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# Comparison between Student Centered (Classroom Technology) Versus Lecturer Centered (Hands-On) Learning Approach in Physical Conditioning Short Course

Nur Ikhwan Mohamad, Ali Md Nadzalan, Jaffry Zakaria, Gunathevan a/l Elumalai

**Abstract: Problem Statement:** Physical conditioning related course has been widely accepted as one of the fundamental courses for any exercise science or physical education programs or certifications. However, the teaching and learning approach are varied between one lecturer/instructor to another. Many physical conditioning courses conducted still relies on theoretical classroom approach and sometimes mix with a bit of lecturer-centered practical classes. Thus, questions arise whether a hands-on purely experiential student-centered approach may provide the best outcome. Thus, this research is proposed. **Objectives:** To compare outcome of experiential student-centered learning method versus classroom lecturer-centered learning method applied during physical conditioning related short course. **Research Methodology:** Thirty-five participants recruited for the purpose of the study. Participants were divided into two groups (experiential and classroom). Both groups participated in a course focusing on basic concepts of strength training basics exercise techniques. Pre and post learning assessment using squat's Movement Competency Screening (MCS) were conducted to determine learning outcome, based on ability to perform the movement appropriately. Results were compared statistically to serves the objectives of the study. **Outcome:** Result of this study indicated that no significant changes existed between pre and post learning process in both experiential and classroom approaches. **Future Studies:** Other variables that should be tested in the future may be the duration of actual practices effect on improving technical skills capabilities, as it seems learning alone without sufficient practice time will not improve technical skills capabilities. **Impact:** At this stage, it can safely be said that strength and conditioning educators can used both learning methods, but more practice time need to be allocated, even outside the learning sessions to assist mastery of technical skills.

**Index Terms:** student-centered, lecturer-centered, movement competency screening,

## I. INTRODUCTION

One of the challenges faces by strength and conditioning

lecturer is to transfer the 'student' into 'practitioners' once they completed the course [1]. Teaching and learning method applied plays an important role in ensuring the transfer of knowledge will also means the transfer of practical skills and practices. And this is where the issue of strength and conditioning course is more towards vocational (experiential) rather than academic in nature issues arise [2]. Generally, hypotheses hold by most strength and conditioning educators is that strength and conditioning knowledge and skills best be delivered via practical experienced based learning method, which conforms to the student-centered learning method. Others within education fraternity seems to pinpoint current technologies and advanced in classroom teaching aids, which considered able to provide better or similar learning effect during strength and conditioning classes.

Basically, two main important learning outcomes desired are for the students or course participants at the end of the course to obtain the theoretical knowledge, as well as practical application part. The practical part typically not just required the students to able to pin point or instruct certain exercises or movement, but to also able to properly show and model it. Simply state, the student itself in the end will also be able to be the practical role model for all exercises perform by athletes or clients.

Within the fitness industry, it has been accepted that a fitness professional (i.e. strength and conditioning professionals) to have appropriate body image and performance skills which serves as their source of credibility and marketability [3,4]. From education provider point of view, if this is the 'need' and 'want' of the industry, the institution's involved need to ensure that they produce graduates equip with such requirements [3,5]. Therefore, it is the purpose of this study compare strength training basic movement competency level between Experiential Student-Centered learning method groups versus Classroom Lecturer-Centered learning method group participating in physical conditioning related short course.

**Revised Manuscript Received on May 10, 2019**

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## II. METHODOLOGY

A total of 35 university students free from any musculoskeletal injuries, physically fit, healthy and from non-sports science or non-physical education related diploma program voluntarily registered in a physical conditioning related course. The course maximum capacity was typically 40 participants per semester. Twenty-three of the participants were females and another 12 participants were males in gender. The participants were divided into two groups with the first group (G1) consist of 18 participants (6 males, 12 females), and the second group (G2) consist of 17 participants (6 males, 11 females). The G1 group was randomly assigned to the Classroom Lecturer-Centered learning method, utilizing technological teaching aids such as video presentations, slides, and apps. The G2 was randomly assigned to Experiential Student-Centered learning method. No control group were established, as the comparison were solely between these two teaching methods. Before and after the learning session, all participants were tested using the squat technical assessment based on Movement Competency Screening (MCS) assessment criteria [6], where the performance were video recorded for further analysis. MCS assessment method has been proven a valid and reliable assessment tools in determining movement competency of all major exercise movement involved in strength and conditioning training [7]. The MCS squat performance video of all participants were then assessed using an open access motion analysis software (Kinovea, <https://www.kinovea.org/>) for joint angle kinematics comparisons [8,9].

## III. FINDINGS & DISCUSSIONS

In order to serve the purpose of the study, observations made and based on the results obtained, non-sports science-based participants of physical conditioning related short course can be said as having a low level of strength training basic movement competency level.

**Table 1:** Hip and knee angle performance based on squat exercise performed as part of the Movement Competency Screening (MCS) conducted pre and post learning methods (G1=student centered experiential learning method, G2=classroom lecturer centered learning method).  $p=0.05$

Group	Parameters	Pre	Post	Sig.	% diff
1	Hip angle	96.65 ± 26.17	90.18 ± 25.36	0.11	6.70
	Knee angle	78.35 ± 14.03	79.76 ± 13.29	0.33	1.77
2	Hip angle	96.06 ± 12.24	66.35 ± 13.61	0.29	30.92
	Knee angle	75.94 ± 10.53	76.65 ± 15.89	0.44	0.92

**Table 2:** Experiential Student-Centered learning method vs Classroom Lecturer-Centered learning method comparisons.  $p=0.05$

Test	Parameters	G1	G2	Sig.	% diff
Pre	Hip angle	96.65 ± 26.17	96.06 ± 12.24	0.467	0.61

	Knee angle	78.35 ± 14.03	75.94 ± 10.53	0.287	3.08
Post	Hip angle	90.18 ± 25.36	66.35 ± 13.61	0.001	26.42
	Knee angle	79.76 ± 13.29	76.65 ± 15.89	0.270	3.91

The findings also found no significant differences in term of movement competency level between pre and post learning process using Experiential Student-Centered learning method, among participants of physical conditioning related short course. Similarly, no significant differences were also found between pre and post learning process using Classroom Lecturer-Centered learning method. However, one of the criteria for a good squat movement (hip angle) has been found to be significantly improved after learning via experiential learning method. But this only improvement within the hip area region. Overall, it can be said that both teaching method seems unable to improve much practical capabilities of learners. This may be due to lack of practice duration (training) involved in this study.

## IV. CONCLUSIONS

From the researcher's point of view, the findings of this study do make sense as based on 10 years of teaching experience, student taking this subject can only excel with training and practicing of the skills. Learning process in any ways as indicated in this study may provide the needed introduction, yet only hours of practices may provide the needed understanding and knowledge. Future studies should consider to involved training duration or student learning time taken into considerations.

## ACKNOWLEDGEMENT

This study was part of research funded by the Sultan Idris Education University.

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