → Engagement) builds on evidence that autonomy-supportive climates foster participation and persistence [16], [17]. However, in Guangdong, the learning climate is not merely a pedagogical backdrop but a primary regulatory force, shaping both technical discipline and cultural identity. H2 (Autonomous Motivation → Engagement) reflects SDT's universal prediction that self-endorsed motivation drives deeper cognitive and emotional investment [1], [2]. H3 (Controlled Motivation → Engagement), however, challenges conventional dichotomies by hypothesizing a paradoxical positive effect, informed by cultural constructs such as filial piety (xiào) and institutional "face" (mianzi) [9]–[12]. H4 (Amotivation → Engagement) aligns with SDT's expectation that lack of intent undermines participation, while H5 (Learning Climate → Autonomous Motivation) extends prior findings by emphasizing the climate's role in facilitating internalization [16], [17].

Cross-framework synthesis further enriches this rationale. Astin's Theory of Involvement emphasizes the investment of psychological energy in academic and extracurricular activities [18], while Kuh's Engagement Theory highlights institutional practices that foster student involvement [19]. By mapping SDT's needs onto these frameworks, the study situates motivation as both a psychological and institutional phenomenon. Autonomy corresponds to Astin's notion of personal investment, competence aligns with Kuh's emphasis on academic challenge, and relatedness resonates with both frameworks' focus on community and



belonging. This integration underscores that engagement is multidimensional, shaped by both individual regulation and institutional climate.

Cross-cultural studies provide additional support. Research in Japan and South Korea demonstrates that socially endorsed obligations can enhance persistence in education and performance [30], [31]. Similarly, studies in Southeast Asia reveal that collectivist norms transform external pressures into internalized commitments [32]. These findings suggest that Guangdong's motivational ecosystem exemplifies a broader Asian pattern, where controlled motivation can complement autonomous regulation when embedded in supportive climates. Thus, the literature review establishes both the universality of SDT's principles and the cultural specificity of their expression, providing a robust foundation for the hypotheses tested in this study.

## 2.4 Hypothesis Development

Based on the integrated theoretical framework and identified literature gaps, the study proposes the following hypotheses:

**H1: Autonomous motivation, comprising intrinsic motivation and identified regulation, has a significant positive influence on student engagement among dance undergraduates.**

- *Rationale:* Empirical SDT research consistently shows that self-endorsed motivation fosters persistence, effortful participation, and emotional investment in both Western and non-Western contexts [1], [8], [14]. In Guangdong, autonomous motivation is likely enhanced by culturally meaningful practices such as preserving traditional dance forms.

**H2: Motivational orientations on the SDT continuum exhibit distinct effects: autonomous motivation has the strongest positive effect, while amotivation has a significant negative effect on engagement.**

- *Rationale:* Prior work demonstrates that amotivated individuals disengage from learning tasks, whereas controlled and autonomous motivations differentially predict quality of engagement [1], [8], [15]. In collectivist contexts, controlled motivation may not be wholly detrimental, but amotivation is expected to suppress behavioral and cognitive participation.

**H3: The learning climate (autonomy and relatedness support) significantly moderates the relationship between motivational orientations and student engagement.**

- *Rationale:* SDT posits that supportive instructional environments amplify the benefits of autonomous motivation and may buffer the effects of controlled motivation [16], [17]. In ensemble-based dance, instructors' behaviors shape both the opportunities for engagement and the perceived legitimacy of culturally embedded obligations.

**H4: A supportive learning climate and aligned pedagogical strategies directly enhance multidimensional student engagement.**

- *Rationale:* Beyond moderating individual motivation, the learning climate exerts direct effects on engagement by structuring rehearsal routines, establishing performance expectations, and fostering group cohesion [16], [18], [20].

**H5: Cultural factors, specifically the collectivist values prevalent in Guangdong, significantly influence the relationship between autonomous motivation and engagement.**

- *Rationale:* Collectivist values such as filial piety (xiào) and institutional "face" (mianzi) create socially endorsed pathways through which external or controlled motivations can be internalized and transformed into self-endorsed engagement behaviors [9]–[12], [15]. These culturally specific mechanisms suggest that SDT's motivational continuum interacts with contextual values, producing outcomes that differ from Western individualistic predictions.

## 2.5 The Guangdong–SDT Paradox

A central theoretical contribution of this study is the identification of what is termed the "Guangdong–SDT Paradox." Whereas Western SDT literature often frames controlled motivation as maladaptive, the present research anticipates that in Guangdong's collectivist dance education context, socially grounded obligations may complement autonomous motivation. Obligations tied to family, ensemble identity, and institutional prestige may sustain persistence during periods of intense technical demand, effectively functioning as secondary engines of engagement rather than inhibitors [9]–[12], [15].

This paradox highlights the importance of culturally sensitive interpretations of SDT. It underscores that motivational quality cannot be fully understood without accounting for contextualized value systems, relational interdependencies, and normative social pressures. In ensemble-based dance, engagement is not merely an individual psychological outcome; it is co-constructed through social expectations, instructor behaviors, and collective performance standards. By integrating SDT with cultural considerations,



this study seeks to advance a more nuanced model of engagement that reconciles universal psychological needs with local moral and relational imperatives [14], [15], [18].

## 2.6 Conceptual Model

The conceptual model guiding this study integrates SDT, Astin's Theory of Involvement, and Kuh's Engagement Theory. It posits that:

- Motivational orientations (autonomous, controlled, amotivation) influence multidimensional engagement.
- Learning climate (autonomy and relatedness support) moderates and directly enhances engagement.
- Cultural values (filial piety, face, collectivism) shape how external motivations are internalized.
- Engagement manifests across behavioral, cognitive, emotional, and agentic dimensions, with ensemble-based practices amplifying relational interdependence.

## 3. METHODOLOGY: RIGOR AND REFINEMENT

### 3.1 Research Paradigm and Design

This study adopts a positivist paradigm and a quantitative research approach, aiming to objectively examine the relationships among motivational orientations, learning climate, and student engagement in Guangdong's undergraduate dance programs [1], [25], [26]. The positivist orientation reflects the assumption that motivation and engagement can be measured as observable constructs, subject to empirical testing and statistical validation. By employing quantitative methods, the study seeks to minimize subjectivity and ensure replicability, aligning with the broader tradition of educational psychology research [2], [4].

The research employs a cross-sectional survey design, capturing a snapshot of these variables during the 2025–2026 academic year. This design allows for the simultaneous assessment of multiple constructs and the testing of hypothesized relationships through structural modeling techniques. Cross-sectional designs are particularly suitable for contexts such as dance conservatories, where longitudinal tracking may be impractical due to high-intensity performance schedules and limited availability of students [18]. While longitudinal designs offer insights into developmental trajectories, the cross-sectional approach provides efficiency and predictive validity, enabling robust hypothesis testing within a constrained timeframe [14].

The study emphasizes rigor and predictive validity, addressing limitations of prior research in the field, which often relies on descriptive or single-dimension analyses. By integrating Self-Determination Theory (SDT), engagement frameworks, and culturally informed perspectives, this methodology enables a comprehensive examination of motivational processes within a complex educational ecosystem [2], [4], [14], [18]. The design also accommodates the unique demands of Guangdong's dance education system, where students balance technical mastery, cultural preservation, and institutional expectations.

### 3.2 Participants and Sampling

The target population consisted of full-time undergraduate students aged 18–25, specializing in dance performance, choreography, or dance education. This age range was selected to capture the developmental stage most relevant to identity formation, motivational orientation, and professional preparation in dance [19].

A systematic probability sampling method was implemented to ensure representativeness and minimize selection bias [19], [20]. Probability sampling was chosen over convenience sampling to enhance external validity, ensuring that findings could be generalized across Guangdong's diverse dance institutions. Stratification by institution and year level further ensured that the sample reflected the heterogeneity of student experiences, including differences in exposure to traditional forms such as Yingge dance and Nanyin.

A total of 509 usable responses were obtained from six prominent higher education institutions in Guangdong Province:

1. Xinghai Conservatory of Music
2. Guangdong Dance and Drama Vocational College
3. Guangdong University of Foreign Studies
4. Guangdong Institute of Arts and Sciences
5. South China Normal University
6. Guangdong Sport University



The sample size provides substantial statistical power ( $>0.95$ ) for detecting even small effect sizes within the complex structural model, consistent with recommendations for Partial Least Squares Structural Equation Modeling (PLS-SEM) [25]–[27]. Participants represented a range of year levels, training backgrounds, and cultural experiences, ensuring sufficient diversity to evaluate both motivational processes and learning climate perceptions. This diversity was critical for testing measurement invariance across subgroups, thereby strengthening the generalizability of findings.

The methodological design of this study was guided by the need to ensure both rigor and cultural sensitivity in examining motivational dynamics within Guangdong's dance conservatories. A systematic probability sampling strategy was adopted to maximize representativeness across year levels, gender, and socioeconomic backgrounds. This approach was chosen over stratified or cluster sampling because it allowed for a more balanced distribution of participants while avoiding potential biases introduced by pre-defined strata. By ensuring that each student had an equal probability of selection, the study minimized sampling error and enhanced the generalizability of findings [16], [17].

### 3.3 Instrumentation and Refinement

Data were collected using a 63-item integrated survey instrument, refined from an initial 72-item pilot version ( $N = 200$ ) based on psychometric evidence [7], [25]. The instrument was designed to measure key constructs along the SDT continuum and multidimensional engagement, while capturing contextual cultural indicators relevant to Guangdong's dance education.

The final instrument comprised four sections:

1. **Demographic and Cultural Indicators (12 items):** Captured age, gender, family background, prior exposure to traditional dance forms such as Yingge dance, and cultural value orientations [9], [10]. These items provided contextual data for subgroup analyses, enabling exploration of cultural influences on motivation and engagement.
2. **Sport Motivation Scale-II (SMS-II, 24 items):** Measured autonomous motivation (intrinsic, integrated, identified), controlled motivation (introjected, external), and amotivation [1], [2], [7]. Items were contextualized for dance education by referencing ensemble performance and cultural obligations, ensuring cultural relevance. For example, items were adapted to reflect obligations tied to filial piety and institutional prestige.
3. **Learning Climate Questionnaire (LCQ, 14 items):** Assessed students' perceptions of autonomy support and relatedness support provided by instructors [4], [16], [17]. Items captured both behavioral and affective dimensions of instructional practice, including feedback style, collaborative opportunities, and emotional support. This adaptation was essential for ensemble-based dance, where instructor behaviors directly shape group cohesion.
4. **Student Engagement in Schools Questionnaire (SESQ, 13 items):** Measured behavioral, cognitive, emotional, and agentic engagement [18]–[22]. Items were adapted to reflect the unique requirements of ensemble and performance-based training, such as synchronization, interpretive contributions, and collective responsibility.

Refinements based on pilot testing included the removal of underperforming items (e.g., AUTON1, factor loading = 0.623) and rewording of EXT2 and EXT4 to enhance discrimination between external regulation and culturally embedded social obligations. This iterative process ensured that the final instrument maintained construct validity, cultural relevance, and psychometric reliability [7], [25], [26]. Reliability indices (Cronbach's  $\alpha > 0.80$ ) and confirmatory factor analyses confirmed the robustness of the refined scales.

Instrument adaptation was a critical step in aligning established scales with the cultural and pedagogical context of Guangdong. The Learning Climate Questionnaire (LCQ) and Academic Motivation Scale (AMS) were translated and culturally adapted, with item wording modified to reflect collectivist values and ensemble-based practices. For example, items originally phrased in terms of "personal choice" were reframed to emphasize "interpretive freedom within group choreography," ensuring that autonomy was captured in culturally meaningful terms. Similarly, competence-related items were contextualized to highlight mastery of traditional forms such as Yingge and Nanyin, while relatedness items emphasized ensemble identity and collective pride. These adaptations ensured that the instruments measured constructs faithfully without imposing Western-centric assumptions [9]–[12].

A pilot study was conducted with 200 students to refine the instruments and assess psychometric properties. Exploratory factor analysis revealed that several items loaded weakly on their intended constructs, particularly those referencing individualistic autonomy. These items were removed or reworded, resulting in improved reliability coefficients (Cronbach's  $\alpha > 0.80$  across all scales). The pilot also confirmed that students understood the adapted items clearly, validating the cultural appropriateness of the



instruments. This iterative refinement strengthened the validity of the measurement model and ensured that subsequent analyses were robust [14], [15].

### 3.4 Data Analysis

The analytical framework employed Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 4 software [25]–[27]. PLS-SEM was selected for its ability to handle complex models, non-normal data, and moderated mediation effects, making it particularly suitable for testing the study's hypotheses regarding the interplay among learning climate, motivational orientations, and engagement.

The analysis followed a two-stage procedure:

#### 1. Measurement Model Assessment:

- Evaluated indicator reliability, internal consistency (Cronbach's  $\alpha$ , Composite Reliability), and convergent/discriminant validity [25], [26].
- Discriminant validity was confirmed using the Heterotrait-Monotrait (HTMT) ratio, ensuring that constructs such as autonomous motivation, controlled motivation, and engagement remained empirically distinct [25].
- Average Variance Extracted (AVE) values exceeded 0.50, confirming convergent validity.

#### 2. Structural Model Assessment:

- Tested hypothesized relationships using path coefficients ( $\beta$ ), coefficients of determination ( $R^2$ ), and predictive relevance ( $Q^2$ , PLSpredict) [25], [26], [29].
- Bootstrapping with 5,000 subsamples was conducted to evaluate significance and confidence intervals for all paths.
- Effect sizes ( $f^2$ ) were calculated to assess the relative impact of predictors, with thresholds of 0.02 (small), 0.15 (medium), and 0.35 (large).

**Measurement invariance** across gender and year level was established using the MICOM procedure, allowing valid structural comparisons between groups [25], [26]. To control for potential common method bias, Kock's full collinearity VIF approach was applied, confirming that multicollinearity did not confound the model [28]. Additionally, Harman's single-factor test was conducted as a supplementary check, ensuring that variance inflation did not compromise validity.

### 3.5 Methodological Rigor

This study integrates several strategies to ensure methodological rigor:

- Sampling representativeness through systematic probability methods, capturing diverse student experiences across institutions and year levels.
- Instrument refinement through pilot testing, item analysis, and cultural adaptation to the Guangdong dance context, ensuring both psychometric robustness and cultural sensitivity.
- Robust statistical modeling with PLS-SEM to test complex moderated mediation relationships, accommodating non-normal data and hierarchical structures.
- Validation procedures, including reliability, convergent/discriminant validity, MICOM, and common method bias assessment, ensuring that the findings are both statistically sound and culturally meaningful.
- Transparency and replicability, achieved by documenting item refinement, sampling procedures, and analytical steps, enabling future researchers to replicate or extend the study.

By combining theoretical rigor, culturally sensitive instrumentation, and advanced statistical analysis, this methodology allows for a comprehensive examination of how learning climate and motivational orientations shape multidimensional engagement among Guangdong dance undergraduates [1], [4], [14], [16], [18], [25].

Ethical considerations were central to the research design. Informed consent was obtained from all participants, with assurances of confidentiality and voluntary participation. Given the hierarchical nature of conservatory training, particular care was taken to emphasize that participation would not affect academic standing or instructor evaluations. Data collection procedures were designed to respect cultural sensitivities, including the use of neutral facilitators to administer surveys and the avoidance of evaluative language in item wording. These measures safeguarded participant rights while reinforcing the integrity of the research process.



**4. RESULTS: THE EMPIRICAL EVIDENCE**

The empirical analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) following a two-stage procedure [25]–[27]. This included (i) an evaluation of the measurement model to establish reliability and validity and (ii) an assessment of the structural model to test the hypothesized relationships among motivational orientations, learning climate, and student engagement. The results provide robust evidence for the hypothesized framework, demonstrating both statistical rigor and cultural relevance.

**4.1 Measurement Model Validation**

The measurement model exhibited strong psychometric properties, consistent with best practices for PLS-SEM [25], [26].

- **Internal consistency reliability:** All constructs exceeded recommended thresholds, with Cronbach’s  $\alpha$  ranging from 0.890 to 0.963 and Composite Reliability ( $\rho_c$ ) exceeding 0.90. These values confirm that items consistently measure their intended constructs.
- **Convergent validity:** Average Variance Extracted (AVE) values ranged from 0.505 to 0.849, surpassing the minimum criterion of 0.50 [25], [26]. This indicates that latent constructs explain more than half of the variance in their indicators.
- **Discriminant validity:** Heterotrait-Monotrait (HTMT) ratios were all below 0.85, confirming that constructs such as autonomous motivation, controlled motivation, amotivation, learning climate, and multidimensional engagement were empirically distinct [25].

These results confirm that the measurement instruments effectively capture both motivation and engagement constructs, as well as perceptions of learning climate, in a culturally relevant and reliable manner [4], [18], [20]. The refinement process described earlier ensured that items were not only statistically valid but also culturally sensitive, particularly in distinguishing external regulation from socially embedded obligations.

**4.2 Structural Model Evaluation**

Structural model assessment included bootstrapping with 5,000 subsamples, evaluation of path coefficients ( $\beta$ ), t-statistics, p-values, and effect sizes ( $f^2$ ), as well as checks for multicollinearity via inner Variance Inflation Factor (VIF) [25], [28].

- **Multicollinearity:** All inner VIF values ranged from 1.239 to 2.505, well below the 3.3 threshold, confirming that predictors were sufficiently independent [28].

**Table 1: Summary of Hypothesis Testing Results**

Hypothesis	Structural Path	$\beta$	T-statistic	p-value	Decision
H1	Learning Climate → Student Engagement	0.518	12.652		Supported
H2	Autonomous Motivation → Student Engagement	0.341	7.672		Supported
H3	Controlled Motivation → Student Engagement	0.086	2.990	0.003	Supported
H4	Amotivation → Student Engagement	-0.104	4.260		Supported
H5	Learning Climate → Autonomous Motivation	0.685	19.688		Supported

**Key Findings**

1. **Learning climate as the dominant predictor:** The path coefficient from learning climate to student engagement ( $\beta = 0.518$ ) and the large effect size ( $f^2 = 0.612$ ) underscore the central role of instructor-led autonomy and relatedness support in shaping psychological engagement [4], [16], [17].
2. **Autonomous motivation drives engagement:**  $\beta = 0.341$  confirms that self-endorsed motivation significantly contributes to multidimensional engagement, aligning with SDT expectations [1], [2], [8].
3. **Controlled motivation exhibits a paradoxical positive effect:**  $\beta = 0.086$  ( $p = 0.003$ ) indicates that culturally embedded external pressures, such as filial piety (xiào) and institutional “face” (mianzi), support persistence in this collectivist context [9]–[12], [15].
4. **Amotivation negatively impacts engagement:**  $\beta = -0.104$ , consistent with SDT predictions that lack of intent or meaning undermines behavioral and cognitive participation [1], [2].



5. **Learning climate fosters autonomous motivation:**  $\beta = 0.685$  highlights that autonomy- and relatedness-supportive environments enable the internalization of both intrinsic and culturally reinforced motivations [16], [17].

### 4.3 Explanatory Power and Predictive Relevance

The model demonstrated substantial explanatory power:

- **Student Engagement:**  $R^2 = 0.707$ , indicating that over 70% of variance in engagement is explained by the predictors, reflecting a high-quality structural model [25], [26].
- **Autonomous Motivation:**  $R^2 = 0.467$ , suggesting that perceptions of learning climate account for nearly half of the variance in self-endorsed motivation.

Predictive relevance was confirmed through PLSpredict, with the majority of Student Engagement indicators exhibiting lower RMSE and MAE values compared to a naive linear benchmark. This indicates medium-to-high out-of-sample predictive power, supporting the model's applicability for institutional diagnostic purposes [25], [29].

### 4.4 Mediation Analysis

Autonomous motivation partially mediates the relationship between learning climate and engagement, consistent with SDT's theoretical expectations [1], [3], [4].

- **Indirect effect:**  $\beta = 0.234$ ,  $p < 0.001$
- **Proportion of total effect:** ~31.1% of the total effect of learning climate on engagement is mediated through autonomous motivation.

This finding suggests that while learning climate directly influences engagement, its effects are further enhanced through the internalization of autonomous motivation, emphasizing the interplay between environment and individual psychological regulation [14], [16], [18].

### 4.5 Engagement Dimensions: Sub-Analyses

To deepen understanding, engagement was analyzed across its four dimensions:

- **Behavioral Engagement:** Strongly predicted by learning climate ( $\beta = 0.512$ ), reflecting the impact of structured rehearsal routines and ensemble obligations. Students' physical participation is sustained by both instructor expectations and cultural duty [18], [19].
- **Cognitive Engagement:** Most sensitive to autonomous motivation ( $\beta = 0.362$ ), highlighting the role of self-endorsed values in fostering deep investment in choreography, historical context, and aesthetic principles [1], [8].
- **Emotional Engagement:** Influenced by both learning climate ( $\beta = 0.498$ ) and controlled motivation ( $\beta = 0.091$ ), suggesting that emotional attachment is shaped by supportive environments and culturally embedded obligations [9]–[12].
- **Agentic Engagement:** Moderately predicted by autonomous motivation ( $\beta = 0.276$ ), reflecting students' proactive contributions to ensemble learning, such as interpretive suggestions and peer assistance [20]–[22].

These findings confirm that engagement is multidimensional, with distinct pathways of influence across behavioral, cognitive, emotional, and agentic domains.

### 4.6 Additional Observations

1. **Cultural nuances of controlled motivation:** The positive effect of controlled motivation reflects the Guangdong–SDT Paradox, whereby culturally sanctioned external pressures support engagement without diminishing intrinsic interest [9]–[12].
2. **Differential pathways of influence:** Behavioral and emotional engagement were strongly influenced by learning climate, while cognitive engagement was most sensitive to autonomous motivation, suggesting that different dimensions of engagement are shaped by distinct motivational processes.
3. **Equity across demographic factors:** Multi-group analyses indicated no significant differences by gender or socioeconomic background, highlighting the egalitarian influence of the studio climate in shaping engagement [18], [19].



4. **Year-level differences:** Preliminary subgroup analyses suggested that senior students exhibited stronger autonomous motivation, while junior students relied more on controlled motivation, reflecting developmental progression in motivational internalization [14], [15].

## Expanded Results Summary

The results provide compelling empirical evidence that learning climate is the most powerful driver of engagement, both directly and indirectly through autonomous motivation. While autonomous motivation aligns with SDT's universal predictions, controlled motivation demonstrates culturally specific adaptive functions in Guangdong's collectivist context. Amotivation, as expected, undermines engagement, confirming its detrimental role across cultures.

By validating the Guangdong–SDT Paradox, the findings highlight that external obligations can complement rather than conflict with autonomy, provided they are embedded within supportive learning climates. This underscores the importance of culturally sensitive interpretations of motivation and engagement in non-Western educational settings.

## 5. DISCUSSION: The Guangdong–SDT Paradox

The results of this study provide robust evidence for a complex motivational ecosystem in Guangdong's undergraduate dance programs. The interplay between the learning climate, motivational orientations, and student engagement illustrates both the universality of SDT's core principles and the culturally specific pathways through which motivation is expressed and sustained [1]–[4], [9]–[12]. By situating these findings within broader theoretical and cultural contexts, the discussion highlights how Guangdong's dance education system both confirms and extends existing motivational frameworks.

### 5.1 Learning Climate as the Primary Regulatory Force

The dominant predictor of engagement was the learning climate, with a path coefficient of  $\beta = 0.518$  and an effect size of  $f^2 = 0.612$ . These findings highlight the instructor-led climate as the “architect” of student psychological states, shaping both immediate behavioral participation and long-term emotional investment [16]–[18].

In Guangdong's dance studios, students often train over 30 hours per week in highly structured rehearsal and technique sessions. The learning climate provides both scaffolding and psychological security, enabling students to engage fully in technically demanding activities while maintaining motivation and commitment [16], [18], [19]. Autonomy-supportive behaviors—such as choice in interpretive elements, constructive feedback, and collaborative problem-solving—combined with relatedness support foster a sense of belonging and collective purpose, which is particularly salient in ensemble-based forms like Yingge dance [11], [15].

This aligns with prior research demonstrating that socially rich and autonomy-supportive environments amplify motivation and engagement, particularly in contexts that require high levels of coordination, effort, and sustained focus [16], [17], [20]. Importantly, the Guangdong case illustrates that autonomy support does not necessarily mean unstructured freedom; rather, it involves meaningful opportunities for interpretive agency within a highly disciplined and hierarchical environment.

### 5.2 The Guangdong–SDT Paradox

A central contribution of this study is the identification of the Guangdong–SDT Paradox, wherein controlled motivation exhibits a significant positive effect on engagement ( $\beta = 0.086$ ,  $p = 0.003$ ) despite traditional SDT expectations that controlled motivation is maladaptive [1], [2], [9]–[12].

In the collectivist cultural context of Southern China, external pressures—such as filial piety (*xiao*) and institutional “face” (*mianzi*)—do not necessarily undermine autonomy. Instead, these culturally sanctioned obligations serve as secondary engines that sustain persistence during rigorous training. For example, students may continue to attend intensive rehearsals not solely for intrinsic enjoyment, but also to fulfill family expectations, uphold the reputation of their studio, or honor cultural heritage [9]–[12], [15].

This finding demonstrates that controlled motivation can function adaptively when embedded within supportive learning climates and culturally meaningful frameworks, extending SDT's applicability beyond Western, individualistic contexts [14], [15]. It underscores the importance of cultural sensitivity in interpreting motivational constructs and highlights how collectivist norms can complement, rather than conflict with, autonomous motivation.

Cross-cultural evidence supports this interpretation. Studies in Japan and South Korea have shown that socially endorsed obligations, such as respect for elders or institutional loyalty, can enhance persistence and performance in education and sports [30], [31].



Similarly, research in Indonesia and Malaysia indicates that collectivist values often transform external pressures into internalized commitments, particularly when framed as moral or familial duties [32]. The Guangdong–SDT Paradox thus resonates with broader Asian motivational patterns, suggesting that SDT’s dichotomy between autonomous and controlled motivation requires contextual reinterpretation.

### 5.3 Internalization and Developmental Maturation

The study also provides evidence consistent with developmental internalization. Autonomous motivation partially mediated the relationship between learning climate and engagement, accounting for 31.1% of the total effect. A clear pattern of cohort differences emerged: senior students reported significantly higher levels of autonomous motivation and lower levels of amotivation compared to first-year students. While the cross-sectional design precludes definitive causal conclusions regarding change over time, these differences suggest a potential maturation process wherein sustained exposure to supportive and relationally rich studio environments may facilitate a transition from “doing dance” for obligation or survival to “being a dancer” with a consolidated artistic and cultural identity. These findings are consistent with prior research indicating that autonomy-supportive climates foster progressive internalization, particularly in contexts where performance demands are high and culturally meaningful [1], [2], [4], [16].

### 5.4 The Egalitarian Studio Space

An additional key finding is that student engagement did not significantly differ by gender or family income, highlighting the egalitarian nature of the conservatory environment [18], [19]. Once students enter these elite institutions, pedagogical quality and climate outweigh inherited social capital or demographic background as determinants of engagement.

This supports the notion that Guangdong’s dance studios function as meritocratic and relational spaces, where equity is embedded in instructional design, ensemble practice, and cultural values [18], [20]. By fostering autonomy, competence, and relatedness, instructors create a level playing field that allows students from diverse backgrounds to develop sustained engagement and high-quality performance outcomes.

This finding also contributes to debates on educational equity in collectivist societies. While socioeconomic background often predicts educational outcomes in Western contexts, collectivist environments may mitigate these disparities by emphasizing group identity and collective achievement. Guangdong’s dance studios exemplify this dynamic, demonstrating how cultural values and pedagogical practices can foster inclusivity and equity.

### 5.5 Practical Implications Across Engagement Dimensions

The multidimensional nature of student engagement in Guangdong’s dance studios suggests that pedagogical strategies must be tailored to address behavioral, cognitive, emotional, and agentic dimensions simultaneously. Each dimension reflects distinct pathways through which motivation and learning climate exert influence, and each requires specific instructional practices to maximize student development.

**Behavioral engagement** is most directly shaped by the learning climate, particularly through structured rehearsal routines, clear expectations, and consistent feedback [16]–[18]. Instructors can enhance behavioral participation by designing rehearsal schedules that balance technical rigor with opportunities for rest and reflection. For example, alternating between high-intensity ensemble practice and smaller group workshops allows students to sustain physical endurance while maintaining focus. Moreover, embedding cultural narratives into rehearsal routines—such as explaining the historical significance of Yingge dance movements—reinforces the meaning behind repetitive practice, transforming physical effort into cultural embodiment [11], [15].

**Cognitive engagement** requires deeper investment in understanding choreography, aesthetic principles, and historical context. This dimension is most sensitive to autonomous motivation, as students must perceive intellectual exploration as self-endorsed rather than externally imposed [1]–[4]. Instructors can foster cognitive engagement by integrating interpretive discussions into technique classes, encouraging students to analyze symbolic gestures or propose alternative choreographic interpretations. Such practices not only enhance comprehension but also cultivate critical thinking, bridging technical mastery with cultural literacy.

**Emotional engagement** is sustained through relational support and collective pride. The findings indicate that both learning climate and controlled motivation contribute to affective attachment, suggesting that emotional resonance emerges from supportive environments and culturally sanctioned obligations [9]–[12]. Instructors can strengthen emotional engagement by fostering



ensemble identity, celebrating collective achievements, and emphasizing the moral significance of cultural preservation. Ritualized practices, such as group reflections after performances, reinforce belonging and pride, ensuring that emotional bonds complement technical progress.

**Agentic engagement** reflects proactive contributions to the learning process, such as peer mentoring, interpretive suggestions, and collaborative choreography [20]–[22]. This dimension is particularly important for senior students, whose higher levels of autonomous motivation enable them to assume leadership roles within ensembles. Instructors can encourage agentic engagement by creating opportunities for student-led rehearsals, peer feedback sessions, and collaborative projects that integrate traditional and contemporary forms. Such practices empower students to shape their learning environment, reinforcing autonomy and competence while sustaining collective responsibility.

Taken together, these implications highlight that engagement is not a singular construct but a multidimensional phenomenon requiring differentiated pedagogical strategies. By aligning instructional practices with each dimension, Guangdong's dance institutions can cultivate holistic development, ensuring that students emerge as technically proficient performers, culturally literate scholars, emotionally resilient collaborators, and proactive artistic leaders.

## 5.6 Theoretical and Cross-Cultural Contributions

The findings of this study advance motivational and engagement theory by demonstrating how universal psychological needs interact with culturally specific values in elite arts education. Self-Determination Theory (SDT) posits that autonomy, competence, and relatedness are fundamental to motivation across contexts [1]–[4]. The Guangdong case confirms this universality while simultaneously revealing how collectivist norms reshape the expression of these needs. Autonomy, for instance, is not experienced as unrestricted personal choice but as interpretive agency exercised within ensemble structures and cultural obligations [14], [15]. Competence is validated not only through individual mastery but also through collective synchronization, while relatedness extends beyond peer bonds to encompass cultural duty and institutional prestige [9]–[12].

This nuanced interpretation contributes to what may be termed contextualized universality: the idea that psychological needs are universally relevant but culturally modulated in their fulfillment. In Guangdong, autonomy-supportive pedagogy coexists with hierarchical instruction, demonstrating that autonomy and collectivism are not mutually exclusive but can be complementary when embedded in relationally rich climates [16], [17]. This challenges Western-centric assumptions that autonomy requires independence from external structures, instead highlighting that autonomy can flourish within collective frameworks when students perceive obligations as meaningful and self-endorsed.

The study also expands SDT's explanatory power by addressing the Guangdong–SDT Paradox, wherein controlled motivation exerts a positive effect on engagement. Traditionally, controlled motivation has been framed as maladaptive, associated with diminished persistence and well-being [1], [2]. Yet in Guangdong, controlled motivation—manifested through filial piety (*xiào*) and institutional “face” (*mianzi*)—functions as a culturally sanctioned mechanism that sustains persistence during periods of intense technical demand [9]–[12]. This finding suggests that motivational dichotomies should be interpreted relationally and contextually rather than categorically. Controlled motivation may undermine engagement in individualistic contexts but can reinforce it in collectivist settings when aligned with cultural values and supportive climates.

Cross-cultural evidence underscores the broader relevance of these insights. Studies in Japan and South Korea report similar patterns, where socially endorsed obligations enhance persistence in education and performance [30], [31]. Research in Indonesia and Malaysia further demonstrates that collectivist norms transform external pressures into internalized commitments, particularly when framed as moral or familial duties [32]. By situating Guangdong within this broader Asian motivational landscape, the study contributes to a growing body of literature that challenges Western assumptions and highlights the adaptive potential of collectivist values.

Finally, the study enriches engagement theory by mapping multidimensional pathways of influence. Behavioral engagement is strongly climate-driven, cognitive engagement is most sensitive to autonomous motivation, emotional engagement reflects both climate and controlled motivation, and agentic engagement emerges through interpretive freedom [18]–[22]. This differentiation advances Astin's Theory of Involvement and Kuh's Engagement Theory by demonstrating that engagement is not monolithic but multidimensional, shaped by distinct motivational processes and cultural contexts. The Guangdong case thus provides a theoretically



rich model for understanding how motivation and engagement intersect in performance-intensive, collectivist educational environments.

## 5.7 Limitations and Boundary Conditions

Revised Text: While this study offers robust insights into the motivational dynamics of Guangdong's dance education, several limitations should be noted when interpreting the findings. First, the identification of the "Guangdong–SDT Paradox"—where controlled motivation positively influences engagement—may be bound by the specific cultural intensity of this context. The deep integration of unique regional traditions such as *Yingge* and *Nanyin*, which explicitly link performance to moral and communal resilience, creates a highly specific environment. Consequently, the adaptive function of controlled motivation observed here may not generalize to non-collectivist settings or less elite dance programs where cultural preservation is not a central pedagogical objective.

Second, the study relied exclusively on self-reported measures to assess both motivation and engagement. Although statistical controls such as the HTMT ratio and collinearity assessments were employed to ensure validity, self-reports remain susceptible to social desirability bias. Future research would benefit from triangulating survey data with objective performance metrics, such as attendance records, technical proficiency evaluations, or jury scores, to provide a more holistic assessment of student engagement.

## 5.8 Future-Oriented Implications and Research Directions

While the present study provides robust evidence for the motivational dynamics of Guangdong's undergraduate dance programs, it also opens several avenues for future inquiry and practical innovation. The findings highlight the importance of situating motivational theory within cultural contexts, but they also suggest that the Guangdong case can serve as a model for other high-intensity, collectivist educational environments.

Longitudinal trajectories of motivational internalization represent a critical next step. The cross-sectional design captured a snapshot of motivational orientations and engagement, but future research should track students across multiple years to examine how controlled motivation evolves into autonomous commitment. Such longitudinal studies would clarify whether the Guangdong–SDT Paradox persists over time or whether controlled motivation diminishes as students consolidate artistic identity and competence [1]–[4], [14].

Cross-cultural comparative studies are equally essential. While this research situates Guangdong within broader Asian motivational patterns, systematic comparisons with Western conservatories could further test the universality of SDT's principles. For instance, examining how autonomy-supportive climates function in ballet schools in Europe versus ensemble-based studios in China would reveal whether cultural obligations consistently complement or conflict with autonomy [30]–[32]. Such comparisons would refine the concept of contextualized universality and expand SDT's explanatory power.

Interdisciplinary applications also merit exploration. The motivational ecosystem identified in Guangdong's dance studios may apply to other performance-intensive domains such as sports, music, or theater. Each of these fields involves high technical demand, collective identity, and cultural meaning, making them fertile ground for testing the interplay between learning climate, motivational orientations, and multidimensional engagement [18]–[22]. Extending the framework beyond dance would enhance its generalizability and practical relevance.

Finally, policy and institutional innovation should be considered. The study demonstrates that learning climate is the dominant predictor of engagement, suggesting that institutional policies should prioritize instructor training, motivational health screenings, and culturally sensitive pedagogical strategies. Future research could evaluate the effectiveness of such interventions, providing evidence-based recommendations for curriculum design and quality assurance [25], [29].

In sum, the Guangdong case not only validates SDT in a collectivist, performance-intensive context but also points toward a broader research agenda. By pursuing longitudinal, cross-cultural, and interdisciplinary studies, scholars can deepen understanding of how universal psychological needs interact with cultural values, ultimately informing the design of inclusive, empowering, and high-performance educational environments worldwide.

## 5.9 Integrative Synthesis and Closing Reflection

The cumulative findings of this study underscore that Guangdong's undergraduate dance programs operate as multilayered motivational ecosystems, where universal psychological needs intersect with culturally embedded obligations to sustain engagement.



The evidence demonstrates that the learning climate is the most powerful regulatory force, shaping behavioral, cognitive, emotional, and agentic engagement both directly and indirectly through autonomous motivation [16]–[18]. At the same time, the Guangdong–SDT Paradox reveals that controlled motivation, when culturally sanctioned, can function adaptively, reinforcing persistence and commitment without undermining autonomy [9]–[12].

Taken together, these insights suggest that motivation in collectivist, performance-intensive contexts cannot be reduced to simple dichotomies of autonomous versus controlled regulation. Instead, motivation emerges as a dynamic continuum, where external obligations are progressively internalized through supportive climates and ensemble practices. This process reflects the principle of contextualized universality: autonomy, competence, and relatedness remain universal needs, but their fulfillment is mediated by cultural norms, relational expectations, and institutional structures [1]–[4], [14], [15].

The study also highlights the developmental trajectory of motivational internalization, with senior students reporting higher levels of autonomous motivation and lower levels of amotivation compared to first-year students. This progression illustrates how competence gains, relational bonds, and interpretive freedom converge to consolidate artistic identity over time [11], [15], [18]. Importantly, the egalitarian nature of Guangdong’s studios demonstrates that engagement is largely independent of gender or socioeconomic background, reinforcing the potential of well-designed learning climates to foster equity and inclusivity [18], [19]. From a theoretical perspective, the findings enrich SDT by extending its applicability to collectivist contexts, challenge motivational dichotomies by demonstrating the adaptive potential of controlled regulation, and advance engagement theory by mapping multidimensional pathways of influence [18]–[22]. From a practical perspective, they provide actionable strategies for instructors and institutions, emphasizing autonomy-supportive pedagogy, developmental scaffolding, and constructive channeling of social pressures.

In closing, the Guangdong case illustrates that dance education is not merely skill training but a process of motivational development, cultural internalization, and identity formation. By integrating universal psychological needs with culturally specific values, Guangdong’s studios exemplify how elite arts education can cultivate technically proficient performers, resilient learners, and cultural ambassadors. This synthesis sets the stage for the broader implications outlined in the Conclusion, where the lessons of Guangdong are extended to other high-intensity, collectivist educational settings worldwide.

Taken together, the findings of this study demonstrate that Guangdong’s dance studios embody a unique motivational ecosystem where universal psychological needs intersect with culturally embedded obligations. The Discussion has highlighted both theoretical contributions and practical implications, while situating the Guangdong–SDT Paradox within broader cross-cultural debates. Building on these insights, the following Conclusion synthesizes the study’s contributions, outlines actionable strategies for educators and institutions, and identifies directions for future research across performance-intensive and collectivist educational settings.

## 6. CONCLUSION AND PRACTICAL IMPLICATIONS

This study provides compelling evidence that Guangdong undergraduate dance studios function as dynamic motivational ecosystems, where technical rigor, psychological support, and culturally embedded values interact to shape sustained student engagement [1]–[4], [9]–[12], [16], [18]. By situating Self-Determination Theory (SDT) within this high-performance, collectivist context, the research identifies that autonomous motivation serves as the central driver of deep artistic involvement, while culturally embedded obligations—captured in the Guangdong–SDT Paradox—act as secondary scaffolds that reinforce persistence and commitment.

The findings demonstrate that the learning climate exerts a dominant regulatory influence, with a total effect ( $\beta = 0.752$ ) that surpasses individual dispositions or demographic factors in shaping multidimensional engagement. Instructor-led autonomy and relatedness support not only enhance autonomous motivation but also mediate the integration of culturally specific motivational factors, fostering both behavioral and emotional investment in ensemble-based training [16]–[18].

### 6.1 Contributions to the Literature

This study addresses several gaps in the literature and advances theory in multiple ways:

1. **Validating SDT in Elite Arts Education:** The results confirm that the satisfaction of basic psychological needs remains a universal determinant of engagement, even within non-Western, performance-intensive contexts [1], [3], [14]. Autonomous



motivation consistently predicts higher levels of cognitive, behavioral, and emotional engagement, reinforcing SDT's cross-cultural applicability.

2. **Redefining the Learning Climate:** The study elevates the concept of learning climate from a distal or moderating factor to a primary regulatory force. Instructor behaviors—through autonomy support, constructive feedback, and fostering relatedness—directly shape student engagement and indirectly influence motivation internalization [16]–[18].
3. **Challenging Motivational Dichotomies:** Controlled motivations, traditionally viewed as maladaptive in Western SDT research, can function adaptively when embedded within supportive learning climates and culturally meaningful frameworks. Filial piety (xiào) and institutional “face” (mianzi) exemplify how socially sanctioned external pressures may reinforce engagement without undermining autonomous passion [9]–[12], [15].
4. **Advancing Contextualized Universality:** The findings support a nuanced interpretation of SDT, demonstrating that the universality of psychological needs coexists with cultural specificity in motivational expression. Collectivist norms, hierarchical instruction, and ensemble practices complement, rather than conflict with, autonomy-supportive pedagogy [14]–[16].
5. **Expanding Engagement Theory:** By integrating SDT with Astin's Theory of Involvement and Kuh's Engagement Theory, the study demonstrates that engagement is multidimensional and context-dependent. Behavioral engagement is strongly climate-driven, cognitive engagement is most sensitive to autonomous motivation, emotional engagement reflects both climate and controlled motivation, and agentic engagement emerges through interpretive freedom [18]–[22].

## 6.2 Managerial and Pedagogical Implications

The high predictive power of the model, confirmed via PLSpredict, demonstrates its utility for institutional diagnostics and quality assurance [25], [29]. The following actionable strategies emerge for managers and instructors in elite dance education:

1. **“Support-First” Instructor Training:** Institutions should mandate professional development programs that emphasize autonomy-supportive behaviors, relational scaffolding, and culturally sensitive motivational strategies. Instructors should be equipped to balance technical correction with psychological support and motivational scaffolding [16], [17].
2. **Motivational Health Screenings:** Administrators should implement periodic motivational assessments to identify students at risk of amotivation or disengagement. Early detection allows proactive interventions, such as mentoring or targeted feedback, before declines in perceived climate affect performance [25], [26].
3. **Constructive Channeling of Social Pressure:** Managers should design low-stakes, community-facing performance opportunities that allow students to fulfill relational obligations (e.g., family expectations, institutional reputation) in a way that complements autonomous motivation rather than undermining it [9]–[12], [15].
4. **Developmental Scaffolding:** Curricula should be aligned with students' motivational maturation. First-year students require explicit emotional support and structured guidance, whereas senior students benefit from interpretive freedom and opportunities to exercise agentic engagement consistent with their higher autonomous motivation [11], [16], [18].
5. **Fostering Egalitarian Spaces:** The study demonstrates that engagement is largely independent of gender or socioeconomic background, underscoring the potential for dance studios to act as meritocratic and relationally equitable environments. Emphasizing instructor-led climate and culturally aligned pedagogical strategies can maximize student potential regardless of background [18], [20].
6. **Dimension-Specific Strategies:**
  - **Behavioral engagement:** Reinforce structured rehearsal routines with clear expectations.
  - **Cognitive engagement:** Provide interpretive freedom and cultural-historical context to deepen intellectual investment.
  - **Emotional engagement:** Foster belonging through ensemble pride and relational support.
  - **Agentic engagement:** Encourage student-led contributions, peer mentoring, and collaborative choreography.

## 6.3 Future Research Directions

While the study provides robust evidence, several avenues for future research remain:

- **Longitudinal Designs:** Tracking motivational trajectories across multiple years would clarify how internalization unfolds over time.



- **Cross-Cultural Comparisons:** Comparative studies across Asian and Western dance institutions could further test the Guangdong–SDT Paradox.
- **Interdisciplinary Applications:** Extending the framework to other performance-intensive domains (e.g., sports, music, theater) would assess generalizability.
- **Digital and Hybrid Learning:** Investigating how online or blended dance instruction affects motivational dynamics could inform post-pandemic pedagogy.
- **Policy Integration:** Exploring how national cultural preservation policies interact with motivational climates could strengthen institutional alignment.

## 6.4 Final Remarks

In conclusion, this research establishes that strategic cultivation of autonomy, competence, and relatedness allows Guangdong's dance institutions to foster an egalitarian, high-performance learning environment. By integrating universal psychological needs with culturally embedded values, instructors and administrators can sustain deep engagement, resilience, and artistic identity formation.

The study's insights extend beyond dance education, offering a model for contextually sensitive motivational frameworks in other high-intensity, collectivist educational settings. By recognizing both universal and culturally specific pathways of motivation, educational leaders can design learning environments that are inclusive, empowering, and performance-enhancing, ultimately preparing students not only as skilled practitioners but also as cultural ambassadors and lifelong learners [1]–[4], [9], [14], [18], [30].

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