

Inheritance and Innovation — Research on Motor Skill Learning Model Based on Practical Holism

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Abstract—The current theory of motor skill learning still hasn't broken the limitations of subject epistemology and methodology. The theory and practice in motor skill learning stage are still limited to the capability, lacking explanatory power on the practical intelligence in the purpose, creativity and inheritance of individual motor skill learning. Guided by practical holism, this research constructs a model consisting of seven stages of motor skill learning (i.e., beginners, novices, competent, proficient, experts, master and practical wisdom) based on the combination of Dreyfus's motor skill model and practical observations, and enumerates the corresponding situational, emotional, cognitive and practical characteristics of each stage. This model raises the stage of motor skill learning to the level of cultural innovation and inheritance. It plays a good explanatory and guiding role in theory and practice, and can provide a holistic view in guiding education, motor training and skill learning.

Keywords—motor skill; model; creativity and inheritance; practical holism

I. INTRODUCTION

Mastering motor skill is an essential element of all physical exercises. However, there are insufficient researches on the basic theories of subject guided by philosophic (especially practical philosophic) analysis. Since 1950s, although the theory of motor skill guided by the philosophy of reductionism has made great progress, the psychology-based researches have led to the tendency of motor skill theory to be instrumentalized and fragmented, lacking the ultimate care for human beings. Kant said, "People should be the purpose rather than the means". Learning and mastering skills should not only be for exercising, improving health or participating in competitions, making achievements, but also should become more emotional exercise and complete the learning of skill and construction of motor culture. Athletes are not only people in the "generalization" stage, "differentiation" stage, "consolidation" stage and "automation" stage, but also should be distinctive, innovative and practical. Faced with the stage tension and theoretical needs formed by this kind of motor skill, the practical holism can make up for some shortcomings in the theory of motor skill learning and enhance the explanatory power and directivity of the theory of motor training.

II. LITERATURE REVIEW

A. Skills and Motor Skill

Human behaviors can be collectively referred to as skills, such as standing, walking, running, throwing softball, playing the piano, dancing, writing, walking with prosthetics, or operating a lathe.¹ Motor skill, in a broad sense, refers to a skill that has a specific operational goal and involves autonomous body or limb movements.² The connotation of motor skill is very broad. It can include most of the skills to be learnt through muscle movement and formed during production and life, such as the writing skills of calligraphers, the harvesting skills of farmers, the shooting skills of soldiers, the teaching skills of teachers and athletes' sport skills.³

In real life and narrow sense, motor skill generally refers to the skill of a certain kind of sports mastered. This kind of expression is widely understood and recognized by the public. In actual operation, it is also for the ultimate purpose of mastering a certain skill. "Motor skill" was involved in the expression of "students should be proficient in and master one or two motor skills" under the "Opinions on Strengthening the Comprehensive Development of School Physical Education to Promote Physical and Mental Health of Students" issued by the General Office of the State Council in 2016, and the expression of "basically enable the teenagers to be proficient in and master at least two sport motor skills" under the "Outline of Healthy China 2030 Plan" issued by the Central Committee of the Communist Party of China and the State Council. In those two expressions, the motor skill and sport motor skill cannot be understood as the motor skill in broad sense. For example, walking and running are not motor skills. Children need to constantly learn to master them. The walking and running here cannot be included in the narrow sense of motor skills.

¹ Wang Shuming. Motor skill and control [M]. Higher Education Press, 2018-03:201-206. (in Chinese)

² Yang Xirang, Zhang Yu. The Current Situation and Development of Athletic Skill Study [J]. Journal of Beijing Sport University, 2005(07):865-867. (in Chinese)

³ Tao Cheng. The Stage Model of Gaining Basketball Skills and the Research on the Factors Affecting Performance [D]. Journal of Beijing Sport University, 2007. (in Chinese)

From the perspective of subjects, the classification of motor skills is represented by the two dimensions proposed by Gentile (2000) which forms a relatively large classification system and describes the 16 skill types relevant to operation context and action function.⁴ In this paper, "motor skill" refers to motor skills in broad sense.

B. The "Four-three-two" Model of the Stage of Motor Skill Learning

Pavlovian theory is the most influential, and is the well-known motor skill formation model, namely the generalization-differentiation-consolidation-automation (four-process theory) model. This model has been regarded as a standard for nearly half a century and was widely used in motor skill training and teaching. In recent years, more and more people have questioned this model because the formation of skills cannot be simply reduced to a conditioned reflex.⁵

The "three learning stages" model proposed by Fitts and Mi-chael Posner in 1967 has always been considered the most classic model, and is still widely used up to now.⁶ The first stage in the model is called the cognitive stage, which is the beginning stage of the learning. The second phase in the model is called the associative stage, which is the intermediate stage of the learning. The third stage in the model is the automation stage, which is the final stage of the learning, also known as the autonomous phase. Psychology-oriented research has always been the theoretical basis of motor skill learning. This is both "dessert" and "pain point" of the theory of motor skill learning.

Another model of motor skill learning was proposed by Gentile, and was also recognized and often mentioned by sports learning researchers. Compared with the "three learning stages" model proposed by Fitts and Mi-chael Posner, Gentile believed that the motor skills learning needs to go through two stages, and those two stages have different purposes and ways and means to achieve them. In the first phase, also known as the "initial phase," learners need to realize motor coordination, and distinguish the adjustable and non-adjustable conditions in the surrounding environment.

In the second phase, also known as the "late stage", learners need to acquire the ability to develop sports patterns and improve the consistency and effectiveness of the skill operation. This model is inclined to phenomenology and practice from visual perspective. This is a big step forward. However, due to the "simplicity" of the model, it is not enough to explain practice and motor skills.

⁴ Mo Lei, Wan Ru. A Review of Research on Action Skill Learning at Home and Abroad [J]. *Science Technology Information*, 2009(30):387-388. (in Chinese)

⁵ Qi Guojie, Qi Guoying. A New Discussion on the Formation Process of Motor Skill [J]. *Journal of Sports and Science*, 1993(04):42-45. (in Chinese)

⁶ Wang Shuming. Motor skill and control [M]. Higher Education Press, 2018-03:201-206. (in Chinese)

C. Related Researches on Motor Skill Learning in China

Since early 1880s, sports scholars have conducted fruitful research on motor skill. Epistemology mainly makes multi-angle, multi-dimensional and multi-level theoretic researches and discussions from the perspectives of psychology, sociology (Shao Weide, 2004), philosophy (Qi Guojie, et al., 1999; Jia Qi et al., 2008), pedagogy or interdisciplinary (Dong Wenmei, Mao Zhenming, 2008), and makes in-depth analysis and researches on the subject construction and basic theories of motor skill. It also makes amendments, additions /deletions and supplementation on the original basis, so as to make clearer and fully understand the concept of "motor skill". The research works in this aspect include: *The Current Situation and Development of Athletic Skill Study* (Yang Xirang, Zhang Yu, 2004), *The Principles of Motor Skill Teaching in the Perspective of General Evolution and the Conceptualization of Establishing a Grouped Sports Teaching Theory* (Li Jiekai et al., 2012), and *The Construction of Motor Skill Learning Levels* (Deng Ruofeng, 2018).

On the basis of psychology, methodology carries out a theoretical discussion on "motor skill learning", and further makes in-depth and meticulous research and analysis on how to learn "motor skill" in a high-efficiency, high-quality and high-performance manner. After all, "motor skill" is not just a simple external action imitative learning, but an interlinked dynamic process from the outside to the inside. In this process, the psychological factor q plays a crucial and irreplaceable role. The research works in this aspect include: *The Present Situation and Prospects of the Research on Implicit Motor Learning* (Hu Guiying et al., 2009), "Reference from Ausubor's Learning Theory" (Xu Chonggao, 1994), and *the Research on Implicit Theory and Motor Skill Learning* (Gao Hongbin et al., 2003).

On the other hand, it also makes research the process of motor skill learning in practical level. If theory is the guidance of motor skill learning, then only through practical operation can a certain motor skill be truly mastered and internalized. So, the research at practical level is also very important and indispensable. Researches in this aspect include: motor skill learning and teaching (Ji Liu, 2008; Wang Jian et al., 2007; Liang Bo et al., 2012), training (Qiu Fen et al., 2007), demonstration (Tian Jin, 1998), migration (Shao Lijun, 2003) and feedback (Jin Yahong, 2005), efficiency (Lv Huiqing et al, 2014), performance (Hu Guiying et al., 2014). It can be said that those researches cover various stages and aspects of motor skill learning.

Generally speaking, motor skill learning researches in China tend to adopt reductionism; and taking psychology as the leading factor, they deepened people's ontological understanding of the formation of motor skill. This is an inevitable requirement for the development of motor skill learning theory. From the perspective of holism, this is because the whole (person) composed of each part has such high-level attributes (such as value, ethics, and culture) as that each part (physical person, psychological person, social person, natural person and other systems) doesn't have. Therefore, it is reasonable to believe that: first, the

fundamental theory should include both the whole and the part. It is necessary to make researches on motor skills to find a way to think, analyze and practice from holistic or systemic perspective. Second, just making analysis on the basis of individuals out of the whole is not enough. There must be a higher stage beyond the psychology-based motor skill learning, to achieve the innovation and inheritance of motor skills. Third, it is needed to do necessary segmentation. This segmentation is not blind, but be necessary and appropriate segmentation. Introducing the overall attribute discourse in the field of motor skill learning research is conducive to make better analysis and integration.

III. THE PRACTICAL HOLISM MODEL FORMED BY MOTOR SKILLS

A. Theoretical Basis — Practical Holism

China has a tradition of holistic thinking since ancient times, while the West has only begun to study and value the holism since Leibnitz.⁷ ⁸ Taijiquan (a kind of traditional Chinese shadow boxing), weiqi (a game played with black and white pieces on a board of 361 crosses), traditional Chinese medicine, The Doctrine of Mean and other Chinese civilizations are representative achievements of systematic thinking. Up to now, the holism has still received unprecedented attention and rapid development. The systematic holism has become the ideology and method of world philosophy and scientific research. Researches based on this has achieved unprecedented great results, and greatly promoted the scope of human understanding and practice. For example, when making research on the relationship among humans and others and natural environment, anthropologists find that there is an extremely complex interrelation between people and people, people and other living organism and inorganic substances.⁹ Quantum theory also believes that the connection in the world is not localized.¹⁰ Practical holism emphasizes practical response. Practical response believes that practical activities are unified in the body and are based on the body. The body, mind, and individual thinking, emotions and other activities jointly constitute a whole form. In such a vital whole, each part is dynamically linked with each other. It emphasizes the subjective initiative of the subject in response to detailed context, environment and context. "This practical response is a Gestalt response. In this kind of response activity, both

intentional orientation of the body or communication in language are oriented to the world".¹¹

Therefore, in the context of holism, it is required to examine, study, and understand the whole world from a holistic vision, as well as improve the position, raise awareness and improve ability. For a certain thing, it is not enough to make analysis only from each components, but more required to understand a master the entirety of the thing in combination with each part of research, so as to reach a "1+1>2" effect. The same also applies to researches on "motor skills". When making researches on the stages, goals, innovations and inheritance of motor skill learning and their interrelationships, it is needed to consider from an interdisciplinary holistic perspective, not only with respect to the research achievements on each part but also with respect to that on the whole, namely it is also needed to make new breakthrough in the ontology, methodology and epistemology of each stage of motor skill learning.

B. Seven-stage Model of Motor Skill Learning

Guided by practical holism and combined with Dreyfus' motor skill model and many years of experience and practice in sports teaching and training, it is concluded that the following seven-stage motor skill learning model. This model involves seven successive stages, namely beginners, novices, competent, proficient, experts, masters, and practical wisdom.

1) *Stage 1: beginners*: Teacher breaks down such skills into the action programs and steps that beginners without relevant skill base can learn and master and irrelevant to the competition situation, and then provides the beginners with operational rules, just like the calculation program. Beginners may be interested in certain sports at first, but have no strong desire to learn the decomposited motor skills. In this stage, beginners mainly receive conceptual knowledge, passively accept, recognize and memorize some rules, and experience and perceive the applicable procedures or steps. For example, when learning to play football from the inside of foot (arch up), generally the steps are as follows: first learn to place kick (teacher will demonstrate the complete movements), then orderly explain the run-up step, as well as how to place the support foot in position, how to use thigh to drive calves, and the kicking position¹² and other rules and procedures (action essentials).¹³ In the introductory teaching of basketball skill, the teaching

⁷ Liu Jinyang. On Holism-Reductionism Debate [J]. Journal of Renmin University of China, 2014, 28(03): 63-71. (in Chinese)

⁸ Wang Jianhong. Beyond the Controversy between Reductionism and Wholism: the Origin Research [J]. Studies in Dialectics of Nature, 2014, 30(12): 108-114. (in Chinese)

⁹ Cheng Sumei, Yao Yanqin. Hubert Dreyfus' Model of Skill Acquisition and It's Philosophical Meaning [J]. Academic Monthly, 2013, 45(12):64-70. (in Chinese)

¹⁰ Zhu Hui, Zhang Huachun. On the Thoughts of Chinese and Western Holisms [J]. Hubei Social Sciences, 2016(12):107-112. (in Chinese)

¹¹ Cheng Sumei, Yao Yanqin. Hubert Dreyfus' Model of Skill Acquisition and It's Philosophical Meaning [J]. Academic Monthly, 2013,45(12):64-70. (in Chinese)

¹² Xia Xufeng. The 5-step teaching method for kicking the football from inside of foot [J]. Sport. 2017(14):128-129. (in Chinese)

¹³ Run-up in straight line; move a large step before supporting, then get the support foot placed about 15cm from the ball side, slightly bend the knee joint, with toe pointing to the shooting direction. swing the kicking leg from the back to the front centered on the hip joint, abduct the knee and ankle joint, slightly title the toes, align the inside of foot with the ball; when knee joint is placed close to the ball, quickly swing forward the calf; at the moment of kicking, the heel should kick forward, with foot fixed in shape and the inside of foot kicking the rear middle part of the ball.

content often starts from the technical action of setting one-handed jump shot over shoulder. This technical action is often taught from the skill of holding the ball, namely "naturally separate five fingers of right hand, with palm free and getting the parts above finger roots holden the ball, use thumb and the little finger to control the ball, get left hand placed on the left of the ball, with elbow joint naturally hanged down when the right arm bends the elbow, and watch the ball when the ball is placed on the front of the right shoulder"¹⁴.

Students can know about specific field via the procedures or steps provided by teacher and learn to recognize relevant characteristics and abide by relevant procedures by simulation and practice. However, they can only master partial actions, and their actions are stiff, inaccurate, uncoordinated, hard, or even redundant or wrong. In reality, such procedures are often difficult to do. There are few opportunities to place kick from inside of foot, and it is difficult to follow such principle in games and competitions. In basketball game, holding the ball and pitching are at a crucial moment, and thus often not necessarily following the rules. This means that understanding a motor skill is far from remembering the elements and rules associated with it or a combination of certain individual skills. A skill is just a simulation of a case in reality.

2) *Stage 2: novices*: With the progress of learning, learners have had certain understanding of relevant context, so gradually begin to pay attention to other meaningful precedents in the target field. On the basis of fully experiencing and observing a large number of action examples, with the gradual improvement in recognition ability and cognitive ability, learners in this stage may be able to identify and analyze some new problems and non-context factors and begin to research and understand the significance. For example, in this stage, students have been able to adjust their body position and kicking speed and angle according to the direction and speed and other conditions of the ball coming to shooting the closer ball in the basket, and have begun to pay attention to other problems relevant to the task based on their own needs and interests.

For teachers, the guidelines (maxim) for this stage involves new situational factors that can be discerned by experience, such as kicking the ball from the inside of foot, shooting at unfixed point, etc., to help students select and identify the organization and understand relevant aspects of the technique. In this stage, the cognitive characteristics are mainly summarized in analytical thinking as follows: students learning to sum up experience, shift attention from cognition to movement, can identify and overcome wrong actions related to the game, and complete multiple actions accurately, coherently and smoothly.

3) *Stage 3: competent*: On the basis of more experience, on the one hand, the skill level of learners has been

significantly improved; on the other hand, learner can identify and follow a huge number of potentially relevant factors and procedures, so that they can be more comfortable in facing various cases. Learners facing more complex situations (games) may feel lack feeling, and become nervous and exhausted. In order to cope with this information overload and fulfillment, learners begin to design a plan suitable for themselves through receiving guidance or based on experience, or select a perspective to determine the important cases or elements and the ignorable cases or elements so that they can make their understanding and decision easier. In the context of simulated game, students often feel confused, anxious and nervous so that they often have a heartfelt admiration for those who have mastered relevant skills. In addition, learners may become more and more emotionally involved in their own tasks, and feel frustrated, disappointed or happy, excited and so on for their choice of views. What learners experienced in practice are far more complicated than the rules or guidelines given by teachers or coaches. At the same time, even if teachers or coaches are included, no one will list all possible cases for learners. In addition, when learner's skill level reaches the level of "competent", they generally have obtained more mature and stable kinematic dynamic setting. In this stage, learners begin to make more detailed and clear plans and goals, improve their responsiveness, and gradually reduce their feeling of tension, and begin to be able to deal with some simple problems independently.

In fact, in any skill field, learners may encounter many subtle situations, and many cases cannot be named or precisely defined. So, no one can prepare a list of all possible situations for learners and the countermeasures for each case. Therefore, students must decide whether to use technical or personal tactics in each case, without having to determine if it is appropriate. Given this uncertainty, the response becomes terrible and not just exhausting. In this stage, the outcome depends on learner's choice of a single technology, so that learners feel that they should be responsible for their own choice. Usually, choices may lead to confusion and failure. But sometimes things may go smoothly, and capable students may experience an excitement that beginners don't know. In dribble process, a capable athlete may learn to pay attention to the position adjacent to the opponent and companion, rather than "step big foot forward."

4) *Stage 4: proficient*: As experience increases, learner's isolated, information-consuming state is replaced by participation. The skills expressed by rules and principles will gradually be replaced by specific situations, and the intuitive response gradually replaces the rational response. In the process of continuous learning, with increasing accumulation of learners' emotions including positive emotions and negative emotions, learners' successful response is enhanced and failure response is suppressed, which is helpful for learners to internalize and continuously improve the action technique.

¹⁴ Zhao Wendong. Combining EQ Improvement in Students with College Basketball Education: A Tentative Study [D]. Hebei Normal University, 2010. (in Chinese)

In this stage, learners gradually have the ability to rely on intuitive responses in the face of different situations or face discrimination between right and wrong, also known as "intuitive thinking." The emergence of this mode of thinking shows that learners have get practical experience internalized into a set of unique practices mode irrelevant to theory, also called "automation stage". This level of learners have made clear the mission objectives to be completed and begin to deal with some of the more complex game situations. Professional football and basketball players can decide when to launch a quick attack and active defense based on the situation on the field, and do technical moves reasonably.

5) *Stage 5: experts*: Being able to make more subtle and subtle distinction is the difference between an expert and a mastery (automation). Although the two levels of people both have enough experience to find the problem from the same perspective, the strategic decision will be different. Athletes in stage of experts can not only find the goals to be achieved, but because of the large number of skills accumulated in different cases, all cases are considered similar in terms of plan or perspective. Experts have learnt to distinguish the case requiring a response and the case requiring another response. Their emotions become stable and calm, and they can effectively control their emotions.

In this stage, the continuous improvement of learning, continuous internalization of skills and continuously increased experience has enabled learners to completely replace rational thinking with intuitive thinking. When facing actual situations, experts have more obvious intuitive response capabilities. In other words, as experts, they have already been able to deal with different cases in the most appropriate way, and in the whole process, they can respond flexibly and properly. Their responses have been internalized into a kind of self-consciousness, direct and contextual response mode. For example, in game, they can "read the game" and send out and shoot the key ball.

6) *Stage 6: masters*: After reaching the stage of "masters", learners no longer "stick to the rules", but break the pattern of "never change" and is manifested in a strong, unique and personal style. After reaching the highest level of skills, "masters" may pay more attention to the ability and spirit of innovation. A new world may be opened only if you dare to think, do and make innovation. Through the process of innovation and style formation, their emotions such as self-esteem, self-confidence and self-love are strengthened, and their sense of responsibility and mission are gradually enhanced. Rational thinking begins to reflect intuitive thinking and situations and form new patterns and rules. From experts to masters, the transformation is still conducted in the relationship between teacher and student, but the span of change and development and the difficulty of development are the biggest in the seven stages of development. Realization of the change from "learning" to "innovation", from "simulation" to "original", from "collective" to "individual" not only need superb technology,

rich knowledge, but also need extraordinary courage and insight, development vision and innovation spirit.

If you are training for becoming a football star, you must work and imitate with a well recognized football coach. When you admire someone and work with them, his style will become your style. But the danger to do so is that students may only become replicas of the masters, and as a skilled football master, they need to develop their own style. At this point, student needs to leave his first master and work with another master with a different style. In fact, he needs to study with several masters of different styles. For medieval craftsmen and even modern performing artists, when they become good enough to develop their own style, they would travel around and work in different practice communities. Graduate students usually helped several professors, and young scientists may have worked in several laboratories. For us, it is easy to misunderstand the necessity for students to follow several teachers for receiving training. It is often thought that one student should only follow one master in his/her lifetime. This is the so-called "sect". Instead, one master has a complete style and the other master has a completely different style. Working with several masters may destroy and confuse the stability of student, so that he/she no longer simply imitates the style of any master, so that he/she is forced to start developing his/her own style. In this way, the student has reached the highest level of skill, the so-called mastering.

7) *Stage 7: practical wisdom*: In this stage, athlete acquires the practical wisdom as Aristotle said, namely having the general ability to do the right things in combination with athletic skills at the right time, in the right way. The sense of responsibility and mission has been strengthened and developed a strong spiritual power similar to faith. For life as a large category, the practical cognition of skills and emotion will inevitably expand its influence and scope. The emergence of this "migration phenomenon", on the one hand, makes skills have social attributes and become a social skill that can positive active function to emotion, socialization and even self-awareness; on the other hand, it also makes skills have cultural attributes and become a cultural phenomenon. As the scope of the cultural field expands, skill practice has also become a kind of cultural time. Culture is so specific and universal that general culture determines how babies meet themselves, others and things. From the moment of birth, children have begun to learn to become experts in their cultural practice. Starting with a style, all kinds of practices will become meaningful and dominant, and others will either become subordinate or completely ignored. For example: Brazil, Argentina, Spain, Portugal's enthusiasm for football has strong national characteristics; France, Germany, Britain, Italy, Japan, Sweden and other developed countries have good modern lifestyle. Cultural style is as specific as common sense, and it is too specific to be reflected in theory and passed down in curriculum. It simply passes from one body to another, but it is what makes us become human beings and provides the potential for learning all other things.

C. The Basic Correspondence Relation Between the Seven-stage Model of Motor Skill Learning and Other Segmentation Theories

For ease of understanding, the correspondence of each model is a "rough" correspondence. As can be seen from "Fig. 1", both Pavlovian's four-stage model and Fitts and Michael Posner's three-stage model and Gentile's two-stage model have developed relatively complete theoretic system in the situation of "capability" in motor skill learning, which

is of good explanatory power and practical guiding significance for mastering motor skills. However, there is a lack of concern for the care of motor skill culture and the innovation and inheritance of motor skill culture. People have always been learning in a certain cultural background since birth, and they have been influenced, shaped, passed down, and innovated by culture in a subtle way. This is the main feature that distinguishes people from machines and animals.

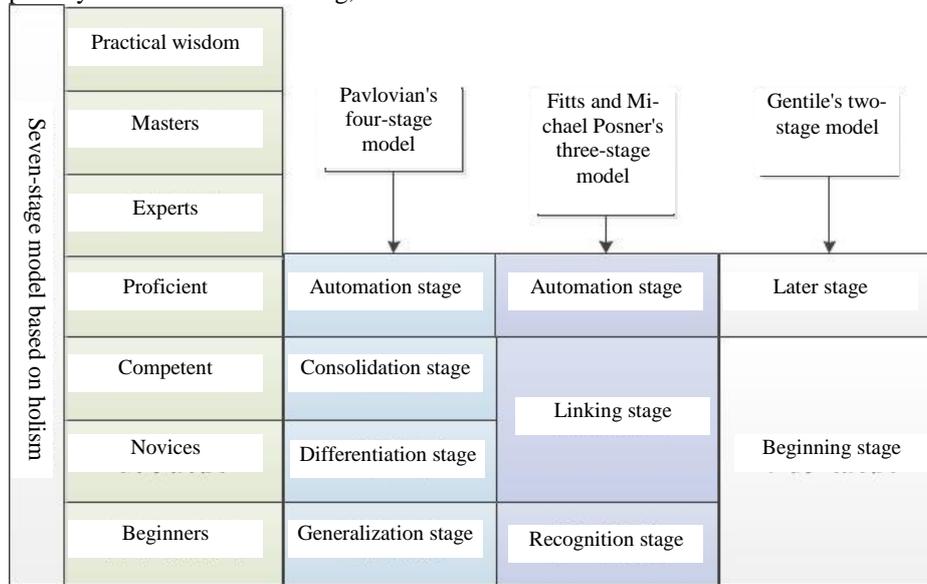


Fig. 1. The correspondence between the seven-stage theory of motor skill learning and other segmentation theories.

Through the analysis and research on motor skill learning, and learners' process of obtaining motor skills, it is indicated that no skill can be mastered without continuous and repeated practice. Moreover, life skills (such as walking, driving, typing, etc.), motor skills (such as running, high jump, shooting, etc.) and abstract thinking skills (such as judgment, choice, decision making, etc.) are all obtained through practice. For high-level athletes, their motor skills are "advanced" because their skill performance is based on their personal body intentions. Intention has a guiding effect on sports practice and plays the role of subjective initiative greatly on the basis of practice. However for average athletes or learners, their motor skill is based on characterization, which is analyzed by formal structure. Hence, athlete's intention is the importance of the athlete's imagination and creativity. Imagination and creativity are the "practical response" through body, and is a higher stage of motor skill learning. This stage is the main difference between human and animal and computer programs. Masters of sports field give sport a soul through intentional practice of body.

IV. CONCLUSION

The fundamental of motor skill science in China is still relatively weak. At present, China is still in inevitable development stage to develop its own theory based on the results of Western researches. Practical holism reveals the narrowness of the psychological approach to motor skills

research and provides valuable enlightenment for expanding the field of motor skills research. Model raises motor skill learning to the level of cultural innovation and inheritance. It plays a good explanatory and guiding role in theory and practice, and can provide a holistic view for guiding education, motor training and skill learning. On the other hand, the stage of motor skill learning, if it exists, is extremely complicated. The model still has some inadequacies in the stage division, feature representation, practical application and so on, and there may be a big dispute in dealing with the socialization of skills. Those controversies can provide a basis for making more in-depth discussion in the future.

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