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Effects of Facilitating Reflection Teaching Integrated Sport Education on Baseball Team Students' Critical Thinking Disposition and Game Performance

Jing XIE[1], Bingxin SU[2], Rui ZHANG[3], Yidan LI[4], Yunchao MA[5]

Abstract

Students need diverse learning processes and different class modes to present diverse development in current teaching environment. In traditional education, physical education teachers mainly stress on students' skill performance that most of time in the teaching process time sequence is used for skill teaching. Learning group in a team is the heterogeneous combination, with distinct degree of team members. Students therefore have the opportunity to precede different levels of discussion. Such a process allows students helping each other to enhance participants' motivation through positive peer relationship. Sport education model is operated with teams, in which team members would develop suitable tactics and strategies through continuous discussions. Such discussions could assist in solving problems in real games to further achieve group goals. Such thinking, assisting individuals in achieving the goal, conforms to the point of view proposed in critical thinking. Experimental design model is applied to the quasi-experimental study. 246 students of a university in Fujian Province, as the experimental subjects, are preceded the 16-week (3 hours per week for total 48 hours) experimental teaching research. According to the results, suggestions are proposed, expecting to promote students' game performance and enhance the critical thinking disposition.

Keywords: facilitating reflection teaching, sport education, baseball, critical thinking disposition, game performance.

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Introduction

Students, in current teaching environment, require diverse learning processes and distinct class modes to present diverse development. Physical education teachers in traditional education mostly stress on students' skill performance so that most of time in the teaching process time sequence is spent on skill teaching. Under the learning condition, repeated and dull skill-motor practice would result in burnout and bore of students. Unlike Olympics and Asian Games athletes aiming at large amount of motor practice, physical education on campus should allow students acquiring interests through playing to reinforce personal athletic skills. A lot more of research finds out positive and important effects of playing on children' ability fostering, personality development, and knowledge learning. Playing games is the self-selection, self-creation, and self-directed process, with the characteristics of initiative, fun, unconscious learning, and participants enjoying the moment to induce learning passion, curiosity, and motivation. In the learning process, students have to establish goals for the learning as well as explore and possess problem solving formula for the future cooperation in the workplace. The curriculum model with sport education model therefore could be developed to improve the process of general traditional education. The course content covers teams, record keeping, sports season, game match, climax final, and celebration in physical education teaching, is preceded with teams, and integrates authentic game situation, allowing team members performing the duties.

In sport education model, learning group in a team is heterogeneously combined, with distinct degree of team members that students have the opportunities to precede different levels of discussions, help each other in the process, and promote participants' motivation through positive peer relationship. Furthermore, helping students comprehend and precede games with specific sports strategies is the specific goal of the course. Teachers design proper teaching content, match corrected game rules as well as team practice and discussion, and help students expand the cognition of sports step by step to have students comprehend sports strategies and tactics. The promotion and enhancement of strategies and tactics allow students having more motor selections in games and help the performance in games to achieve the team goal. In the special sports situation, team members would precede reflective thinking of decisions required for completing tasks. Such thinking in sports learning processes is called "critical thinking". From above context, it is realized that sport education is operated with teams; team members would develop suitable tactics and strategies through continuous discussions to solve problems in real games and further achieve group goals. Such thinking to assist individuals in achieving goals conforms to the point of view proposed in critical thinking. Accordingly, good group reflection would promote students' critical thinking disposition, and the curriculum of sport education season provides good opportunities for group reflection. For this reason, effects of facilitating reflection teaching integrated sport education on baseball team students' critical

thinking disposition and game performance are discussed in this study, expecting to promote students' performance in games and enhance the critical thinking disposition.

Literature review

Chang *et al.* (2017) defined reflection as a specific form of thinking, referring to individual active and purposive exploration, when encountering doubts or confusion, attempting to change the state into clear, consistent, and harmonious state, and reflecting self-observation or observation of others in authentic situations. Gislason *et al.* (2018) regarded reflection as inner and outer dialectic process, where an individual could understand personal thinking process. Reflective teaching, for teachers, could enhance the perception of teaching roles and review the teaching process, while students, being concerned in the learning processes, would develop the concentration and interests in the learning content. Bootsri & Taneepanichskul (2017) mentioned that reflective teaching enhanced teachers' perception of teaching roles and review of teaching process and could develop students' concentration and interests in learning content because of being concerned in the learning process. Maureen *et al.* (2018) stated that sport education model, developed in early 1980s, was physical education curriculum as well as physical education model with the final goal of having students become passionate sportsmen with capability and cultural accomplishment. Sierra *et al.* (2019) explained capable sportsmen as students being able to know and understand sports, being able to execute sports tactics and strategies, and being confident of participating in sports games; sportsmen with cultural accomplishment stood for students being able to understand and appreciate sports related rules, etiquette, and tradition and know more positive and reasonable sports culture to become good audience or fans; and, passionate sportsmen revealed the passion for sports, continuous search for sports experience, positive participation in sports, and doing the best in each sports season.

Tsuei (2017) pointed out critical thinking as the psychological process and ability to solve problems, including knowledge, attitude, and skills to make careful evaluation according to facts and evidence, make reasonable judgment, and be the reference for actions. Hortiguela Alcala & Garijo (2017) regarded critical thinking as high-level thinking ability, complicated cognition process, and the complex with programmable spiritual activity and psychological operation to carefully and reasonably clarify and evaluate problems or statements, through introspection and logical reasoning, as well as decide what to believe and what to do to further solve problems and make decisions. Park & Yu (2018) considered critical thinking as the thinking method aiming at any topics, contents, or problems; a thinker could enhance the quality of self-thinking by skillfully applying the structure of thinking

to knowledge standard. Umegaki *et al.* (2017) affirmed that sport education was the ideal situation to cultivate critical thinking ability, could promote physical education learning effectiveness, and could assist in transferring to other learning fields. Rumelhart (2017) proposed that students, through teamwork learning in sport education curriculum, could improve critical thinking and support the opinion that sport education or sports field was the ideal situation to cultivate critical thinking ability. Filiz (2017) indicated that, in order to trigger students' critical thinking ability in physical education courses, a proper situation should be produced allowing students naturally generating critical thinking through problem solving or being willing to use critical thinking skills in physical education courses. Accordingly, the following hypothesis is proposed in this study.

H1: Facilitating reflection teaching integrated sport education would affect critical thinking disposition.

Li *et al.* (2017) pointed out the promotion of students' specific sport skills after the practice of sport education and the obvious progress or game performance. Johnson *et al.* (2017) mentioned that the practice of sport education model could enhance sports competency and cognition to further promote game performance, including badminton, basketball, 3x3 baseball, and lele baseball. Phillips (2017) discovered that sport education, with the intervention of sports season, could enhance students' team cohesiveness; the learning style of teams showed positive assistance on learning to enhance students' game performance. Bessa *et al.* (2019) revealed that students agreed with the practice of sport education model being able to enhance the participation in the course, felt fun in the process to participate in games and watch games, and regarded physical education full of the atmosphere of unity, rare experience in both theory and practice, and immersive show to promote game performance. Lisenbee & Ford (2018) considered that sport education model could reinforce students' teamwork and communication, enhance the willingness to participate in physical education courses, help students' affective behavior, promote affective performance to feel the fun of sports games, and present positive effects on learning attitude to enhance the game performance. Hedayati *et al.* (2017) mentioned that sports items in sport education presented the property of competition; students could naturally precede the course and activity with teams as well as flexibly arrange the participants to conform to various corrected games. Wang *et al.* (2017) explained that the long-period course planning provided students with opportunities to solve problems and practice skills, and students' sports skills and game performance therefore appeared obvious progress. In this case, the following hypothesis is therefore proposed in this study.

H2: Facilitating reflection teaching integrated sport education would affect game performance.

In the case study on dynamic reflection, Liu *et al.* (2018) combined course content with life experience to induce students' motivation; teachers, as facilitators, designed proper teaching facilitation prompts to have students find out problems and experience learning. It was discovered that the application of dynamic reflective teaching in drama class could enhance students' reflection ability; teachers' provision of proper facilitating reflection could cultivate students' habit of reflection as well as enhance the learning attitude and problem solving attitude. Yue *et al.* (2017) stated that reflective teaching process could enhance the professional development of teachers' teaching. de Castro & Levesque (2018) considered that offering learners with the application of reflective teaching could benefit the later teaching development, allowed learners actively finding out problems and solving problem through the practice of reflection, and could change learners from passive knowledge absorption to actively knowledge construction; learners, through the physical practice, could comprehend the skill learning process. Hill (2017) preceded the action reflection learning strategies integrated sport education model in the Frisbee course in an elementary school and found out the progress of all students in the game performance and concentration as well as the improvement and enhancement of teachers' teaching experience and professional development. Meanwhile, the significant growth of elementary school students' game performance and concentration with the action reflection learning strategies integrated sport education model was proposed. Rasheed *et al.* (2018) regarded important effects of critical thinking and problem solving ability on sports skill performance. The learning environment of sport education was the optimal place to cultivate students' sports skill performance. It was common to precede sports games in physical education courses, and the complicated and authentic learning situation in games could enhance students' thinking. Lagana *et al.* (2017) considered that physical education models, e.g. sport education model, motor skill model, game model, physical fitness education model, and adventure education model, could cultivate students' critical thinking in the teaching. Stressing on critical thinking and encouraging students' use of cognition skills could improve the sports skills and promote pupils' sports cognition. Consequently, the following hypotheses are proposed in this study.

H3: Critical thinking disposition reveals significantly positive effects on game performance.

H4: Critical thinking disposition appears remarkably positive effects on game performance.

H5: Critical thinking disposition shows notably positive effects on game performance.

Methodology

Measurement of research variable

– Critical thinking disposition. "Critical thinking disposition inventory" made by Lee *et al.* (2018) is used as the research tool for testing students' critical thinking attitude and tendency.
– Game performance. Motor skills are evaluated with "ball game performance evaluation tool" made by Chen & Kuo (2019). For the evaluation of game performance, "decision making", "skill execution", and "support" are selected.
– Decision making index (DMI) = (proper decision making times / proper decision making times + improper decision making times)* 100 %
– Skill execution index (SEI) = (effective skill execution times / effective skill execution times + invalid skill execution times)*100%
– Support index (SI) = (proper support times / proper support times + improper support times)*100%

Research object and sampling data

Applying experimental design model to the quasi-experimental study, 246 students of a university in Fujian Province are preceded the 16-week (3 hours per week for total 48 hours) experimental teaching research. The experimental class (123 students) is taught with facilitating reflection teaching integrated sport education and the control class (123 students) remains general traditional teaching. The collected research data are analyzed with SPSS, and regression analysis and analysis of variance are applied to test the hypotheses.

Analysis method

Analysis of variance is used for discussing the difference of facilitating reflection teaching integrated sport education in critical thinking disposition and game performance. Regression analysis is further applied to understand the relationship between critical thinking disposition and game performance.

Results and discussion

Effects of facilitating reflection teaching integrated sport education on critical thinking disposition and game performance

(1) Variance analysis of facilitating reflection teaching integrated sport education on critical thinking disposition.

Applying analysis of variance to discuss the difference of facilitating reflection teaching integrated sport education in critical thinking disposition, i.e. analyses and explanations of critical thinking disposition, facilitating reflection teaching integrated sport education shows significant effects on critical thinking disposition (P=0.000*), *Table 1*, that H1 is supported.

Table 1. Variance analysis of computer network technology executing facilitating reflection teaching integrated sport education on critical thinking disposition

Variable	F	P	Scheffe post hoc
Critical thinking disposition	18.475	0.000*	facilitating>general

* *stands for p<0.05*

(2) Variance of facilitating reflection teaching integrated sport education on game performance

Using analysis of variance for discussing the difference of facilitating reflection teaching integrated sport education in game performance, i.e. analyses and explanations of game performance on decision making and skill execution, facilitating reflection teaching integrated sport education reveals remarkable effects on decision making (P=0.000*), skill execution (P=0.000*), and support (P=0.000*), *Table 2*, that H2 is supported.

Table 2. Variance analysis of computer network technology executing facilitating reflection teaching integrated sport education on game performance

Variable	F	P	Scheffe post hoc
Decision making	21.383	0.000*	facilitating>general
Skill execution	26.754	0.000*	facilitating>general
Support	31.621	0.000*	facilitating>general

* *stands for p<0.05*

Correlation analysis of critical thinking disposition and game performance

Correlation analysis of critical thinking disposition and decision making. For the test of H3, the analysis result, *Table 3*, presents notably positive effects of critical thinking disposition (t=2.046**) on decision making that H3 is supported.

Correlation analysis of critical thinking disposition and skill execution. For testing H4, the analysis result, *Table 3*, appears significantly positive effects of critical thinking disposition (t=2.312**) on skill execution that H4 is supported.

Correlation analysis of critical thinking disposition and skill execution. For testing H5, the analysis result, *Table 3*, shows remarkably positive effects of critical thinking disposition (t=2.254**) on support that H5 is supported.

Table 3. Analysis of critical thinking disposition to game performance

Dependent variable→	Game performance					
Independent variable↓	Decision making		Skill execution		Support	
	Beta	t	Beta	t	Beta	t
Critical thinking disposition	0.183	2.046**	0.223	2.312**	0.211	2.254**
F	24.765		33.128		37.523	
Significance	0.000***		0.000***		0.000***	
R2	0.211		0.231		352	
Adjusted R2	0.198		0.214		337	

*Note: * stands for p<0.05 and ** for p<0.01.*

Data source: self-organized in this study

Conclusion

The research results reveal the effectiveness of the practice of facilitating reflection teaching integrated sport education on baseball team students' critical thinking disposition and game performance as well as baseball team students' critical thinking disposition on game performance. As a result, baseball team students' learning should not be restricted to knowledge, skills, or attitude, but should cover actions. Using physical education for inducing students' learning and sports motivation allows baseball team students combining sports and life and

teaches baseball team students to practice sports in life. The entire process should be emphasized, rather than caring about achieving the goals of cognition, affection, and skill in traditional curricula. In the facilitating reflection teaching integrated sport education teaching, baseball team students obviously make progress on the tactic selection and decision making ability under special situations. Facilitating reflection teaching integrated sport education stresses on real sports activity, and skills could be authentically evaluated with baseball team students' "actual performance in games". "Game performance" presents the comprehensive ability of cognition and skills; baseball team students would first understand problems through facilitating reflection, make judgment and decisions, and execute skills. Such a process is the presentation of "game performance" on real playground. Accordingly, game performance is the optimal way to measure sports learning performance.

Suggestions

Aiming at above research results, the following suggestions are proposed in this study.

– Teaching with curriculum model has become the trend in physical education teaching. Teachers are suggested to continuously learn various physical education teaching and education trend through active participation in workshops to increase the diverse types of physical education and achieve the teaching goal of "core competency".
– Teachers for the first time preceding the curriculum are suggested to start from the familiar sports items. First, the teaching design better conforms to students' ability and the curriculum could be adjusted, corrected, or complemented at any time. Furthermore, selecting familiar items for the curriculum allows teachers paying attention to students' learning effectiveness, rather than concerning about the teaching behavior, for the accumulation of teaching experience. Teachers acquire self-confidence in the familiar teaching items and expand to other sports items would positively assist in the teaching to benefit the teaching transfer effectiveness.
– The idea of facilitating reflection is the key in adventure and experiential education to integrate new and old experiences in the facilitating reflection, facilitate students' introspection, and attempt to apply the spirit of facilitating reflection in experiential education to physical education teaching. Teachers are suggested to participate in adventure and experiential curricula and teach students with the actual experienced teaching experience to achieve better teaching effectiveness.

References

Bessa, C., Hastie, P., Araújo, R., & Mesquita, I. (2019). What Do We Know About the Development of Personal and Social Skills within the Sport Education Model: A Systematic Review. *Journal of Sports Science & Medicine*, *18*(4), 812–829.

Bootsri, W., & Taneepanichskul, S. (2017). Effectiveness of experiential learning with empowerment strategies and social support from grandmothers on breastfeeding among Thai adolescent mothers. *International Breastfeeding Journal*, *12*(1), 37, DOI: 10.1186/s13006-017-0128-7.

Chang, T. H., Tucker, A. R., Norton, C. L., Gass, M. A., & Javorski, S. E. (2017). Cultural issues in adventure programming: applying Hofstede's five dimensions to assessment and practice. *Journal of Adventure Education and Outdoor Learning*, *17*(4), 307-320, DOI: 10.1080/14729679.2016.1259116.

Chen, C.-M., & Kuo, C.-H. (2019). An optimized group formation scheme to promote collaborative problem-based learning. *Computers & Education*, *133*, 94-115, DOI: 10.1016/j.compedu.2019.01.011.

de Castro, A. B., & Levesque S. (2018). Using a digital storytelling assignment to teach public health advocacy. *Public Health Nursing*, *35*, 157-164, DOI: 10.1111/phn.12371.

Filiz, B. (2017). Applying the TPSR Model in Middle School Physical Education. JOPERD: The *Journal of Physical Education, Recreation & Dance*, *88*(4), 50–52, DOI: 10.1080/07303084.2017.1281672.

Gislason, M. K., Morgan, V. S., Mitchell-Foster, K., & Parkes, M. W. (2018). Voices from the landscape: Storytelling as emergent counter-narratives and collective action from northern BC watersheds. *Health & Place*, *54*, 191-199, DOI: 10.1016/j.healthplace.2018.08.024.

Hedayati, N., Kuusisto, E., Gholami, K., & Tirri, K. (2017). Life purposes of Iranian secondary school students. *Journal of Moral Education*, *46*(3), 283-294, DOI: 10.1080/03057240.2017.1350148.

Hill, B. (2017). Research into experiential learning in nurse education. *British Journal of Nursing*, *26*(16), 932-938, DOI: 10.12968/bjon.2017.26.16.932.

Hortiguela Alcala, D., & Garijo, A. H. (2017). Teaching Games for Understanding: A Comprehensive Approach to Promote Student's Motivation in Physical Education. *Journal of Human Kinetics*, *59*(1), 17-27, DOI: 10.1515/hukin-2017-0144.

Johnson, R.L., Liu, J., & Burgess, Y. (2017). A model for making decisions about ethical dilemmas in student assessment. *Journal of Moral Education*, *46*(2), 212-229, DOI: 10.1080/03057240.2017.1313725.

Lagana, L., Gavrilova, L., Carter, D.B., & Ainsworth, A. T. (2017). A randomized controlled study on the effects of a documentary on students' empathy and attitudes towards older adults. *Psychology Cognitive Sciences -Open Journal*, *3*(3), 79-88, DOI: 10.17140/PCSOJ-3-127.

Lee, K.C., Yu, C.C., Hsieh, P.L., Li, C.C., & Chao, Y. F. (2018). Situated teaching improves empathy learning of the students in a BSN program: A quasi-experimental study. *Nurse Education Today*, *64*, 138-143, DOI: 10.1016/j.nedt.2018.02.013.

Li, S., Zhang, Z., Wan, B., Wilde, B., & Shan, G. (2017). The relevance og boby positioning and its training effect on badminton smash. *Journal of Sports Sciences*, *35*(4), 310-316, DOI: 10.1080/02640414.2016.1164332.

Lisenbee, P. S., & Ford, C. M. (2018). Engaging Students in Traditional and Digital Storytelling to Make Connections Between Pedagogy and Children's Experiences. *Early Childhood Education Journal*, *46*(1), 129-139, DOI: 10.1007/s10643-017-0846-x.

Liu, K.P., Tai, S.J.D., & Liu, C.C. (2018). Enhancing language learning through creation: the effect of digital storytelling on student learning motivation and performance in a school English course. *Educational Technology Research and Development*, *66*(4), 913-935, DOI: 10.1007/s11423-018-9592-z.

Maureen, I.Y., van der Meij, H., & de Jong, T. (2018). Supporting Literacy and Digital Literacy Development in Early Childhood Education Using Storytelling Activities. *International Journal of Early Childhood*, *50*(3), 371-389, DOI: 10.1007/s13158-018-0230-z.

Park, H., & Yu, S. (2018). Policy issues in simulation-based nursing education and technology development. *Health Policy and Technology*, *7*, 318-321, DOI: 10.1016/j.hlpt.2018.06.003.

Phillips, E.A. (2017). Evaluation of a coaching experiential learning project on OT student abilities and perceptions. *The Open Journal of Occupational Therapy*, *5*(1), 1-15, DOI: 10.15453/2168-6408.1256.

Rasheed, S., Younas, A., & Sundus, A. (2018). Self-awareness in nursing: A scoping review. *Journal of Clinical Nursing*, *28*, 762-774, DOI: 10.1111/jocn.14708.

Rumelhart, D.E. (2017). Schemata: The Building Blocks of Cognition. In: Rand J. Spiro, Bertram C. Bruce, William F. Brewer (eds). *Theoretical issues in reading comprehension. Perspectives from cognitive psychology, linguistics, artificial intelligence and education*, London: Routledge (pp. 33-58), DOI:10.4324/9781315107493.

Sierra, J.V., Guijarro, E., Rocamora, I., & Marinho, J.L.C.(2019). Teaching Games for Understanding vs Direct Instruction: levels of physical activity on football U-12. *Education, Sport, Health and Physical Activity*, *3*(1), 46-55, DOI: http://hdl.handle.net/10481/53214.

Tsuei, M. (2017). Learning behaviours of low-achieving children's mathematics learning in using of helping tools in a synchronous peer-tutoring system. *Interactive Learning Environments*, *25*(2), 147-161, DOI: 10.4324/9780429428500-2.

Umegaki, A., Otomo, S., Minamishima, E., Ueta, K., Fukada, N., Yoshii, T., & Miyao, N. (2017). Study of the Transfer and Maintenance of the Effects of the TPSR Model in Junior High School Physical Education Classes. *International Journal of Sport & Health Science*, *15*, 23–35, DOI: 10.5432/ijshs.201709.

Wang, S.-M., Hou, H.-T., & Wu, S.-Y. (2017). Analyzing the knowledge construction and cognitive patterns of blog-based instructional activities using four frequent interactive strategies (problem solving, peer assessment, role playing and peer tutoring): a preliminary study. *Educational Technology Research and Development*, *65*(2), 301-323, DOI. 10.1007/s11423-016-9471-4.

Yue, M., Zhang, M., Zhang, C., & Jin, C. (2017). The effectiveness of concept mapping on development of critical thinking in nursing education: A systematic review and meta-analysis. *Nurse Education Today*, *52*, 87-94, DOI: 10.1016/j.nedt.2017.02.018.