

NATIONAL SPORT'S ACADEMY "VASSIL LEVSKI"



GYMNASTIC DEPARTMENT

ZHAN CHAO

**Research on Breaking through 'Plateau
Phenomenon' of Latin-American
dancesport Competitors form China**

A B S T R A C T

of thesis for awarding the scientific degree of "PhD"
Professional field: 1.3 "Pedagogy of teaching in.... "
Doctoral program: "Physical education in the education system"

Scientific supervisor:
Assoc. prof. Zlatin Kostov, PhD

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Dissertaion is written on 247 pages from which the main text is 209 pages, Bibliography - 7 pages and Appendixes - 31 pages. The work is illustrated by 12 Tables and 66 Figures.

Bibliography contains 84 sources in English from which 4 websites.

The structure of the thesis contains Introduction, 4 Chapters, Conclusions and Implications, Bibliography and Appendixes.

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Introduction

1. Research problem and its context

In recent years, the rapid economic and social development of China has led to appearance and spreading around the country of many new economic and cultural activities in the society. Due to the policy of open market and highly intensified international exchange of information, goods and people from basically all areas of human activity, the so-called International Ballroom and Latin-American dance style, based on the traditions of the Western culture has become one of the most popular dance styles in China. Its long lasting (almost a century) and highly structured international development as an attractive social, competitive and cultural activity has finally reached China at the end of last century and since then continuously growth in its popularity and the quality of the competitive performance of the Chinese competitors who are practicing it, either as a competitive dance style or as a new aesthetic sport (dancesport), also grows. The number of dancesport enthusiasts in China is constantly increasing, while the process of its further development in view of rising the quality of the performance and the level of the competitive results in the international competitions of the Chinese competitors, although increasing, is also suffering a lot of problems. These problems of course have different character, but all of them need to be solved in order to assure a stable and even more rapid expansion of the dancesport across the country. The current level of results of the Chinese competitors in the major international dancesport competitions on our opinion has not yet reached the highest possible level. As a matter of fact, after a certain level of performance, it becomes very difficult for both professional and amateur dancesport competitors in China to break through to the higher level. This phenomenon of stagnation after a long period of training is widespread in all fields, and is defined in the field of sports training as the 'plateau phenomenon'. It has been studied for a long time to some extent, including gymnastics, tennis, athletics, and so on. However, very few researches on the problem have been reported in the field of

dancesport, and although there is a great deal of researches on it in similar disciplines, there are a lot of differences due to the specificity of dancesport itself and the reasons for such a barrier effect in it, as well as methodology for a breakthrough. Therefore, our research project is not a substitute for any already existing general study of this phenomenon in the field of dancesport, but an attempt to shed a light on the problem, specifically in the case of the dancesport competitors in China.

2. Problem research questions

In this thesis, the main issues studied are:

1. *What is the plateau phenomenon in dancesport?*
2. *What are the reasons that may lead to a plateau for Chinese competitors?*
3. *What kind of innovative training programs can be implemented with the Chinese competitors to break through their plateau?*
4. *What are the indicators used to determine whether a competitor has broken through their plateau?*

To address these issues, we conducted a large number of pedagogical observations, interviews and questionnaires for gathering information from different dancesport competitors, senior coaches, trainers, professional teachers, and national team coaches in China. At the same time, we needed to review a large number of literature (journals, papers, books) related to the plateau phenomenon not only in the dancesport, but also in many other relevant sport disciplines, and different fields of human performance activity. Based on the conclusions from our analysis of the existing technical and scientific literature, devoted to the theory and practice in LA dancesport training and competing, the essential characteristics of the process of producing successful LA dancesport competitors are outlined and the current problems of the development of dancesport in China are addressed. In our view, Chinese dancesport competitors have encountered a plateau in their development largely due to flaws in the coaching methods. Traditional coaching in China often lack a customized approach, treating all athletes uniformly despite their

unique strengths, weaknesses, and learning styles. This one-size-fits-all methodology fails to address individual needs and nuances, leading to suboptimal skills development. Additionally, many coaches tend to emphasize quantity of practice over quality, leading to exhaustive, repetitive training sessions that do not effectively enhance technical skills or performance. There is often an inadequate focus on cognitive and psychological aspects of training, neglecting the importance of mental toughness, strategic thinking, and motivation, which are critical for high-level performance in dancesport. Furthermore, some coaches may not be adequately trained in the latest techniques and strategies, resulting in outdated training methods being employed. This lack of innovation and adaptation in coaching methods contributes significantly to the plateau experienced by Chinese dancesport competitors.

3. Relevance of the problem

The prevention or breakthrough the “plateau” periods in dancesport training is an important issue that needs to be addressed and one that teachers and trainers are often troubled by in their work. However, researches in this area are relatively rare. At present, approach to dancesport in China is mainly conceptual, formalized in teaching and training and more competitively than developmentally oriented. The theoretical aspects include standard dance pedagogical and training models, curriculum settings, etc. Researches on the field covers social, health, aesthetic, and economic aspects. Research on the physiological and biomechanical characteristics required for developing special skills and related special techniques mainly contains analysis of the specific dancesport fitness exercises of single qualities and some particular models for different technical training. The analysis of the publications on this field in China, shows that dancesport special technical training methodology is not in the main focus of the researchers, while it can establish a practical basis for improving the scientific approach to the training of China’s dancesport competitors in general. Therefore, the relevant research on special technical training is what we must pay attention to. The research on

the causes for the “plateau” periods in the dancesport training and the methodology for breakthrough this periods has special significance for the development of the dancesport competitors and constant improvement of their performance and competitive skills. Through analyzing and summarizing the relevant scientific theories and research articles on the existing practical models for teaching and training in dancesport both in China and abroad, we are aiming to provide a reliable theoretical basis and practical methodology for an overall improvement of the performance quality of Chinese dancesport competitors, as well as their national and international competitive results.

Chapter 1. Literature review

The literature review reveals the history of dancesport developing as a sport discipline in China and abroad, characteristics of the Latin-American dancesport, dancesport performances quality evaluation in competitions and its judging criteria, educational and training methodology in China and abroad, the phenomenon of a plateau periods and strategies for its overcoming in different human performance areas, including dancesport, which overall represents the theoretical support and understanding for this study.

In response to the drawbacks of previous training methods in the field of dancesport in China, we introduce the method of "Deliberate Practice" in our experimental training program, emphasizing its significant advantages and rationality in this regard. This method meets China's need for modern, innovative coaching strategies and provides a more effective and scientific approach to the training of Chinese dancesport competitors.

Based on the above and starting from the first two core questions of this dissertation, we provide a concise conclusion of what causes and how to break through the plateau period of the specific dancesport training with the Latin-American dancesport competitors from China.

Finally, we have formulated our research hypothesis concerning the problem of "breaking through the plateaus" of Chinese Latin-American (LA) dancesport competitors. To verify our hypothesis, we have prepared and conducted a one-year pedagogical experiment with a representative selection of dancesport competitors (both, men and women) from Sport Universities in China who have reported suffering a plateau in their dancesport development.

Hypothesis of the research

"The implementation of an experimental training program based on the "Deliberate Practice" method in the dancesport specific training of Chinese Latin-American dancesport competitors will lead to a significant breakthrough in their performance plateaus. By targeting training to the specific weaknesses and challenges of these athletes, the deliberate practice approach will not only help to

overcome the limitations of the traditional training methods, usually applied in China's dancesport system, but will promote also more scientifically oriented and consistent methods of dancesport development in China through an enhanced attention to the "what", "how" and "why" in dancesport competitive performances, which will help also the competitors to break through possible future plateaus during their competitive carrier, thus continuously improving their overall dancesport performance and rising their proficiency to an expert level."

Chapter 2. Goal, Objectives, Organization and Methodology of the Research

1. Goal and objectives

The **main goal** of the research is to propose a solution to the problem of braking through the plateau in the dancesport specific training of Chinese LA dancesport competitors through creating and implementing of a new experimental training program, based on the "Deliberate Practice" method in a pedagogical experiment with a selected group of Chinese college dancesport competitors suffering a plateau in their competitive performance level,

In pursuing the goal of the research, the following **objectives** have been set:

1. *Preliminary investigations on the research problem context.*
2. *Literature review on the problem and setting the hypothesis of the research.*
3. *Conducting of a Pedagogical experiment for checking the validity of the hypothesis.*
4. *Analysis of the results, conclusions and writing of the thesis.*

The **object** of the study is the methodology of dancesport specific training with Latin-American dancesport competitors.

The **subject** of the goal oriented investigations and interventions are selected components of the dancesport physical fitness, technique, musicality, partnering skills and presentation, as well as the overall quality of the performance of Chinese LA dancesport competitors, suffering a "Plateau" period in their competitive development.

The **contingent** of the study are Chinese LA dancesport competitors from normal Sports' Universities in China who take part regularly in national and international dancesport competitions, majority of which had reported suffering a "plateau" period in their dancesport special preparation. We selected a representative group of 14 major dancesport students and competitors (competitive level – class C, B) from Anqing Normal University, China (7 LA dancesport couples) to take part in a pedagogical experiment for breaking through

their plateau. We had also a referential group of 6 dancesport couples from Beijing Sport's University, which had significantly higher performance quality (competitive level - class A, International), according to the assessments of both groups by the Expert PQE, at the beginning of the experiment. We used the performance level of the referential group as a target one for the couples from the experimental group, which they are aiming for, by overcoming their plateau at the end of our experiment of one year. In dancesport, the transition from a lower to the next higher competitive level usually takes several (2-4) years of training and competing. The crucial transition is between the so called "Basic" (classes E, D, C) and "Advanced" (classes B, A, International) competitive levels, when couples who are suffering a Plateau period for long time are those who has not developed their Basic special dancesport abilities and skills up to the requirements for building up their advanced dancesport skills on a solid fundament. That is why we choose to implement our experimental training program to Chinese competitors who are suffering a Plateau namely in that transitional period. In our preliminary investigations we explore the factors for the plateau phenomenon in their dancesport performance level and competitive results, as well as the methodology of their training, dancesport specific abilities and overall quality of their competitive performances. Competitors took part in our pedagogical experiment for breaking through their plateau by applying a new experimental training program, based on the "Deliberate Practice" method, alongside with their regular University program of teaching and training.

2. Organization and scheduling of the research

1. Preliminary investigations on the problem - pedagogical observations, interviews, questionnaires, web research.
2. Literature review and theoretical analysis of the problem, setting up the hypothesis, goal, objectives and methodology of the research.

3. Pedagogical experiment - selecting of the target experimental group and referential model group, pretesting, setting of the training program, conducting of the 1-st (Preparation) stage of the experiment.

4. Analysis of the results of the 1-st stage of the experiment, upgrading the training program and conducting of the 2-d (Main) stage of the experiment.

5. Analysis of the results of the 2-d stage of the experiment.

6. Summary and making conclusions on the research.

3. Methodology

The research methodology implies the following methods and instruments:

1. Documentary method: we reviewed and analyzed existing documentation on the problem. The documents explored are: main dancesport websites (placements of the China's competitors in national and international competitions), documents of China Dancesport Federation (rule books, competition rules, etc.), documents of Chinese Sport Universities (educational and training programs, etc.)

2. Questionnaire method: we designed 2 questionnaires with 20 closed questions each to collect the problem related information directly from the subjects – competitors (226) and coaches (20).

3. Pedagogical observation and interview method: we made detailed observations to the dancesport training methodology used in different sports colleges and Universities in China and in order to incorporate personal qualitative insights from their dancesport practice, we interviewed dancesport competitors and experts who involve professional dancesport teachers from China, Chinese national team coaches and senior adjudicators. They gave their personal assessments and detailed information, necessary to guide our study to the possible causes for the plateau of the competitors involved in our investigation and its characteristics.

4. Literature and theoretical analysis method: we explored the existing literature, scientific publications and web resources on the problem of the research (historical and theoretical books, textbooks,

theses, articles and other scientific publications). We organized, analyzed, commented on and used them selectively, in screening out the content with reference value to solving our research problem, which helped us to lay out the foundation for our research and formulate our hypothesis.

5. Testing method: we used specific tests to provide information about the level of dancesport specific: theoretical preparation, physical fitness, technical skills, musicality and presentation abilities of the competitors during the experiment.

A) Theoretical (covering basic principles, terminology and choreography) and practical (dancesport specific technical skills, musicality and presentation) tests: to comprehensively assess mind (the acquired knowledge - **know “What”**), technical abilities and musicality (the dance and music related skills - **know “How”**) and presentation skills of the competitors (the reasonable understanding of the relationships between music and dance movements, and the embodiment of the movement expressivity and its meaningful communication of the emotions, risen from the music and the partner through each of the dances - **know “Why”**), a series of measurements were adopted in the study:

Know “What” tests: these tests measure the individual level of dancesport basic theoretical preparation of the competitors (knowledge and understanding of the general and dance specific movement content and terminology). The key to these tests is to ensure that the questions are clear, concise and accurately reflect the knowledge we wish to test. This method allows for a comprehensive assessment of a dancer's theoretical preparation in each of the 5 dances.

Know “How” tests: these are dance specific practical tests which examine some crucial coordinative abilities (timing and rhythmicity) of the competitors as well as the level of proficiency of their technical skills (their kinematic and dynamic efficiency) in the execution of the main dance specific basic actions and figures.

a) Rhythmical abilities test battery (individual)

- Ability to keep the tempo and the basic rhythm in the music.

- Ability to produce different characteristic rhythmical patterns in the standard tempo for each dance.

b) Dance specific technical skills test battery (couple)

The "Dance specific technical skills" test forms a crucial part of the "Know How" section in assessing the technical competencies of Latin-American dancesport couples. This testing module is not only benchmark of the current basic skills levels of the contestants but also offers valuable insights and for their targeted training and development in future sessions.

Know “Why” tests: these are practical tests for evaluation of the expressive abilities and presentational skills of the competitors, based on the understanding of the LMA & BF. Testing competences in the area of expressiveness and presentation is a complex task. For the purpose, competitors should be acquainted with the practical application of LMA in consideration of body language of emotions, raised from the music of the 5 Latin-American dances. The phrase "body language of emotions raised from the music" refers to the physical responses and expressions that people exhibit in response to music, which can evoke a wide range of emotional states. Music, with its rhythms, melodies, and harmonies has a profound impact on human emotions and can elicit various physical responses. The "body language of emotions raised from the music" is a dynamic and expressive way through which our internal emotional reactions to music are externalized and made visible through physical responses.

The tests are assessing the ability of the dancers to clearly demonstrate by their dancing the emotional, rhythmical and dynamic impact of the music.

B. Physical fitness test battery

The physical fitness tests examine some crucial conditional and coordinative abilities of the competitors (dynamic balance, explosive strength, reaction time, aerobic-anaerobic endurance). They provide valuable insights into a dancer's physical attributes and athletic capabilities, enabling coaches and competitors to identify potential weaknesses and areas for improvement.

6. Pedagogical experiment: According to the results of the questionnaire survey with competitors in the second year dancesport class of Anqing Normal University, which clearly pointed out to a plateau period in their dancesport special training, seven couples were selected as experimental group of our pedagogical experiment. In order to make the experiment more comprehensive and convincing, the author also selected six couples of competitors from the second year Dancesport class of Beijing Sport University as a reference group. This group was selected to be considerably better than the experimental one in their performance level, thus representing the goal level of performance for the experimental group. The performance gap between the two groups was chosen to be big enough so in normal training it would take 2-4 years training of the competitors from the experimental group to close it. Thus, reaching the same result in our 1-year long experiment would be sure sign for a break through their plateau period. The experimental group underwent a one year of teaching and training by application of our new methodology and experimental training program, while keeping their regular University dancesport training program. Before the intervention, the entry level of the competitors from the experimental group was evaluated (pre-test) by our dancesport specific tests (know “What “, know “How”, know “Why”). The results were used as a reference basis for finding out the reasons for their "plateau period" and the respective design of their intervention training. At the end of the experiment competitors were tested again (post-test). The data were compared and the changes of the pre-test and post-test results were statistically analyzed and validated in order to verify or deny our research hypothesis.

7. “Deliberate Practice” method: implemented in the pedagogical experiment as a main method of the targeted, structured, and purposeful experimental training program for breaking through a plateau. “Deliberate Practice” method applied in this study involves a systematic and purposeful approach to dancesport training that goes beyond routine practice sessions. Competitors engage in focused and goal-oriented activities with the intention of improving specific

aspects of their performance. The key aspects of its application are: setting specific goals; focused, structured practice sessions; feedback loops; repetition with variations (“repetition without repetition”); time management and efficiency; personalization for individual competitors (through individual sessions. By applying DP to dancesport training for breaking through a plateau, competitors can systematically refine their technique, elevate their performance, and continuously progress towards mastery.

8. *Video analysis method:* to assess the dancesport competitors’ performances, through the movements content, quantity and quality (LMA) analyses and serve as feedback in the training, and as a tool in the Expert’s evaluation. By analyzing the video content with comprehensive delayed feedback, we have provided competitors with targeted improvement guidance that addresses specific moments in the performances of the competitors that may contribute to overcoming their “plateau” level. This facilitates a structured and focused intervention to guide competitors in refining their skills and improving the overall quality of their LA dancesport performances. Overall, the feedback ensured a systematic and consistent approach to the analysis, with a focus on both, quantitative and qualitative aspects. Collaboration with dance experts ensured a nuanced understanding of the technical and expressive elements of Latin-American dancesport style. Video playbacks served as tools to review performances multiple times and capture intricate details. Cross-reference content analyses with LMA analyses, feedback, and expert’s evaluation provided a comprehensive understanding of each performance.

The comprehensive content analysis served as a foundation for the subsequent phases of our pedagogical experiment, facilitating the identification of specific areas for intervention and improvement in overcoming the plateau of the LA dancesport competitors in the experimental group.

9. *“Expert evaluation” method:* provide a detailed, reliable qualitative assessment of the dancesport performance level of the competitors in the experiment, according to the set criteria in WDSF

AJS 3.1 – technical quality (TQ), movement to music (MM), partnering skills (PS), and choreography and presentation (CP).

Performance Quality Evaluation (PQE) can guide competitors on areas to improve, particularly in artistic expression and technical refinement. This is vital for competitors aiming to break through performance plateaus. The PQE method session in our research provides a nuanced and in-depth analysis of the competitors' dance performances, focusing on aspects that are crucial for high-level dancesport, but are not captured by physical fitness tests. It underscores the importance of artistic expression, technical finesse, and the emotional impact of LA dancesport style, offering a well-rounded approach to evaluating and enhancing performances in this field.

10. Statistical methods: the mathematical and statistical (variation, correlation, comparison analysis by SPSS 26.00) methods are used to analyze the data collected from the three test modules: Practical Tests, Theoretical Tests, and Physical Fitness Tests, as well as from the score results of the Experts' PQE. For each score category competitors performed a Paired Sample t-Test. The statistical analysis aimed to evaluate the level of validity and reliability of the tests chosen, and the effectiveness of the interventions in overcoming the plateau phenomenon among the dancesport competitors in the experimental group by comparing their pre-intervention and post-intervention scores.

4. Experimental training program

In order to help competitors to improve their performance level as soon as possible, we propose a new training methodology based on the implementation of the scientific principles and methods revealed in the literature on "breaking through the plateau", as well as on the interdisciplinary and dualistic (science – art) approach in the conducted "DP", used as the main method in the training program. This training mode aims to improve the competitor's results in all 4 areas of evaluation of the performance quality in dancesport – TQ, PS, MM, CP. Our training approach is based on application of the LMA

& BF as most comprehensive theoretical approach and language for objectively observing, describing, analyzing and improving the mastery of all the varieties of functional and expressive human movement. The study of the main principles of these theories and their systematic and deliberate implementation in the training sessions is intended to boost the improvement of the competitors' skills in the execution of the essential LA dancesport techniques. The “DP” training method was only used for the group intervention. Before the experiment we conducted an Expert PQE of the competitive performances of the two dancesport groups (19 – 21 years old), the experimental – representing the performance level of the dancesport couples from Anqing Normal University and the referential - representing the performance level of the dancesport couples from Beijing Sport’s University, which is widely accepted as the best in China. The results of the PQE clearly showed the superiority of the performance level of the competitors from the second group. The experimental group is meant to undergo a training which will allow them to reach or closely approach that performance level and this can be considered as a break through their performance plateau.

To break through the plateau of LA dancesport training for university students in Anqing Normal University, we created a new experimental program, which represent an integrated model of special physical, technical, musical, choreographic and mental training through “DP”, based on the LMA & BF. Table 1 shows the content, “DP” design and the training goals for all three indicators we adapted for the experimental group.

Table 1. Content, “DP” design and training goals

Training indicators	Deliberate practice design	Goal
Physical	In the course of specific physical training, the focus is on building explosive strength, speed, flexibility and anaerobic-aerobic stamina. The interval and cross-fit training methods are applied.	Enhance endurance, strength, flexibility, and balance. Improve specific fitness aspects relevant to dancesport

Technical	Training focuses on basic techniques, including steps, general and dance specific actions, body mechanics, body dynamics, body parts articulation and shaping, rhythmicity and phrasing, musicality, partnering and presentation. Implement an instant and postponed feedback from experts, instructors, videos and peers, to refine techniques.	Refine dance technical skills. Enhance precision, fluidity, and synchronization with the partner and the music in movements. Producing a musical performance.
Mental	Appropriate psychological interventions for less motivated students; such as multiple solo presentations, encouragement mechanisms, and atmosphere building. Develop focus, mental toughness, and performance mindset through visualization and self-reflection exercises.	Enhance mental toughness, focus, and confidence. Develop strategies to handle stress and performance anxiety.

1. Training plan of the 1st stage of the experiment (6 months)

The first cycle of training in this stage focuses on improving personal skills and competencies, adapting to the new training model, acquiring theoretical knowledge, understanding and usage of the terminology regarding LA dancesport style, reshaping basic skills, allowing students to develop systematic approach to the movement analysis and execution of the technical characteristics of the LA dancesport style, building up a solid musical and choreographic foundation, improving their specific physical abilities under the guidance of the correct methods and the feedback of their coaching staff. The goal we want to achieve is the automation in the correct musical and technical execution of all the basic steps, actions and figures of the internationally accepted syllabus, including basic body and body parts actions (footwork, pelvic swing, bending and straightening of the knees, etc.).

The second cycle is the most critical and the one in which we will expect students to improve the most. Focuses are on developing and improving technical skills for partnering and presentation as well as the dynamic quality of the choreographic movements of the dance couple. During this phase, the main focus is on the improving of the

tandem technique, rising the energetic efficiency of their performance and developing their expressivity.

Note: As this is an intense training cycle, it is important to monitor the physical and mental state of the students during the training period and to make reasonable and necessary adjustments to the training program.

The aim of the third cycle is to bring the competitors' dancesport skills development to their autonomous phase (the so called “embodiment”) and to develop their muscle memory. The focus is on improving the contestants' understanding of dancesport style, music and awareness of presenting what they want to express perfectly through movement in a native and creative way. We want to see a quantum leap in their competitive performances created by an individual expression of the music through technically correct, dynamically diverse and style specific embodied dance movements compared to the pre-experimental period. Therefore, in the last cycle of training, we integrate theoretical knowledge of dance (origins and development, cultural influences, choreography etc.) with practical performance so that the participants understand what they are doing, when in the musical time, where in personal and general space, how through their efforts and what they want to express through each movement. At the end of the session, the students are asked to make their interpretations and judgments of the couple's performances on the videos from different amateur competitions as well as professionals' performances on video.

At the end of the stage 1 of the training period, we gave the students a week's break before arranging for the competitors to compete again, in order to check the improvements in the experimental group and to insert some changes in the training program if needed. The procedure and judges were the same, and other distracting factors were excluded as far as possible, to achieve fairness and impartiality in the experiment, and thus to make the results more accurate.

Below (Tables 2, 3, 4) are the detailed plans of all the training content, volume and intensity of the deliberate practices graded

rationally throughout each cycle, each week, and each session of the 1-st and 2-d stage of the experiment. We give a specific percentage of the training load to each training indicator, which will then be varied according to the intermediate results and the practical significance of each of them for reaching the goal of the experimental program.

Table 2. Training plan of the 1st stage of the experiment

Training time	Training plan	Training indicators
Monday	Some basic ballet moves to warm up Specialized skills training (basic movements) Couple work techniques (lead and follow)	10% 40% 50%
Thursday	Warming up through jazz Specialized skills training (basic movements) Couple work techniques (connection, body dynamic, flow)	10% 40% 50%
Friday	Dance specific worm up. Specialized skills training (basic movement+ Single Dance Ensemble) Couple work techniques (timing, musicality) CrossFit training	20% 60% 20%
Saturday	General warm up Couple work techniques (duo dance) Cross-Fit training (Improving explosive power and speed)	10% 60% 30%

Table 3. Training plan of the first cycle of the 2^d stage of the experiment

Training time	Training plan	Training indicators
Monday	Some basic ballet moves to warm up Specialized skills training (basic movements) Couple work techniques (lead and follow)	10% 40% 50%
Thursday	Warming up through jazz Specialized skills training (basic movements) Couple work techniques (connection, body dynamic, flow)	10% 40% 50%

Friday	Dance specific worm up. Specialized skills training (basic movement+ Single Dance Ensemble)	20%
	Couple work techniques (timing、 musicality)	60%
	CrossFit training	20%
Saturday	General warm up	10%
	Couple work techniques (duo dance)	60%
	Cross-Fit training (Improving explosive power and speed)	30%

The emphasis in the second stage of the experiment is on the integration of the already differentiated and deliberately practiced dance elements, as well as in continuing the improvement of some still weak elements through extended deliberate practices. At the end of the stage 2 of training, we would like each couple to be able to complete a five-dance combination independently, with maturity, in partner coordination, aesthetic shaping, space and dynamic exploration based on the understanding and emotional response to all of the expressive elements of the music as well as to the melodic, rhythmic and dynamic synchronization of the different musical instruments playing it. At the same time, each couple will be encouraged and applauded when they perform holistically and from inside out in a creative way, so that they can better stimulate their positive mental state, confidence and adequate self-esteem. Below is the detailed plan of training content, volume and intensity of the deliberate practices graded rationally throughout each week, and each session of the last cycle of the 2-d stage of the experiment (Table 4):

Table 4. Training plan of the last cycle of the 2-d stage

Training time	Training plans	Training indicators
Monday	Warming up through Yoga	10%
	Specialized skills training (basic movement)	60%
	Specialized physical training	30%

Thursday	Warming up through jazz Specialized skills training (basic movement) Specialized physical training	10% 60% 30%
Friday	Warming up through Taiji Specialized skills training (basic movement+ Single Dance Ensemble) Specialized physical training	10% 60% 30%
Saturday	Warming up through ballet foundation training Specialized skills training (basic movement+ Single Dance Ensemble) CrossFit training (Improving agility and coordination)	10% 50% 40%

Chapter 3. Results & Analysis

1. Preliminary investigation results

1.1 Development of dancesport in China and the international results of Chinese Latin-American dancesport competitors

The historical review shows that in the last decade the importance of dancesport events in the development of dancesport projects in China became increasingly important. A thorough investigation of the most informative website in the international field of dancesport (www.dancesportinfo.net) has revealed that in the last decade Chinese International Latin-American dancesport competitors has taken part consistently in the 4 major international events in the field of competitive Ballroom dance (dancesport) - Blackpool Dance Festival (Fig.1), UK Open Championships, German Open Championships (Fig.1) and WDSF Grand Slam series. We considered the competitive results data of the Chinese dancesport competitors in these major competitions for a period of 10 years (2009-2019) and analyzed them to find out if there is any tendency for a plateau of this results.

1.2 Competitors' questionnaire results

The questionnaire was done with a group of 226 dancesport competitors from different Dance Academies and Sport Universities in China who are taking part regularly in national and international competitions. Results clearly show that Chinese Latin competitors suffer from a both types of plateau – in their dancesport development and in their competitive results, but presumably from the first type. So, it is urgent for them to be able to find and apply an effective method to solve the problem of breaking through the plateau period by improving their dancesport specialized training. Results also show that the reasons for suffering a plateau by the Chinese competitors are due generally to: a) the extremely high competitiveness in this sport on national and international level, b) the lack of efficient training methodologies for breaking through a different type of plateaus in their development and c) the inefficient application by the Chinese coaches of the existing one during competitive carrier of their students. Finally the results on Fig.1 show that the Chinese dancesport community need

developing of more advanced specific and scientifically based methods for overcoming the different plateau problems, happening in the dancesport competitors long-term training, as well as in a more efficient application of the existing one, by their trainers.

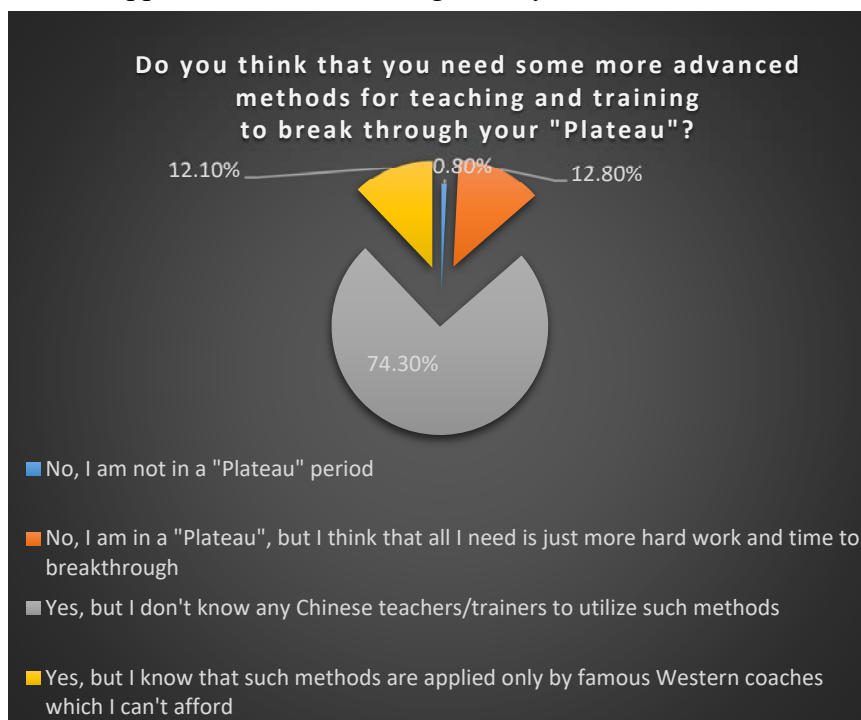


Fig.1

Based on this results, as well as on our pedagogical observations we can conclude that in spite of the fact that there are many good and responsible teachers of physical education and dancesport in China, majority of them are more interested and put their efforts in the commercialization of dancesport clubs they are working for, than in improving the quality of teaching and training of their competitive competitors. This ultimately leads to the academics' staff of the sports universities not being able to find and hire a suitable professional teachers/trainer for successful development of their dancesport

students. Also, we can see that the contestants (as well as their teachers and trainers) are getting some true and some false impressions for the problem areas in their preparation, in comparison to the feedback they receive by the judges in the competitions. It is obvious that they get a large positive effect in the competitions from the increased amount of deliberate practice they put in the most up to them problematic area (technique) during their training. However, the other two areas – musicality and partnering skills they seem to oversee in the training process which has led to an increased negative effect in their competitive results, in comparison to their expectation. This allows us to design our experimental training program for breaking through the plateau for this group of competitors, by focusing on the deliberate activities and practices mainly in these two main aspects of the training program.

1.3 Coaches' questionnaire results

We choose as our target group for investigation 20 coaches and teachers who are between 35 and 45 years old. This is because in that ages they already have enough experience as a college teacher and dancesport club trainers, and most of them are either retired or active professional competitors too. 17 of them were once professional competitors. A key issue in the results of this questionnaire is the contradiction between the answers of the competitors and the coaches regarding the process of breaking through the plateau. It is quite interesting that competitors think they overcome their difficulties during encountering the plateau period by themselves, which obviously reflects a problem: the teacher's teaching doesn't work for the students in their plateau period.

Conclusion: the preliminary investigation on the problem set in the research title had revealed the history of dancesport and its development in China as well as the competitive results of Chinese competitors on the international scene for the last decade. It also pointed to the validity and actuality the research subject and showed that plateauing phenomenon is widely experienced by Chinese dancesport competitors in the major international competitions.

Analysis of the competitor's questionnaire showed that dancesport competitors from Sport Universities in China who are future dancesport professional competitors, teachers and coaches suffer a plateau period in their educational and competitive performance development. Analysis of the coach questionnaires revealed that despite the unprecedented success of Chinese DanceSport competitors in recent international competitions China still need to promote competitive performance and develop its dancesport industry, in order to help competitors to break successfully through their "plateau" periods and to receive support from the powerhouses of dancesport in the country.

1.4 Pedagogical observations and interviews results

The special character of dancesport (a mixed gender team, art-sport activity, interpreting the music through emotional and aesthetic parntnership of Man and Lady in movement) requires development and mastering of many, different type of individual skills, which should be harmonized between the parnters in the dance couple. This complexity leads to the involvement of many different factors which can cause a plateau phenomenon in the individual's as well as in the couples' development in dancesport. Bazed on our pedagogical observations, we divided its causes into two types - general and specific factors (Fig. 2).

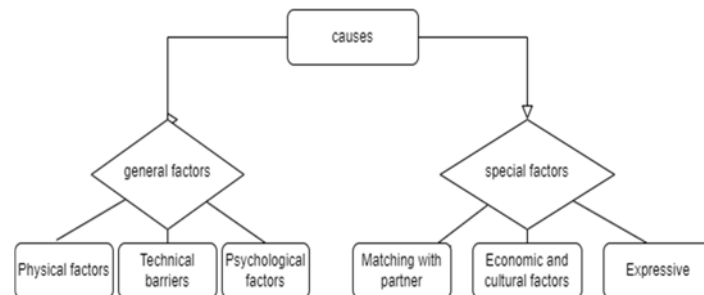


Fig.2

The general factors are those common to sports in general and include physical factors, technical barriers, and psychological influences. Special factors are those specific to dancesport. We have conducted also a deep interviews with some representatives of the Chinese LA dancesport competitors for revealing what are the specific characteristics and symptoms of their plateaus. The most common plateau symptoms reported were technical difficulties in improvement, poor musicality, issues with partnering skills and physical dissonance. Additionally, less frequent characteristics like emotional detachment, hyper-focus on minor mistakes, and over-reliance on routine were noted. (Fi.3).

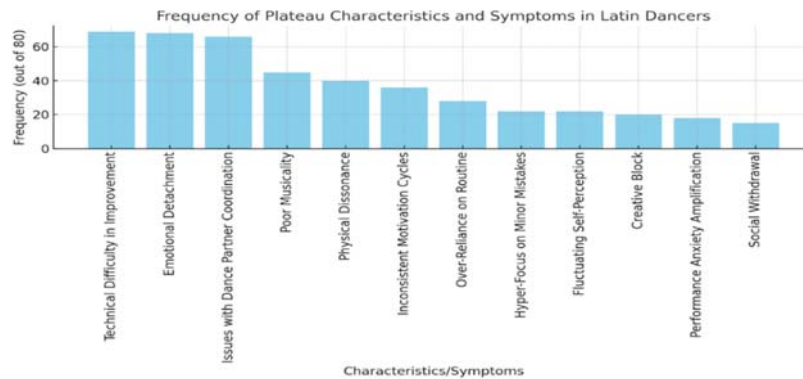


Fig.3

Among these, emotional detachment, which indicates a loss of passion or connection with dance, was the most prevalent and can greatly impact performance and motivation. This was followed by over-reliance on routine. These findings suggest that plateaus in LA dancesport are multidimensional, involving technical skills, mental focus, emotional states, and creative processes. Addressing all these aspects holistically is crucial for overcoming plateaus.

In conclusion, while both Chinese and international approaches to dancesport training share similarities in emphasizing basic skills and creative expression, there are differences in the integration of dancesport into educational curriculums and in the focus in advanced

professional development. We argue that areas such as personalized teaching and diversified resource accessibility in the training require further development. Also, in the sense of the preliminary investigation of the problem with the plateau periods of the targeted group of Chinese dancesport competitors from Sport Universities, the attention should go to the development of their technique, musicality and partnering skills, which are of upmost importance for a breakthrough their plateaus. The implementation of “Deliberate Practice” method in this area can significantly enhance the training process, especially in overcoming their training plateaus.

Based on the above we provides a concise conclusion of what causes and how to break through the plateau period of the specific dancesport training with the LA dancesport competitors in China as follows:

1. Causes for the Plateau Phenomenon of LA dancesport competitors in China

The plateau experienced by LA dancesport competitors in China is a multifaceted issue, influenced by a blend of subjective and objective factors. Subjectively, the mental and psychological state of the athletes plays a crucial role. Athletes often face motivational challenges, burnout, and psychological stagnation after prolonged periods of intense training and competition. This mental fatigue can significantly impede progress, causing a plateau.

On macro perspective, several key factors have been identified objectively:

- *Educational systems and policies*: the broader educational framework has had a significant impact on dancesport. Inadequate policies and support within educational institutions have resulted in limited resources and insufficient attention to dancesport, hindering the development of athletes at a systemic level. Although Chinese dancesport has become more mature in the last decade, with more competitors taking international rankings, that is only a very small percentage, and as can be seen from the authors' statistical charts, there is still a lot of room for upward mobility in the development of Chinese

dancesport. At present, only some universities in China's first and second-tier cities have dancesport majors, which directly limits the number of students who enter dancesport majors, which also leads to the low number of teachers who will be engaged in dancesport teaching in the future.

Therefore, we believe that we should expand the base of the number of dancesport students, use the correct and reasonable training methods and concepts to cultivate more dancesport talents, and at the same time, explore a suitable and more advanced training methods and concepts for Chinese dancesport competitors.

On the other hand social attitudes and cultural perceptions of dancesport play a crucial role. In China, some parents think that children's dancing process will have some adult movements or the appearance of over-development of the heart, although the China Dancesport Federation has fixed uniform and makeup regulations for children's competitions under the age of 12, but it can't stop some of the society from discriminating or unsupportive comments. The level of social support, recognition and overall value of dancesport will affect the motivation and dedication of athletes, thus affecting their progress and development.

On micro perspective, several key factors for plateau phenomenon have been identified objectively:

- *Quality of training and coaching*: the approach and expertise of the coach (both theoretical and practical knowledge) is crucial. Factors such as coaching techniques, training methods and exposure to a variety of styles will directly affect an athlete's skill development and ability to overcome plateaus. Most of the best coaches are located in China's first-tier cities, such as: Shanghai, Guangzhou, Beijing, Shenzhen and Hong Kong. But China is a big country, there are many second and third tier cities which also have a lot of students in amateur dance clubs to learn dancesport, but their understanding of dance, views, including the content of what they learn and exposure to pedagogical methods cannot be comparable to high-level dance club force students. The key to this trend of amateur dance clubs is still in

the majority. In the author's opinion, we do not require that every dance club student in every city can be very professional, but we need a correct guidance, including the understanding of physicality of dance, how to teach, the mastery of theoretical knowledge and so on.

- *Physical and technical aspects*: on an individual level, physical limitations, intensity of training and technical proficiency are all important. Issues such as lack of fitness, over-training or failure to effectively address technical weaknesses can lead to stagnation in an athlete's progress.

- *Gender imbalance in the training environment*: in China's broader educational environment, the gender imbalance affects athletes' motivation and opportunities to train, with an imbalance between the number of male students and the number of female students. In ancient times, most families believed that acting was a lowly profession and would be labeled as a "playboy", so boys were mostly engaged in work while women were engaged in acting. Although this concept has improved in modern society, it still exists in some Chinese families. It is believed that it is inappropriate for boys to dance LA dance, and that they do not have a masculine spirit. Therefore, the final result in the dancesport industry is an imbalance in the ratio of male and female competitors and teachers, which also causes many female competitors to give up or reach their own plateau because they can't find a suitable partner, which affects the competitor's development on a more personal and team level.

Breaking through the plateau phase in LA dancesport requires a multifaceted approach, integrating various training methods to address both physical and mental aspects of the sport. So, based on the above, we propose the following methods to break through the plateau of LA dancesport competitors in China, which can be categorized as follows:

1. *Physical conditioning and technique improvement*

- *Strength and conditioning*: implementing specialized strength and conditioning programs that focus on the unique demands of dancesport. This includes specific strength (legs and core) and speed

(single movement, reaction) development, aerobic and anaerobic endurance training and flexibility exercises.

- *Technical skills enhancement*: focusing on the refinement of dance techniques through developing the all complex of necessary coordinative abilities, including rhythmicality, posturing and agility. This could involve slow-motion training, repetition of complex movements, and precision drills.

2. *Psychological and mental training*:

- *Mental resilience building*: developing mental toughness and resilience through techniques like visualization, goal setting, and stress management. This helps athletes to maintain focus, handle competitive pressure, and stay motivated.

- *Cognitive approaches*: engaging in cognitive training to enhance decision-making, reaction time, and adaptability on the dance floor. This might include scenario analysis and strategic planning in dance routines.

3. *Innovative and diverse training approaches*:

- *Cross-training*: incorporating different forms of physical activity or dance styles to provide variety and challenge the body and mind in new ways. This could include ballet, contemporary dance, or even non-dance activities like yoga or martial arts.

- *Technology utilization*: leveraging modern technologies like video analysis for performance review, biofeedback for understanding physiological responses, and virtual reality for simulating competitive environments.

4. *Collaborative and interactive training*:

- *Partner dynamics and teamwork*: enhancing partner coordination and communication is vital in dancesport. This involves trust-building exercises, synchronized training, and learning to adapt to the partner's movements and cues.

- *Expert feedback and workshops*: regularly participating in workshops and receiving feedback from different coaches, judges, or experienced competitors to gain new insights and perspectives.

5. *Lifestyle and recovery management*:

- *Nutritional strategies*: emphasizing a balanced diet tailored to the energetic and recovery needs of competitors.

- *Rest and recovery*: ensuring adequate rest and recovery, including sleep management, active recovery methods, and addressing any physical health issues like injuries.

2. Pedagogical experiment results and analysis

In Table 5. we present the pre- and post- results from the pedagogical experiment, as well as the statistically valid gains on different parameters evaluated by the test modules and the Expert evaluations.

Table 5. Results of the pedagogical experiment – mean scores for the experimental group (pre-, post-, st. valid gains) (P< 0.05))

TEST	Procedure	Max. score	Pre-result	Post-result	Gain (%)	St. validity.
Know What T1	Theoretical test	100	46.57	98.07	51.50 (110%)	P< 0.05
Know What T2	Theoretical test	16	7.57	15.14	7.57 (100%)	P< 0.05
Know How T1	Practical test	18	3.86	9.86	5.00 (130%)	P< 0.05
Know How T2	Practical test	18	2.36	7.14	4.78 (202%)	P< 0.05
Know How PQE - 2	Expert evaluation by 2 criteria	100	58.46	70.75	12.29 (21%)	P< 0.05
Know Why T1	Practical test	24	11.43	22.64	11.21 (98%)	P< 0.05
Know Why T2	Practical test	2	0.29	2.00	1.71 (590%)	P< 0.05
Know Why T3	Practical test	24	6.86	15.79	8.93 (130%)	P< 0.05
Know Why T4	Practical test	18	11.86	15.71	3.85 (32%)	P< 0.05
PQE - 4 AJS 3.1	Expert evaluation by 4 criteria	200	121.86	144.65	22.79 (18.7%)	P< 0.05

In Table 6. we present the data from the statistical analysis of the experimental results from Table 5. (a normal distribution), where:

(μ_1) – mean score before the experiment, $(\Delta_{\mu 1})$ – mean square error, (σ_1) – standard deviation, (μ_2) – mean result after the experiment, $(\Delta_{\mu 2})$ - mean square error, (σ_2) – standard deviation, (r) – Pierson correlation coefficient, t – Student criteria for dependent groups

Table 6. Statistical analysis of the experimental results

TEST	(μ_1)	$(\Delta\mu_1)$	(σ_1)	(μ_2)	$(\Delta\mu_2)$	(σ_2)	(r)	t
Know What T1	46.57	2.8	9.65	98.07	0.45	1.67	0.85	19.30
Know What T2	7.57	0.56	2.10	15.14	0.27	1.03	0.91	10.80
Know How T1	3.86	0.52	1.96	9.86	0.38	1.41	0.84	13.13
Know How T2	2.36	0.24	0.89	7.14	0.17	0.64	0.86	25.60
Know How PQE - 2	58.46	1.22	3.23	70.75	0.61	1.63	0.86	10.69
Know Why T1	11.43	0.95	2.53	22.64	0.53	1.39	0.91	21.32
Know Why T2	0.29	0.12	0.47	2.00	0.00	0.00	0.88	13.68
Know Why T3	6.86	0.38	1.41	15.79	0.66	2.46	0.89	12.92
Know Why T4	11.86	0.39	1.46	15.71	0.13	0.47	0.88	9.88
PQE – 4 AJS 3.1	121.86	2.73	10.20	144.65	3.06	11.46	0.87	3.10

The physical fitness tests mean results for the experimental group and thier statistical analysis (normal distribution) are presented in Table 7.

Table 7.

Dynamic Balance	Mean score (μ)	38.14	49.06
	Mean error ($\Delta\mu$)	5.61	4.59
	Standard Deviation (σ)	21.47	17.15
Explosive Strength (Vertical Jump)	Mean score (μ)	252.04	258.30
	Mean error ($\Delta\mu$)	9.13	9.32
	Standard Deviation (σ)	34.18	34.87
Prompt Reaction Time	Mean score (μ)	1.523	1.424
	Mean error ($\Delta\mu$)	0.027	0.015
	Standard Deviation (σ)	0.101	0.059
Muscular Endurance (Fatigue Index)	Mean score (μ)	39.99	34.99
	Mean error ($\Delta\mu$)	2.60	2.30
	Standard Deviation (σ)	9.71	8.61

Analysis of the tests results:

2.1 Theoretical & Practical (dancesport skills) Tests Modules.

a) “Know What” Tests:

Results summary: The "Know What" test results, encompassing both the “LA dance specific principles knowledge” test (test 1) and the “LA basic dance figures knowledge” test (test 2), demonstrate a significant and consistent improvement in the contestants' theoretical understanding of LA dancesport. Across both tests, the post-intervention scores indicate substantial gains in knowledge, with many participants achieving near-perfect scores.

b) “Know How” Tests:

Results summary: the total score reveals a clear and substantial improvement in the dancers' ability to produce characteristic rhythmical patterns across Samba, Cha-Cha-Cha, and Rumba following the intervention. Pre-intervention scores showed a notable range, with several participants scoring as low as 2 to 4 points, reflecting significant difficulties in mastering the distinct rhythmical nuances of each dance. These low scores indicate that before the intervention, many dancers struggled to internalize and consistently execute the complex, dance-specific rhythms, a critical skill in Latin-American dancesport.

The couples perform the 5 test choreographies and are receiving expert quality evaluation scores according to the 2 technical criteria – TQ, PS, of AJS 3.1 (Table 7):

Technical Quality and Partnering Skills for Samba, Cha-Cha-Cha, Rumba, and Paso Doble, indicating that dancers successfully overcame previous challenges and achieved greater precision, synchronization, and consistency in their performances. In Jive, while TQ showed substantial gains, PS exhibited more variability, which is typical for such a high-energy and demanding dance. This variability is a normal aspect of experimental outcomes and reflects the diverse rates at which couples adapt to the rigorous partnering requirements of Jive. Overall, the positive trends across most dances confirm that the intervention helped the competitors' breakthrough performance plateaus, fostering significant advancements in their technical and collaborative abilities. These results highlight the effectiveness of the

training in elevating the dancers' proficiency and consistency, setting a strong foundation for their continued success in LA dancesport.

- *“Know Why” Tests:*

Overall summary of the “Know Why” tests: The combined results of the “Expressive abilities” test battery highlight a significant and comprehensive improvement in the dancers’ expressive capabilities following the intervention. The training addressed core deficiencies in body action, dynamic expression, effort integration, and accentuation, equipping the dancers with the skills necessary to break through previous expressive plateaus. The consistent post-intervention scores across all four components reflect a successful standardization of expressive skills, allowing dancers to deliver performances that are not only technically proficient but also rich in artistic expression. This progress is a testament to the intervention's effectiveness in developing critical expressive abilities that are indispensable for high-level LA dancesport competition, ultimately positioning the dancers for greater artistic impact and competitive success.

2.2. Physical Fitness Test Module

- *Dynamic balance test*

Key insights: the data revealed that the intervention successfully helped dancers improve their balance by encouraging better foot placement and weight distribution. Furthermore, the results suggest that enhancing the weight acceptance on the ball of the foot not only improves balance but also likely contributes to better overall control and precision in dance movements. This is a critical aspect of dance performance, where stability and control directly influence the quality of execution.

- *Explosive power (vertical jump height) test*

Key insights: the improvement in vertical jump heights underscores the success of the intervention in breaking through previous physical performance plateaus. The enhanced explosive power will allow dancers to execute movements with greater amplitude and energy, directly contributing to the visual impact of

their performances. This is particularly beneficial in fast dance routines, where sudden bursts of height and dynamic movement can captivate audiences and add a competitive edge. The data also indicate that the intervention not only improved explosive power but likely enhanced the dancers' overall confidence in their movement execution. The ability to consistently achieve higher jumps is a clear indicator of physical readiness and mental assurance, both of which are critical in high-pressure performance environments.

- *Prompt response time test*

Key insights: the overall reduction in reaction times, particularly the improvements seen in best times, indicates that the dancers have made significant gains in their prompt response capabilities. This progress is likely to translate into better timing and coordination during dance performances, where split-second decisions and movements can be the difference between a good and great performance.

- *Muscular endurance (muscle fatigue index) test*

Key insights: the overall reduction in fatigue index across participants reflects a positive trend, suggesting that the intervention effectively addressed the core muscular endurance challenges that were impeding performance. By lowering the fatigue index, the dancers are now better equipped to execute demanding routines with consistent strength and control, minimizing performance lapses caused by early muscle fatigue. Furthermore, the more balanced post-intervention fatigue indices between males and females suggest a leveling of endurance capabilities across the group. This standardization is critical for group choreography and partner work, where mismatched endurance levels can disrupt synchronization and overall performance quality.

Overall analysis of the experimental results shows convincingly significant, statistically valid improvements in every parameter of the special dancesport preparation which was underwent an intervention through the “Deliberate practice” method applied in our experimental training program. The mean expert evaluation post-value of the

performance quality for the experimental group is 20 % higher than its pre-value and is relative to a competitive performance level of master classes A and I, which corresponds to our hypothesis. All of the competitors successfully overcame their individual plateaus and rose to an expert performance level, where they will inevitably suffer new types of plateaus during their future competitive careers, but will be able to overcome effectively and faster thanks to their experience during our pedagogical experiment.

3.3 Analysis of the overall PQE (AJS 3.1) results

The overall PQE results, as presented in the t-test data, indicate a substantial improvement in the performance of the Latin-American dancesport competitors following the intervention. The mean score across all judging criteria and dance types increased from 121.86 (± 11.01) before the intervention to 145.18 (± 13.09) afterward, reflecting a significant enhancement in performance levels. This 23.32-point increase demonstrates that the intervention had a considerable positive effect on the dancers' abilities. The slightly higher post-intervention standard deviation suggests some variability in the degree of improvement among the competitors, with some couples benefiting more than others.

Statistical analysis further supports the effectiveness of the intervention, with a t-value of -3.107 and a p-value of 0.021, indicating that the observed improvements are statistically significant. The negative t-value, combined with a p-value below the 0.05 threshold, confirms that the post-intervention scores are significantly higher, affirming the success of the program in breaking through the performance plateau and achieving measurable progress across all evaluated criteria.

Summary of the significance of the intervention: the overall analysis shows that the intervention had a profound and statistically significant impact on the performance of Latin-American dancesport 7 couples. The substantial increase in mean scores across all dance types and judging criteria indicates that the intervention effectively

enhanced the 7 couples' technical, partnering, and choreographic skills as well as their musicality and movement.

This improvement is particularly important in the context of breaking through the "plateau phenomenon" in competitive sports. The data strongly suggests that the intervention successfully pushed the dancers beyond their previous performance plateau, leading to measurable improvements in their overall dance proficiency. The significant p-value supports the conclusion that these improvements are a direct result of the intervention, emphasizing the importance of such targeted training programs in elevating the performance of athletes at a high level of competition.

Summary: The overall results of the intervention are highly encouraging, demonstrating its significant impact in breaking the plateau phenomenon observed in the Latin-American dancesport competitors. The consistent improvement across all judging criteria - TQ, PS, MM, CP, indicates that the intervention strategies were effective in addressing a wide range of skills necessary for competitive success. The marked enhancement in TQ scores across all dances underscores the intervention's ability to strengthen the foundational technical aspects, which are crucial for competitive edge. Moreover, the gains in PS, CP, and MM scores, although varied, reveal that the intervention strategies fostered growth in both the interpersonal dynamics of partnering and the artistic elements of performance. The positive changes in MM scores, in particular, highlight that the competitors were able to transcend their previous limitations, achieving a more nuanced and expressive connection to the music. These results suggest that the intervention not only broke the plateau but also set the competitors on a path of continued improvement, with a solid groundwork laid for further artistic and technical development in their future training. In Fig.5, 6 we present the comparison of the average total performance pre- and post- results of the couples from the experimental group and the pre- for the couples from the referential one as well as their variation analysis.

Comparison between experimental and referential group:

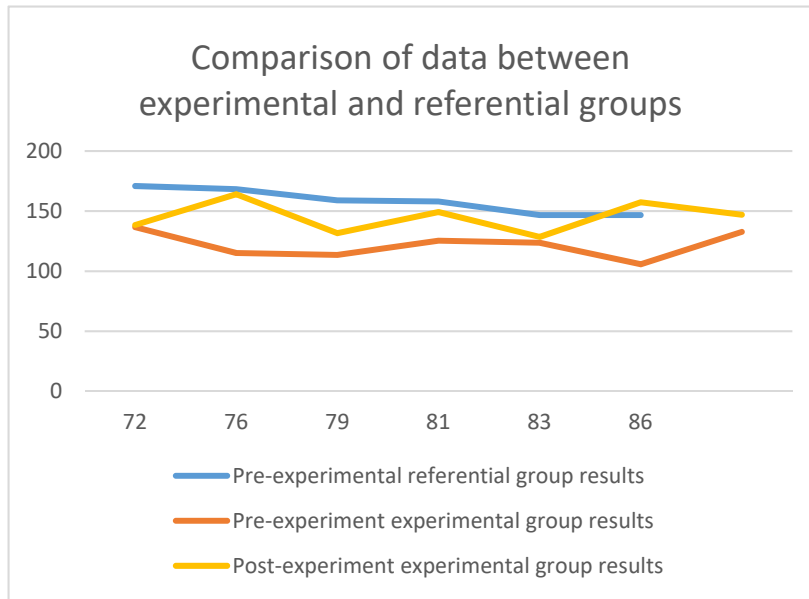


Fig. 5

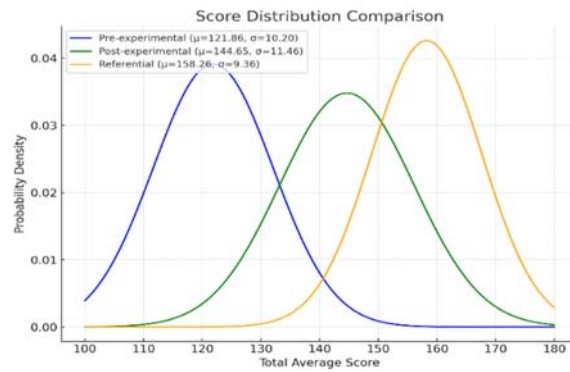


Fig.6

The data suggests that the experimental training or intervention was effective in significantly improving the performance of the experimental group. It also proved that the competitors in the

experimental group made great progress and broke through their own plateau.

General overview of the experimental results:

- Holistic improvement across multiple dimensions

The results demonstrated that competitors did not just improve in isolated areas but showed comprehensive growth across practical skills, theoretical understanding, and physical fitness. Especially the theoretical examination module. The author believes that in China, whether it is the dancesport major in comprehensive colleges or professional colleges, students have few opportunities to contact dancesport theory knowledge, and most students focus their main energy on practice, such as practicing dance, pursuing dance skills, pursuing faster, higher, stronger, etc. However, from the results of this experiment, it is not difficult to find that behind the solid professional skills there must be a complete theoretical knowledge system to support, that is, "practice leads to true knowledge, and the theoretical knowledge obtained from practice then reacts to practice." This idea permeates the entire fourth chapter, between the practical test experiment and the theoretical knowledge experiment, and the two complement and promote each other. The results of the experiment showed that such an approach could help the competitors break through their own plateaus.

- Synergistic effect of physical and cognitive training

The findings suggest that cognitive and physical training are interdependent, with enhancements in physical attributes such as balance, endurance, and explosive power complementing the competitors' theoretical knowledge and practical skills. This synergy likely contributes to the overall performance improvement.

- Consistency across different competitors

The consistency of improvement across all seven couples indicates that the applied interventions were broadly effective, regardless of individual differences. This finding emphasizes the potential generalizability of the methods used, making them applicable to a wider range of Latin-American dancesport athletes.

4. Conclusions and Implications

Our study, titled “Research of breaking through the ‘Plateau phenomenon’ of Latin-American dancesport competitors from China”, has explored the challenges competitors face when their progress stagnates and identified key strategies to help them breakthrough their performance plateaus. Based on a combination of practical performance tests, theoretical assessments, and physical fitness evaluations, the study's findings align with the research goals and objectives outlined in Chapter 2. The primary goal was to understand the causes of the plateau phenomenon and propose strategies for competitors to overcome it. By conducting in-depth experiments with seven couples, the study achieved its objectives by revealing both, the underlying factors contributing to stagnation and the specific indicators that mark a breakthrough.

The study identified several critical factors that contribute to the plateau phenomenon. First, limitations in physical fitness, such as deficiencies in dynamic balance, muscular endurance, and explosive power, were shown to hinder competitors' ability to perform at higher levels. Second, gaps in theoretical understanding of dance techniques and principles, as reflected in lower "Know What," "Know How," and "Know Why" test scores, limited competitors' ability to refine their movements and improve performance. Lastly, psychological factors, including motivation and mental resilience, were found to play a crucial role in competitors' capacity to push through the plateau.

Through the implementation of targeted interventions, the study demonstrated that competitors could achieve significant improvements in all three experimental modules: practical performance, theoretical knowledge, and physical fitness. Notable breakthroughs were observed in competition scores, technical execution, and physical capacity, validating the hypothesis that an integrative („holistic“) approach, addressing multiple dimensions of performance, is the key to overcoming stagnation. Moreover, the findings emphasize the importance of individualized and adaptive

training programs that cater to each competitor's unique needs, allowing them to progress more efficiently.

1. Conclusions

1. The plateau phenomenon in dancesport has its unique and very specific (Art-Sport) characteristic of the human performance which require an integral approach and deep investigation of the many factors involved.

2. Findings of the research suggested that plateaus in Latin-American dancesport are multidimensional, involving dancesport specific physical fitness, technical skills, musicality, choreography and presentation abilities, mental focus and emotional states,. Addressing all these aspects holistically is crucial for overcoming plateaus.

3. The indicators for breaking through the plateau of dancesport competitors are both: the Expert evaluation (PQE) results of the experimental group competitive performance level, by the four criteria of the WDSF AJS 3.1 – TQ, PS, MM, CP, and the results from the dancesport specific tests applied in the study - Practical Performance Tests; Theoretical Knowledge tests and Physical Fitness tests.

4. The implementation of our experimental training program, based on the “Deliberate Practice” method in the dancesport specific training of Chinese competitors, lead to a significant breakthrough in their performance plateau. By targeting training to the specific weaknesses and challenges of these athletes, the “Deliberate Practice” approach helped not only to overcome the limitations of traditional training methods, but also to promote their skills development, technical proficiency, and overall dancesport performance, which supports our hypothesis with the necessary statistical validity..

2. Implications

2.1 Applications for athletes and coaches

The findings of this study offer several practical implications for coaches, athletes, and the broader sports community. For coaches, the research highlights the necessity of adopting a holistic approach to training. Physical conditioning, technical refinement, and psychological resilience must be developed concurrently to prevent

competitors from hitting performance plateaus. Coaches should implement tailored physical and technical conditioning programs, which have been shown to improve core aspects such as balance, endurance, and explosive power. The incorporation of theoretical lessons into training sessions, where athletes deepen their knowledge of dance principles, can also enhance their cognitive integration, allowing them to perform with greater accuracy and creativity.

For athletes, the study suggests that breaking through the plateau is achievable by maintaining a well-rounded focus on both physical and mental development. Athletes must remain engaged in continuous learning, applying theoretical knowledge to practice and making consistent efforts to refine their technical skills. The emphasis on psychological resilience also points to the need for mental conditioning, where athletes build self-confidence, set clear goals, and develop coping mechanisms to manage the stress of competition.

The broader sports community can benefit from the study's insights by recognizing that performance plateaus are a natural part of athletic development, but they can be overcome through structured, multi-faceted approaches. This research provides evidence that a combination of cognitive, physical, and mental training can lead to long-term performance gains, offering a model that other sports disciplines can adopt. Training programs that address both the body and mind of athletes, as well as incorporate ongoing evaluation of progress, are likely to yield more sustainable improvements in competitive environments.

2.2 Application of findings in real-world settings

The findings of this study can be applied in real-world settings to help athletes overcome the plateau phenomenon. Coaches and athletes should prioritize individualized training programs that assess and address specific weaknesses, whether physical, technical, or psychological. For example, competitors with low scores in dynamic balance can benefit from focused balance training, while those struggling with theoretical knowledge can receive more intensive instruction on the principles of Latin-American dancesport.

Training facilities and academies can use these insights to redesign their curricula, incorporating modules that develop athletes holistically. By providing structured interventions that target each of the critical performance areas identified in this research, sports academies can ensure that athletes experience steady and measurable progress. Regular assessments using the same practical, theoretical, and physical tests implemented in this study can also help track competitors' development and provide coaches with actionable data to refine training plans.

Furthermore, the importance of psychological resilience, highlighted in this research, suggests that mental conditioning programs should be integrated into standard training routines. Workshops on goal setting, managing performance anxiety, and fostering intrinsic motivation can be offered to athletes, equipping them with the mental tools needed to sustain peak performance. In competitive environments, mental toughness often differentiates successful athletes from those who falter under pressure, and this

Significance of the research

1. Theoretical contribution

The research makes a comprehensive theoretical analysis of the main factors leading to the plateau effects in dancesport and propose a methodology for breakthrough this period in the development of the performance quality and the competitive results in LA dancing (LA dancesport) for China dancesport competitors. It also provides an analysis of the specific characteristics of these processes, concerning Chinese LA dancesport competitor's preparation and their international competitive results. Our study contributes to the understanding of the plateau phenomenon with Chinese Latin-American dancesport competitors by offering clear indicators of their performance stagnation and strategies to overcome it. By addressing the interrelated aspects of physical fitness, technical skill, theoretical knowledge, and psychological resilience, we provide a comprehensive model that can be applied in real-world sports settings. We formulated and applied a precise, effective, and innovative training methodology

for Chinese dancesport competitors, thus providing a theoretical support for the development and enhancement of the existing dancesport training programs in China. We hope this will enrich the scientific research system for developing dancesport in China with a more systematical and interdisciplinary based approach from a theoretical point of view.

2. Practical contribution

The findings of our research not only serve as a guide for Chinese Latin-American dancesport competitors but also offer valuable lessons for the broader sports community, suggesting that a scientific and multi-dimensional (holistic) approach to training is the key to breaking through different developmental plateaus and the only way to a continuous improvement. We provided valuable suggestions and countermeasures for overcoming the plateau effects of Chinese LA dancesport competitors' development and competitive results. We helped them as well as their teachers and trainers to make a breakthrough in the concepts, methods, and means of preparation which will prevent them from quitting their competitive and professional dance careers too early. Finally, we contribute to the system for preparation of a high level Chinese LA dancesport competitors and hope all this will eventually improve the overall level of dancesport training in China and lead to narrowing the gap between Chinese dancesport competitors and their successful international rivals.

List with publications related to the problem:

1. Zhan Chao, Zlatin Kostov, "Analysis of Plateau Phenomenon Characteristics in Chinese Normal University Latin Dancers", *Advances in Higher Education*, v.6, Issue 35, 2022, p.47-50
2. Zhan Chao, Zlatin Kostov, "Analysis of the main influencing factors of Plateau Phenomenon in Chinese Normal University Latin competitors", *World Education Forum*, vol.2, Issue 4, 2024, p. 96-98
3. Zhan Chao, Zlatin Kostov, "Strategies to Break Through the Plateu Phenomenon of Latin DanceSport Competitors in Chinese Normal University, v,2,Issue 4, 2024
4. Zhan Chao, "Improving Special Physical Fitness of Chinese Lattin American Dancesport Competitors by "Deliberate Practice"Training Method", *Annals of National Sports Academy*, 2025, v. 1
5. Златин Костов, Зан Чао, „Преодоляване на „Плато Ефекта“ в специалната подготовка на състезатели по Латино-Американски спортни танци от Китай с метода на „Съзнателната тренировка“, *Годишник на НСА „Васил Левски“*, 2025, т. 1

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