

Influence of PAD Class on Learning Motivation, Learning Flow and Self-Esteem of P.E. College Students

Shuhua Song^{1,a}, Chungang Gao^{2,b*}, Pengpeng Guo^{3,c} and Zhenwu Sun⁴

^{1,2,3,4}School of Physical Education, Yunnan Normal University, China

^a1057955454@qq.com, ^bchunganggao@126.com, ^c1401954146@qq.com, ^dzhenwu62@163.com

Keywords: PAD class; Learning motivation; Learning flow; Self-esteem; P.E. College Students

Abstract: Objective. Learning motivation, learning flow and self-esteem are important psychological factors that motivate students to learn. This study investigated the influence of the application PAD class in “physical research methods course” on students' learning motivation, learning flow and self-esteem. Methods. Thirty-six male college students were taught by the traditional teaching method and experimental class students were taught by integrating PAD class teaching into traditional teaching. At the end of the term, both classes finished required teaching tasks. All students completed 3 types of questionnaires on learning motivation, learning flow and self-esteem pre and post teaching experiment during Mar. to Jul. 2019. Results. The score of experimental class was better than those in control class according to learning motivation, learning flow and self-esteem. Conclusion. It suggested that PAD class was beneficial to activate the students' autonomous learning ability and improved the teaching quality than the traditional teaching method. Although this study is conducive to promoting students' learning, the research in the field of sports theory is still in the exploration stage.

1. Introduction

Learning motivation, learning flow and self-esteem, as psychological key factors, play the key role which motivates students to learn[1]. At present, Chinese higher education reform has entered a deeper “water zone” and many educators have done a lot exploration and research on how to improve classroom efficiency. In 2013, PAD class, as a new teaching method, was originally proposed by professor Xuexin Zhang, a psychologist from Fudan University. On PAD class, the traditional teacher-based classroom time distribution is reconstructed into 3 parts: presentation, assimilation and discussion[2]. This teaching model is dedicated to realizing the reconstruction of knowledge discourse, contractual equivalence of rights and responsibilities between teachers and students, and the dialogue generation of modern educational spirit[3]. It creates not only a new teaching system, but also brings more possibilities for innovating the current efficient classroom teaching mode”.

Since PAD class introduction, it has been practised by multi-disciplinary teachers and achieved remarkable teaching results. Scholars in the field of sports, such as Weihong Sun[4], Ru Liu[5] and Tian Liu[6], have achieved some effects by applying PAD class to public P.E. and technical course. So far, literature research shows that qualitative research is more than quantitative research. From the psychology perspective of quantitative research, it is necessary to discuss the influence of PAD class on PE students.

Due to lacking of sufficient knowledge reserve and poor self-control, most P.E. students attach more importance to skill learning than theoretical courses. This has led to a worrying atmosphere in theory classes, such as playing with mobile phones, sleeping and chatting. Some scholars describe the atmosphere as a pool of lifeless water[7]. Students are lack of a clear learning motivation, let alone having learning flow and self-esteem. Faced with this dilemma, it is necessary to change the way of classroom teaching and arouse students' interest. Therefore, the aim of our study was to determine the extent of the increase P.E. students' learning motivation, learning flow and self-esteem by a catalytic PAD class.

2. Methods

2.1 Subjects.

All seventy-four male college students were divided into control class(n=36) and experimental class(n=38), aged between 19 and 21 years ($M=20.1$; $SD=1.8$), from School of P.E., Yunnan Normal University, China. There were no significant difference in learning foundation and age between two classes.

2.2 Questionnaire Survey.

All students completed 3 online questionnaires on learning motivation, learning flow and self-esteem pre and post experiment during Mar. to Jul. 2019 respectively. Before filling in the questionnaire, teacher first read the unified instruction, and then students filled it out and submitted it online. The whole process took about 15 minutes. 74 questionnaires were collected and all were valid.

Learning motivation scale adopted was compiled by Amabile(1994) and translated by Liping Chi (2006). The scale consists of 30 items, two sub-scales of intrinsic motivation(challenge, enjoyment) and exogenous motivation(depending on others' evaluation, selection of simple task, attention to interpersonal competition, seeking returns)[8,9]. Each item is rated as 1-4 points from "completely inconsistent" to "completely consistent". The higher score means the stronger motivation. Learning flow scale adopted was compiled by Dr. Jinhui Ye[10] (2013). The scale consists of 52 items, seven dimensions, and each item is scored 1-5 points from "very inconsistent" to "very consistent". The higher score means the stronger learning flow. Self-esteem scale adopted was compiled by Rosenberg in 1965. The scale consists of 10 items, two dimension, and each item is scored 4-1 from "strongly agree" to "disagree". The higher score means the stronger self-esteem. It is the most widely used tool to measure self-esteem in the Chinese psychological field. The reliability and validity of the three questionnaires comply with the requirements.

3. Design and Process

3.1 Group.

38 students in experimental class were divided into 10 groups for teaching experiments. 4 students made up a standard group (2 members in Group 10th). The group conditions were based on a comprehensive consideration including final grades of last semester (namely ABBC: 1 excellent student, 2 medium students, 1 slightly poor student) and the outward manifestation of personality (extroversion /introversion). After the midterm, group members were adjusted according to the actual situation.

3.2 Process.

All students completed 18 weeks, 36 hours teaching schedule. The lecturing method was adopted in control class. Compared to control class, 15 knowledge points were selected and carried out on PAD class. Different from the PAD proposed by Xuexin Zhang[错误!未定义书签。], one hour was spent in PAD class and the other hour in traditional teaching. The PAD class was divided into 3 parts, namely part 1, teacher taught stage for 25 mins; part 2, students self-studied and did "gain, puzzles and problems" stage independently for 10 mins; part 3, each group discussed and the whole classmates communicated for 10mins.

3.3 Control variables.

Teaching intervention control: All students were taught by the same teacher in the same course, and the teaching content and progress were maximized in the same way.

Experimental intervention variable: Before the formal teaching, students were firstly trained and mobilized to make students fully understand what is PAD class and how to fill the task template of “gain, puzzles and problems”.

Group intervention variable: Students were divided into groups of four according to the pre-arranged seating order. And group leaders took turns and earnestly fulfilled his/her responsibilities.

3.4 Statistical analysis.

Data are presented as Mean \pm SD. SPSS17.0 statistical software was used for statistical analysis. Paired sample t-test was used for within-group comparison, and independent sample t-test was used for between groups comparison. The significance level was $p < 0.05$ and $p < 0.01$, respectively.

4. Results

4.1 Learning motivation.

The learning motivation scale is divided into two sub-scales for measuring intrinsic and exogenous motivation. Intrinsic motivation is the tendency of individuals to engage in activities in order to seek challenges, fun and satisfy curiosity. Unlike intrinsic motivation, exogenous motivation is the tendency of individuals to participate in activities for other factors, such as rewards, others' recognition and evaluation, completion the instructions from superiors, etc[11]. Table 1 showed that there were no significant differences in intrinsic motivation, exogenous motivation and total score before the experiment. After PAD class, score of intrinsic motivation was significantly higher than that within and between groups. Score of exogenous motivation in both classes were significantly higher than that before the experiment, but there was no statistical difference between them. The reason may be related to teachers' humorous language and strict management. From the total score, it can be seen that study motivation of control class has an increasing trend($p > 0.05$) and that of experimental class improved significantly after the experiment($p < 0.05$).

Table 1 Score of intrinsic motivation, exogenous motivation and learning motivation

	Control class(n=36)		Experimental class(n=38)	
	pre	post	pre	post
Intrinsic motivation	41.9 \pm 6.3	42.7 \pm 5.6	42.7 \pm 3.8	44.8 \pm 3.8*#
Exogenous motivation	42.4 \pm 4.5	43.3 \pm 5.3#	43.2 \pm 3.6	45.2 \pm 4.5#
Total score	84.3 \pm 9.2	86.1 \pm 10.9	85.9 \pm 6.1	90.1 \pm 8.2*#

$p < 0.05$, ## $p < 0.01$: post VS pre; * $p < 0.05$, ** $p < 0.01$: experimental class VS control class

4.2 Learning flow.

The scale of learning flow is divided into 7 dimensions. Paired t-test showed that score for fusion of consciousness and action, sense of control and a total score of post-control class were improved significantly than pre-control class. Score of six dimensions for fusion of consciousness, purposefulness and feedback, attention focus, self-forgetful state, sense of control, experience of enjoyment and total score of post-experimental class were improved significantly than pre-experimental class. After the teaching experiment, experimental class was significantly higher than control class in three dimensions of attention focus, self-forgetful state, and experience of enjoyment.

Table 2 Score of learning flow

	Control class(n=36)		Experimental class(n=38)	
	pre	post	pre	post
Balance of tasks and skills	21.5±4.4	22.7±3.5	21.1±2.5	22.6±3.7
Fusion of consciousness and action	20.3±4.1	22.5±4.4#	20.2±2.8	22.5±4.2#
Purposefulness and feedback	18.4±4.1	18.9±3.2	18.5±2.4	19.9±3.0#
Attention focus	23.2±5.0	24.0±4.6	23.3±3.5	26.8±5.3*#
Self-forgetful state	16.4±4.6	17.5±4.7	15.8±3.1	18.8±4.8*#
Sense of control	19.3±5.1	22.1±4.7#	18.9±2.9	21.8±5.2#
Experience of enjoyment	21.1±4.4	21.7±3.7	20.4±2.4	22.9±3.6*#
Score	140.0±26.3	152.8±25.3#	139.9±15.0	154.2±26.7*##

#p<0.05, ##p<0.01: Post VS pre; *p<0.05, **p<0.01: experimental class VS control class

4.3 Self-esteem scale.

There was no difference between groups before the experiment, but there was a significant difference after the experiment. Unlike experimental class, there was no statistical difference between pre and post in control class(Table 3). It's worth noting that the total of students' self-esteem score was not ideal, even some students were below the normal level (<15, very lower). This phenomenon may be connected with the fact that both teachers and students pay too much attention to the development of students' skills for a long time. This result once again reminds that educators should pay more attention to students' learning psychological need.

Table 3 Score of self-esteem

	Control class(n=36)		Experimental class(n=38)	
	pre	post	pre	post
Self-affirmation	9.9±2.1	10.0±2.1	10.4±1.5	11.9±1.5*#
Self-negation	10.8±2.6	11.3±2.8	11.4±1.8	12.4±1.5*##
Score	20.9±3.1	21.3±3.3	21.4±2.2	24.5±1.7**##

#p<0.05, ##p<0.01: Post VS pre; *p<0.05, **p<0.01: experimental class VS control class

5. Conclusion

In conclusion, PAD class can effectively activate P.E. students' learning enthusiasm and participation, and the quality of class discussions and assignments also improve significantly. The dominant position of students is more obvious and more real embodiment. On the other hand, students can know the characteristics of sports scientific research work earlier and gradually learn how to apply the knowledge they have learned by analyzing some typical examples. Third, the relationship between students is closer and the atmosphere of learning from each other is enhanced. Compare with control class, the score of learning motivation, learning flow and self-esteem of experimental class change more obvious.

6. Suggestion

The application of PAD class in P.E. theory course is still in the preliminary stage, so the following aspect s are worth further discussing. First, due to students lacking the necessary knowledge reserve and lower self-control, the time allocation of "teachers intensive lectures" and "students' discussions"

should be designed according to subject characteristics and specific teaching contents. The longer they self-study and discuss, the more easily they will be distracted. In addition, it is recommended to regroup after a period time. Second, considering a large size class will have limited opportunities to speak, small size class teaching is more suitable for PAD class, especially for P.E. students. Third, peer pressure on PAD class makes some students improve their self-control and learning initiative, but there are still a small number of students with an indifferent attitude. This fact reminds teachers should pay particular attention to those who are not active in study. Fourth, PAD class stimulates students' spontaneous cognition and subject spirit in a certain sense, and tries to transcend the barriers of the traditional classroom. This is a preliminary attempt to realize the vision fusion of teacher-student "dialogue interaction" in classroom teaching, but it still requires a lot of exploration and practice.

Acknowledgements

The study is supported by the research fund for pilot project for comprehensive reform of national physical education specialty and Yunnan Normal University teaching reform program.

All authors are grateful to the participants from School of P.E., Yunnan Normal University for their participation in the study and those that helped with data collection and analysis. Thanks to all authors who provided documentation for this study.

References

- [1] G.F. Dong: *The Research on the Relationship between Learning Motivation, Flow Experience and Academic Achievement of High School Students*(Ms. Harbin Normal University,China,2017). (In Chinese)
- [2] X.X. Zhang, A new attempt in university teaching reform, Fudan Education Forum, Vol. 34 (2014) No.5,p5-10. (In Chinese)
- [3] Z.P. HU: *Modern Pedagogy*(Beijing: Higher Education Press, China 2010:187). (In Chinese)
- [4] W.H. Sun and X.X. Zhang, Design and application of class division teaching mode based on P. E. teaching theory, Journal of Sports Adult Education, Vol. 33 (2017) No.6,p70-73,87,99. (In Chinese)
- [5] R. Liu, X. Peng and W.N. Ren, Swot analysis and strategy research on presentation –assimilation -discussion (PAD) class applied to university PE theory classroom. Journal of Anhui Sports Science, Vol. 40 (2019) No.1,p61-66. (In Chinese)
- [6] T. Liu and D Li, Feasibility analysis on application of PAD teaching mode in teaching of exercise physiology. Bulletin of Sport Science & Technology, Vol. 26 (2019) No.9,p29-31. (In Chinese)
- [7] J.M. Fei, The construction of teaching model of physical education theory course from the perspective of “Field” theory. Journal of Huaibei Normal University (Natural Science), Vol. 38 (2017) No.2,p92-96. (In Chinese)
- [8] C. Liu: *The Relationship of Learning Motivation, Social Support and Career Decision Making Self-efficacy in College Students*(Ms. Central South University, China 2013). (In Chinese)
- [9] L.P. Chi and Z.Q. Xin, The measure of learning motivation and the relationship between it and self-efficacy of college students. Psychological Development and Education, Vol. 21 (2006) No.2,p 64-70. (In Chinese)
- [10] J.H. Ye: *Study on Learning Flow of the Adolescent*(Ph.D. Jiangxi Normal University, China 2013).(In Chinese)

[11] E.L. Deci and R.M. Ryan: *Intrinsic Motivation and Self-Determination in Human Behavior* (New York, August 31, 1985).