

The Effect of Team Commitment and Co-Regulation on Satisfaction in Team Project-Based Learning

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Abstract

The present study was conducted to investigate the effects of team commitment and co-regulation on satisfaction in team project-based learning. Self-report questionnaire were consisted team commitment, co-regulation, and satisfaction in team project based learning scale and completed by 44 university student in dental hygiene department. The collected data were analyzed with the SPSS 22.0 software program using Pearson's correlation, multiple regression. The mean of team commitment was 5.32 with co-regulation at 5.24 and cognitive, behavioral and motivational subfactors at 5.21, 5.30 and 5.20. team project based learning satisfaction was recorded at 5.15 with all variables satisfying the assumption of normality. In order to observe the correlation between variables, a Pearson's correlation analysis was conducted. A significant correlation between satisfaction and team commitment ($r=.766, p<.001$) and satisfaction and co-regulation($r=.583, p<.001$) was displayed. Moreover, co-regulations subfactors showed a significant correlation with satisfaction with cognitive ($r=.472, p<.01$), behavioral ($r=.546, p<.001$) and motivational ($r=.681, p<.001$) subfactors. And the results of multiple regression analysis showed that higher scores in the motivational area of co-regulation in team project based learning resulted in higher rates of satisfaction. The results of this study show that team commitment and the motivational subfactor of co-regulation have a positive effect on the student satisfaction of team project-based learning. Strategies on team commitment and co-regulation enhancement are needed in regard to promote satisfaction in team project based learning.

Keywords:team commitment; co-regulation; self- regulation; satisfaction; team project-based learning

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Introduction

Swift changes in society have resulted in the restructuring of social structures into teams requiring individuals to possess capabilities that can further enhance team efficiency such as communication skills, mediation and collaboration. In order to cultivate individuals with such skills, academic institutions are implementing study techniques that focus on high-level cognitive abilities and promote collaboration through team project-based learning [You,2014; Moylan,2008]. Team project-based learning can assist in the improvement of a student's high-level cognitive abilities such as communication or problem solving [Bell ,2010]. Moreover, the academic effectiveness of such methods has been widely recognized and is currently implemented in many university courses as they enable students to increase their creativity and responsibility in setting their own direction and teach them how to apply and create information [Wurdinger, 2015].

However, there have been many complaints regarding the use of team project-based learning and students' negative perception towards the method due to conflicts that occur among team members in role allocation and communication during the collaborative process [Jang,2004].

As a result, an effective academic process must be designed and strategized in order to increase the progress of team project-based learning and additional research must be conducted on factors that affect the satisfaction rate of students. Factors that affect a student's satisfaction rates include team commitment and co-regulation. Commitment is an important factor that predicts academic progress and has been researched on through various approaches. It is important to note that team commitment allows members to trust in the team's goals and values, make an effort for the team and inspires them to continue to remain as a member on the team. Due to these characteristics, team commitment is viewed as an essential factor in the long-term success of a team. Co-regulation is another important factor which is defined as a proactive process that systematically maintains and invigorates one's awareness, actions and motivations in order for a student to achieve their goals. It has recently been viewed as an important factor that influences academic achievement by which an individual's regulation skills are expanded and transitioned into a group context through interaction [Lee ,2018]. The goal of this study is to research the relationship between team commitment, co-regulation and its correlation to student satisfaction rates in order to present a base foundation on which team project-based learning can be more effectively designed and operated.

Materials and Methods

Research Tools

In order to increase the key technical capabilities of students, a survey was conducted on a total

of 44 students who had experienced team project-based learning. The students were asked to rate team commitment, co-regulation and satisfaction on a six-point scale.

Team commitment is defined as the sense of affiliation and unity that a team member experiences and was originally proposed by Van der Vegt and Emans [Van Der Vegt , 2000] to be used in four questions modified by JinHeeKim and Jae Sam Chung[Kim ,2015]. Co-regulation is defined as the strategy of self-control in a collaborative academic situation with 22 questions on co-regulation for university students with cognitive, behavioral and motivational subfactors developed by Gyu Yeon Lim et al. [Lee ,2018] and modified by Ji Hyun Lee [Lee ,2018].

Student satisfaction on team project-based learning activities applied 10 questions developed by Jae Sam Chungand Lim Gyu Yeon [Chung,2000] which were modified to fit the parameters of this study.

Statistical Analysis

The reliability of the tools (Cronbach's α) applied in this study were all above 0.9. The resources were collected using the SPSS 22.0 program to conduct technical statistics analysis and Pearson's correlation among research variables. Moreover, a multiple regression analysis was conducted to verify the influence that team commitment and co-regulation has on team project-based learning satisfaction with the results being statistically meaningful at 5%.

Results and Discussion

The mean and standard deviation of the major variables of this study can be found in Table 1. The mean of team commitment was 5.32 with co-regulation at 5.24 and cognitive, behavioral and motivational subfactors at 5.21, 5.30 and 5.20, respectively. Team project-based learning satisfaction was recorded at 5.15 with all variables satisfying the assumption of normality.

Table 1.Mean of major variables

| | Sub-factor | M±SD | Skewness | Kurtosis |
|-----------------|------------|-----------|----------|----------|
| Team commitment | | 5.32±0.93 | -1.65 | 2.50 |
| Co-regulation | cognition | 5.21±0.74 | -1.67 | 4.85 |
| | behavior | 5.30±0.75 | -1.88 | 5.35 |
| | motivation | 5.20±0.86 | -1.37 | 3.00 |
| | total | 5.24±0.73 | -1.88 | 5.93 |
| Satisfaction | | 5.15±0.90 | -1.21 | 1.26 |

In order to observe the correlation between variables, a Pearson's correlation analysis was conducted with the results displaying a significant correlation between satisfaction and team

commitment ($r=.766, p<.001$) and satisfaction and co-regulation ($r=.583, p<.001$). Moreover, co-regulations subfactors showed a significant correlation with satisfaction with cognitive ($r=.472, p<.01$), behavioral ($r=.546, p<.001$) and motivational ($r=.681, p<.001$) subfactors.

Table 2. Correlation among major variables

| | 1 | 2 | 2-1 | 2-2 | 2-3 | 3 |
|-----------------|---------|---------|---------|---------|---------|---|
| Team commitment | 1 | | | | | |
| Co-regulation | .590*** | 1 | | | | |
| cognition | .444** | .938*** | 1 | | | |
| behavior | .565*** | .977*** | .870*** | 1 | | |
| motivation | .718*** | .927*** | .776*** | .898*** | 1 | |
| Satisfaction | .766*** | .583*** | .472** | .546*** | .681*** | 1 |

** $p<.01$ *** $p<.001$

1= Team commitment, 2=Co-regulation, 3=Satisfaction

To verify the influence of team commitment and co-regulation on team project-based learning, multiple regression analysis was conducted and the results verifying the regression models as shown in Table 3 were $F=32.527(p<.001)$ showing the regression model to be adequate with the model explained variance at approximately 61.3%.

Team commitment showed a statistical significance on team project-based learning satisfaction ($\beta=.648, p<.001$). In short, higher rates of team commitment have an increased team project-based learning satisfaction rate. However, no statistical significance was found between co-regulation and team project-based learning satisfaction ($p>.05$).

Table3. The result of multiple regression on major variables and satisfaction

| Variables | B | S.E | β | t | p |
|--|------|------|---------|---------|-------|
| | 0.50 | .654 | | 0.76 | .450 |
| Team commitment | 0.63 | .117 | .648 | 5.39*** | <.001 |
| Co-regulation | 0.25 | .148 | .200 | 1.67 | .103 |
| $F=32.527(p<.001), R^2=.613, adjusted R^2=.595, Durbin-Watson=1.432$ | | | | | |

*** $p < .001$

To verify the influence of the subfactors of co-regulation on team project-based learning, multiple regression analysis was conducted with the results recorded in Table 4.

The motivational subfactor of co-regulation showed statistical significance on team project-based learning satisfaction ($\beta = .989, p < .001$). In short, higher scores in the motivational area of co-regulation in team project-based learning resulted in higher rates of satisfaction. However, cognitive and behavioral areas did not have a meaningful significance on satisfaction ($p > .05$).

Table 4. The Effect of co-regulation on satisfaction

| Variables | B | S.E | β | t | p |
|---|--------|------|---------|----------|-------|
| | 1.893 | .754 | | 2.512* | .016 |
| cognition | 0.014 | .281 | .011 | 0.048 | .962 |
| behavior | -0.422 | .394 | -.352 | -1.071 | .291 |
| motivation | 1.045 | .272 | .989 | 3.846*** | <.001 |
| $F = 12.667 (p < .001), R^2 = .487, \text{adjusted } R^2 = .449, \text{ Durbin-Watson} = 1.613$ | | | | | |

* $p < .05$ *** $p < .001$

The results of this study show that team commitment and the motivational subfactor of co-regulation have a positive effect on the student satisfaction of team project-based learning. In previous research, students in team project-based courses with goal centric and social relationships had effects on successful team project-based learning experiences [Lee,2017]. Moreover, Sheng's research noted the importance of trust and support between team members in team project activities [Sheng,2010].

The results of this study show that in order to operate a successful team project-based course, courses need to be designed and operated based on the team members instead of focusing on objectives.

Conclusively, methods to promote team commitment and co-regulation are necessary in order to increase the satisfaction levels of team project-based learning. Strategies that motivate team commitment by stimulating mutual interaction between team members to foster friendliness in team projects is needed. In addition, opportunities that offer small chances of cooperation to

receive constructive feedback from fellow students before starting general courses that involve collaborative and cooperative involvement will also allow students to increase their co-regulation.

Conclusion

This study was conducted to clarify factors affecting on the satisfaction of team project- based learning.

As a result, team commitment was shown to have a significant correlation with team project-based learning satisfaction. Moreover, the motivational subfactor of co-regulation showed a significant correlation with team project-based learning satisfaction as well.

As such, strategies on team commitment and co-regulation enhancement are needed. Members should be attached to the team and motivated to focus on achieving their goals, and they need to develop self-regulation skills knowing that each member's motivation and actions can be shown as a result of the overall team.

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