

# The Effect of Team Projects on Education Satisfaction

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## Abstract

**Background/Objectives:** By recognizing team efficacy, interpersonal relationship, and activeness in problem solving as key factors affecting class satisfaction, this study seeks to investigate their causality in actual university team project-based classes. **Methods/Statistical Analysis:** In this research, survey was performed to collect data. The total of 200 survey questionnaires was distributed during a break in the middle of class. Of them, 34 sets were excluded for missing response, plural response and lining of the same answer inappropriate for study research, leaving 166 sets for the final analysis. For this study research, IBM SPSS v22, IBM AMOS v22, and Microsoft Excel 2013 were utilized. **Findings:** As a result of this study, the attitude toward learning, team efficacy, and problem solving capability was found to have a positive effect on class satisfaction. Whereas interpersonal relationships showed no effect on class satisfaction, attitude toward learning and team efficacy showed a positive effect on interpersonal relationship and team efficacy showed an effect on problem solving capability. Interpersonal relationship and problem solving capability were found to function as a mediator among team efficacy, attitude toward learning and class satisfaction. **Application/Improvements:** Based on research results, interpersonal relationship is deemed most appropriate to improve problem solving capability. Also team efficacy and attitude toward learning were found to increase interpersonal relationship.

**Keywords:** Attitude toward Learning, Class Satisfaction, Interpersonal Relationship, Problem Solving Capability

## 1. Introduction

We live in an internet-based information society where many things are resolved just at the click of a finger. Corporate atmosphere changes and classroom education also shifts from unilateral memorization-oriented learning to more practical problem-solving-oriented learning, and from individual-centered learning style to team-based learning practices. Enterprises desire their members to build problem solving capability and situation handling ability among others in order to generate results or in talent selecting and development and they mainly look at these aspects. In this context, universities responsible for future education and nurture sophisticated human resources in a future society are required to cultivate talent who will lead the future knowledge-based society by providing team project-based learning. In this ever-changing society, schools need to cultivate social members with the abilities required by the future society.

And to this end, team project-based learning has received great interest.

The team-based learning has been actively implemented through diversified approaches. However, more study on such team-based learning seems necessary such as those on team performance assessment in schools instead of individual performance and on factors influencing team performance in team-based activities. This study starts back from square one to see if team-based learning practically satisfies learners. And, with the recognition of team efficacy, interpersonal relationship understanding and activeness in problem solving as key factors affecting class satisfaction, the study seeks to investigate their correlation in actual university team project-based class.

Based on this, the study established research agenda as follows; first, does team efficacy have a positive correlation with learners' class satisfaction? Second, does interpersonal relationship understanding have a positive correlation with learners' class satisfaction? Third, does

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problem solving capability have a positive correlation with learners' class satisfaction?

## 2. Literature Review

### 2.1 Team Efficacy

Team efficacy is an idea showing an individual's confidence in his or her team. A dictionary definition of efficacy is 'belief or confidence in ability or capability'. Rather than the actual ability of the person, it means a motivational factor indicating the degree of belief in ability.

<sup>1</sup> used the term, collective efficacy, and viewed it as a transformed version of self-efficacy. In such a manner, he regarded the group-level efficacy as team efficacy. Bandura defined it as the "shared belief of a group in its collective ability to organize and implement a series of activities necessary to achieve a given task"<sup>1,2</sup>, in their study on the spiral relationship between efficacy and performance, defined it as "collective, organizational belief that a specific task can be successfully performed".

<sup>3</sup> studied 294 university students in the US and Hong Kong to look at the effect on team effectiveness of team efficacy, task characteristics, task uncertainties, task independence, context, independence of the field and collectivity. As a result of the study, if task uncertainty was high, team members were found to work independently and show lower collectivity. And group efficacy showed no relation with group effectiveness. However, on the contrary, if task uncertainty was low, team members were found to work mutually dependently and have high collectivity. Their group efficacy showed a positive relationship with group effectiveness.

<sup>4</sup> examined 452 teachers in 47 elementary schools to find out the effects on students' math and reading achievement of collective teacher efficacy, teacher lethargy, trust between teachers, and teacher efficacy. As a result, collective teacher efficacy was found to have a positive correlation with student achievement. This finding indicates that the collective teacher efficacy is a positive predictor for student school achievement.

<sup>5</sup> conducted a study on 149 nurses in the health care facility of pediatrics in the southern part of Australia. They investigated the effect on patients' satisfaction level of these nurses' self-efficacy, nursing team efficacy, individual efforts and teamwork skill<sup>5</sup>. As a result, the team's self-efficacy showed a significant positive effect on team

efficacy. Team efficacy, too, showed a positive effect on all of the teamwork skill, individual effort and collective effort.

Studies on team efficacy have been conducted mostly in the field of business where team performance is important rather than school where learning process is made individually. As the team-based learning activities grow more significant and amid the shift in the educational scene from individual dimension toward team-based dimension, more studies will be necessary on team-level variables such as team efficacy or team cohesion just as those in enterprises. In this sense, the following hypotheses were established herein;

H1a: Team efficacy would have a positive effect on class satisfaction.

H1b: Team efficacy would have a positive effect on interpersonal relationship.

H1c: Team efficacy would have a positive effect on positive solving capability.

H2a: Attitude toward Learning would have a positive effect on class satisfaction.

H2b: Attitude toward Learning would have a positive effect on interpersonal relationship.

H2c: Attitude toward Learning would have a positive effect on problem solving capability.

### 2.2 Interpersonal Relationship

Interpersonal relationship refers to a status where organizational members are already aware of each other's preference, strengths and weaknesses verbally or nonverbally<sup>6</sup>. It is to place more focus on the relationship with team members rather than team-based task of team project activity, referring to the level of mutual understanding.

<sup>7</sup>In their study, closely looked at study findings that the shared cognition among team members had a significant effect on organizational performance. They first examined what was shared and what was shared then how to measure what was shared and what kinds of results were created by the shared cognition.

<sup>7,8</sup> Divided 4 large aspects to be shared by team members in team activity. The four aspects to be shared are task-specific knowledge, task-related knowledge, knowledge of teammates, and shared attitudes/beliefs.

As for the knowledge of teammates, it is said that teammates should know each other's preference, strengths, weaknesses and tendency to maximize team performance<sup>9</sup>. That is, if they have knowledge of teammates,

they could predict how another teammate would behave, and allocate resources in line with each one's specialty to provide necessary information before it is requested. In such a manner, teammates can keep in tune with one another to complete for better team performance. This is similar to sports team. During games, they know where to pass the ball even without looking at where other team members are. Here, the knowledge of teammates is not limited to any specific task but the kind applicable to diversified team activities.

<sup>6</sup> Investigated the effect of team process on team learning and team performance in a short-term project team. Here, the team process is consisted of a teammate-related relationship-oriented process and task-related task-oriented process. The relationship process is consisted of three sub-variables. These all are related with the relationships with team members in team activity processes. The first is interpersonal understanding. It refers that if team members are aware of and fully understand each other's preference, worries and strengths, the team would enjoy effective knowledge sharing and open communication.

Second is 'confronting others who break the norms'. This refers to possible conflicts or confrontations arising among team members during team activities<sup>10</sup> reported that, in team activities in long-term learning environment, confrontation to another team member could help enhance team learning and development<sup>10</sup>. However, in a shorter-term environment, confrontation to team member would undermine proper relationship building among teammates, possibly functioning as a predictor of negative team performance.

Lastly, there is 'building relationships with other teams'. It is to form relationships not only with own team members but also those in other teams. This factor was also found to have an effect on team learning and team performance. <sup>5</sup> examined the effect on patients' satisfaction of self-efficacy, team efficacy, individual effort, collective effort and teamwork skill (adaptability, communication, adjustment, decision making, interpersonal relationship, leadership) in a hospital environment. As a result, a positive effect on patients' satisfaction was found in interpersonal relationship more focusing on the level of understanding of relationships with teammates and adaptability focusing on attitude to try to resolve team tasks.

These value variables of interpersonal understanding, confronting others who break the norms, and building relationships with other teams are relationships-oriented

processes connected to relationship building with teammates. Of them, solely the interpersonal understanding was found to have a positive effect on both team learning and team performance. Therefore, in this present study estimated that the interpersonal understanding would have a positive effect on class satisfaction. Thus, the following hypotheses were established;

H3a: Interpersonal understanding would have a positive effect on problem solving capability.

H3b: Interpersonal understanding would have a positive effect on class satisfaction.

### 2.3 Problem Solving Capability

Problem solving capability refers to activeness to predict possible problems arising from team activities in advance, collect data proactively and take appropriate actions in the situation with an intention to resolve the problem. This is to concentrate more on team tasks rather than teammate relationships, indicating positives levels in problem solving process.

In the study explaining that shared cognition among teammates had a significant effect on team or organizational performance, the task-related knowledge is analyzed as follows. Teammates should share common knowledge regarding task-related process in team activities. This means that, for more effective team performance, team members should share similar knowledge about teamwork with each other and such task-related knowledge contributes to team capability of task achievement.

Such task-related knowledge is not limited to one single specific task and regarded as the type of knowledge used across the general team activities such as teamwork activities. It is similar to the problem solving capability in this present study. The problem solving capability, too, is not limited to any single task but applied to more general team activities and related with the ways to deal with teamwork or team task.

<sup>8</sup> in their study, formed 56 teams of 2 university students each and made them follow a series of missions in computer-based pilot simulation in order to investigate team process with shared mental model and effect on team performance. This study found that, in team activities, the more the team members shared knowledge on each other or common knowledge on task, the higher the team performance grew. Especially in situations of heavy workload, time pressure or difficult communication due to another environmental factor, the team shared mental

model helps them predict the information or resources necessary for other teams. As such, the team shared mental model plays a vital role in team activities. <sup>8</sup>, in their study, identified 4 types of shared mental model that must be shared by team members in team activities as follows; first, shared knowledge on the technology or equipment on which team members interact; second, knowledge on how to achieve a task by considering process, task strategy, probability or problems, and environmental factors; third, view on how the team interacts; and lastly, teammate-related information such as their strengths and weaknesses. These 4 types of shared mental model can be divided into two major areas of task-related dimension and team-related dimension in their substances. Such is consistent with this present study finding that this study variable, interpersonal understanding is mainly related with relationships with teammates and problem solving capability is connected to the team task aspect. <sup>6</sup> examined the effect of team process on team learning and team performance in a short-term team project.

Task-oriented process is related more with handing common team purposes such as a task or problem rather than teammate relationships in team activities<sup>7</sup>. Process-oriented process is consisted of three variables of feedback provision, problem solving capability, and setting a clear work process. Feedback is to improve individual and team learning. Feedback has long been researched and influences to induce more desirable behaviors of teammates through reinforcement. Problem solving capability refers to recognize what is the problems to be solved by the team and respond appropriately if a problem occurs in the team task implementation process. This variable is most deeply related with task in team activity and refers to the attitude or positiveness of teammates. In setting a clear work process, the work process means to set a goal for team activity, plan to achieve the goal, and clearly prioritize works according to the plan. <sup>9</sup> reported that to set a clear process in team activity was positively related with team effectiveness or the ultimate team performance.

As such, these three variables of feedback provision, problem solving capability and setting a clear work process are consisted of sub-factors of process-oriented process related to team task achievement in team learning activities. <sup>6</sup> found in their study that the feedback provision was significant solely in predicting team learning and setting a clear work process was so in predicting team performance. But the problem solving capability was found effective in predicting both team learning and

team performance. Therefore, this study established the following hypotheses;

H4: Problem solving capability would have a positive effect on class satisfaction.

Based on the literature review above, we can suggest research model as Figure 1.

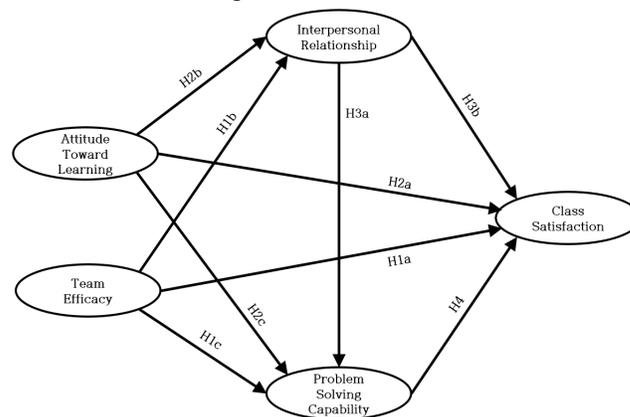


Figure 1. Research model.

### 3. Data Collection and Analysis

In this research, survey was performed to collect data. The survey was designed for 4-year university students who were joining a team project at the point of survey. Prior to answer the survey, the general purposes and contents of the survey was explained then survey participation was requested. Also, to help improve the specific understanding of survey items and contents, additional explanation was provided at request, if necessary, for precise understanding of the ideas in the survey. The answers were marked on the 5-point Likert scale with 1 representing strongly disagree and 5, strongly agree.

The total of 200 survey questionnaires was distributed during a break in the middle of class. Of them, 34 sets were excluded for missing response, plural response and lining of the same answer inappropriate for study research, leaving 166 sets for the final analysis.

For this study research, IBM SPSS v22, IBM AMOS v22, and Microsoft Excel 2013 were utilized.

#### 3.1 Measure of Sampling Adequacy

In this study, prior to the exploratory factor analysis, the collected data were evaluated to see if they were appropriate for factor analysis. For this evaluation, KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy) and Bartlett's Test of Sphericity were employed. The KMO

is an indication representing the goodness of fit of correlation for factor analysis. In general, KMO values no smaller than .70 are deemed suitable<sup>11,12</sup>. In this study the KMO indication was .762, meeting the standard. Bartlett's sphericity test view gives high goodness of fit of data when the significance level is less than .05 (Significance < 0.05) thanks to sufficient correlation among variables<sup>11</sup>. In this study, the significance level was .000, indicating the possibility of factor analysis<sup>13</sup>.

### 3.2 Common Method Bias and Factor Analysis

For the common method bias analysis, Harman's single factor test was used. Harman's single factor test is to assess if a single factor explains most of the covariance among variables to evaluate the existence of common method bias<sup>14</sup>. Generally, if one single factor explains at least 25%, the case is deemed problematic<sup>14</sup>. In this study, the principal component analysis was implemented to look at the dispersion values of factor rotation, the dispersion explained by single factor was found 28.697, exceeding the criterion. But since it is not a very significant amount, the common method bias can be deemed not to pose a serious problem.

Factor analysis is an analytic technique to reduce interrelated large number variables into small number latent or hidden dimensions. It was popularized by Charles Spearman in the 1900s and now has become one of the most widely utilized statistical techniques<sup>15</sup>.

To perform the exploratory factor analysis, the most frequently used extraction techniques are Principal Axis Factoring (PAF) and Maximum Likelihood Estimation (ML). Both are known to provide the optimal result to researchers<sup>16,17</sup>. Of them, the PAT method was used herein. Since the method has no distributional assumptions, it still can be used when data do not form the normally distributed data or, that is, when the multivariate normality of collected data is violated<sup>16,17</sup>. As shown in Table 1, since the data collected herein cannot be assumed to have normality, the PAT is deemed suitable for this study.

For factor rotation, the oblique factor rotation (oblique, direct oblimin) was conducted. Basically in the social science studies, factors are assumed to have a certain level of correlation<sup>17</sup>. The oblique factor rotation produces mutually correlated factors<sup>18</sup>. For this reason, the method was employed herein.

To decide how many factors to keep, eigenvalue (Kaiser Criterion) and Cattell's Scree Plot were used. Through the above process, 5 factors were identified in explanatory factor analysis. All of the selected factors have at least 0.5 in loading in parent factor (factors expected to be loaded in this study) and at least 0.4 loading in foreign factor<sup>15,17</sup>. Specific results were shown in Table 1.

### 3.3 Reliability and Validity Test

Reliability is to evaluate the degree of consistency among a battery of measurement items of each variable. Generally test-retest method and internal consistency evaluation method are used<sup>11</sup>. In this study, to evaluate the correlation among measurement items explaining construct, the internal consistency method is to be tailored to test the reliability. Cronbach's Alpha value is most commonly utilized for the internal consistency<sup>11</sup>. As for exploratory studies, the value is required not to be smaller than 0.6<sup>11</sup>; and for confirmatory studies, at least .7<sup>11</sup>. In this study, the smallest Cronbach's Alpha value was 0.697, satisfying the recommended criterion (see Table 1).

Another method to evaluate reliability is originated from the confirmatory factor analysis<sup>11</sup>. It has the Composite (factor) Reliability (CR) and Average Variance Extracted (AVE). The AVE is to see if the variance captured by construct is larger than the variance explained by error of measurement. In general, the number should be not smaller than 0.5 to be regarded as reliable<sup>11,13</sup>. As a result, no all of the average variance extracted values did not exceed the recommended criterion of 0.5. So the composite reliability was investigated. Composite reliability is to gauge the internal consistency and reliability of measurement variables representing latent construct. Generally, the values of 0.6 or 0.7 are strongly recommended for threshold of internal consistency. But some argues for a stricter threshold of 0.8<sup>11,13</sup>. In this study, the smallest value was 0.827, exceeding the strict threshold of 0.8 to show high reliability (Table 2).

Next, the discriminant validity was evaluated. Discriminant validity refers to how clearly one single construct is discriminated from another construct<sup>10</sup>. Discriminant validity can be estimated by two methods in general. First is to compare the squared value of correlation between each construct and average variance extracted value of each individual construct<sup>11,13</sup>. In this case, if the AVE value exceeds the squared value of each construct, the discriminant validity is regarded to have

**Table 1.** Exploratory Factor Analysis

Constructs	Items	Factor					Communality	Cronbach's $\alpha$
		1	2	3	4	5		
Attitude toward Learning	a5	-.136	.784	.181	-.085	-.067	.651	.783
	a7	.008	.634	-.178	-.284	-.295	.531	
	a8	-.009	.781	.099	-.168	-.132	.617	
	a9	-.017	.632	.206	-.262	-.368	.467	
Team Efficacy	b1	.779	-.010	.060	-.203	-.485	.684	.937
	b2	.865	.016	.141	-.172	-.373	.773	
	b3	.797	-.057	.112	-.100	-.248	.647	
	b4	.918	-.018	.112	-.272	-.319	.854	
	b5	.856	-.060	.029	-.208	-.271	.736	
	b6	.833	-.036	-.009	-.379	-.128	.765	
Interpersonal Relationships	c1	.210	.296	.374	-.749	-.194	.645	.827
	c4	.350	.115	.117	-.863	-.211	.782	
	c5	.121	.195	.114	-.747	-.157	.560	
Problem Solving Capability	d1	.097	.184	.669	-.365	-.212	.522	.704
	d2	.090	.009	.604	-.142	-.073	.378	
	d5	.222	.234	.684	-.080	-.269	.544	
	d7	-.341	.140	.535	-.052	-.092	.434	
Class Satisfaction	e1	.2924	.018	.106	-.028	-.660	.474	.697
	e2	.303	.278	.273	-.164	-.569	.398	
	e3	.198	.349	.141	-.411	-.793	.715	
Eigenvalue		5.739	3.389	1.972	1.739	1.314	5.739	X
% of Variance		28.697	16.945	9.862	8.695	6.568	28.697	
Cumulative of %		28.697	45.642	55.504	64.199	70.767	28.697	
KMO and Bartlett's Test								
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.						.762		
Bartlett's Test of Sphericity			Approx. Chi-Square			1978.953		
			Degree of Freedom			190		
			Significance			.000		

Extraction Method: Principal Axis Factoring.  
 Rotation Method: Oblimin with Kaiser Normalization.

established. Second method is to calculate the correlation coefficients among constructs and square roots of AVE on the contrary to compare unlike the first method that squared each construct's correlation coefficients. In this case, if the square roots of average variance extracted value exceeds each correlation coefficient, then discriminant validity is satisfied<sup>11</sup> (Table 3).

## 4. Results

The structural model was analyzed to test the hypotheses established in this study. Prior to the structural model analysis, the model fit was evaluated to see if the data were suitable to examine the suggested model.

In the covariance-based structural equation (Covariance-based SEM), model fit is important thus, diverse goodness of fit indices have been developed. About 20 fit indexes are generally utilized. And since

**Table 2.** Confirmatory Factor Analysis

Constructs	Items	Std. Estimate	Std. Error	Critical Ratio	Probability	AVE	CR
Attitude toward Learning	a5	0.756	-	-	-	0.486	0.788
	a7	0.580	0.086	6.867	0.000		
	a8	0.803	0.098	8.526	0.000		
	a9	0.624	0.113	7.179	0.000		
Team Efficacy	b1	0.805	0.062	13.161	0.805	0.714	0.937
	b2	0.873	0.059	15.255	0.873		
	b3	0.801	0.062	13.072	0.801		
	b4	0.905	0.06	16.357	0.905		
	b5	0.866	-	-	0.866		
	b6	0.815	0.065	13.463	0.815		
Interpersonal Relationships	c1	0.805	-	-	-	0.624	0.832
	c4	0.856	0.117	10.378	0.000		
	c5	0.700	0.104	8.946	0.000		
Problem Solving Capability	d1	0.773	0.251	5.204	0.000	0.384	0.706
	d2	0.502	0.21	4.402	0.000		
	d5	0.667	0.229	5.106	0.000		
	d7	0.490	-	-	-		
Class Satisfaction	e1	0.577	-	-	-	0.459	0.716
	e2	0.697	0.311	6.116	0.000		
	e3	0.748	0.235	6.138	0.000		

AVEs: Average Variance Extracted / CRs: Composite (Factor) Reliability

AVE values appear the convergent validity. / CR values represent estimates of internal consistency.

**Table 3.** Discriminant validity test

	Team Efficacy	Learning Attitude	Interpersonal Relationships	Problem Solving	Class Satisfaction
Team Efficacy	0.845				
Attitude toward Learning	-.023	0.697			
Interpersonal Relationships	.312**	.241**	0.79		
Problem Solving Capability	.048	.182*	.260**	0.619	
Class Satisfaction	.369**	.287**	.283**	.239**	0.678

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

Diagonal elements are the square roots of the average variance extracted.

there is no standard on which of them fits best or absolutely, commonly utilized indices were selected to test fit<sup>1</sup>. All of the fit indices such as absolute fit indices, incremental fit indices and parsimonious fit indices are satisfied in terms of each corresponding academic standard. Thus, the fit between collected data and model is deemed very high, posing no problem in conducting additional analysis.

The structural model analysis was conducted and the results are as follows;

It was found herein that, team efficacy had a positive effect on class satisfaction ( $\beta=0.375$ ,  $t=3.523$ ,  $p<0.001$ ). Therefore, the H1a was supported. Also, team efficacy had a positive effect on interpersonal relationships, supporting the H1b as well ( $\beta=0.412$ ,  $t=4.898$ ,  $p<0.001$ ). On the other hand, team efficacy showed no effect on problem

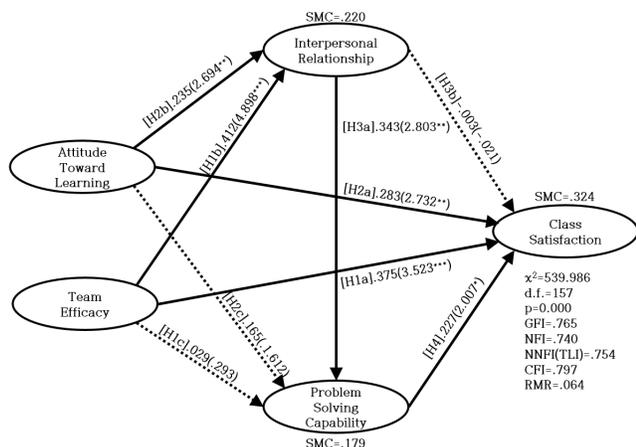


Figure 2. Research results with structural equation modeling.

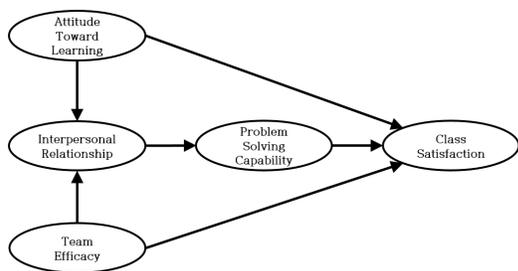


Figure 3. Process for class satisfaction.

solving capability ( $\beta = 0.029$ ,  $t = 0.293$ ). The H1c, thus, was rejected.

Attitude toward learning was found to have a significant effect on class satisfaction ( $\beta = 0.283$ ,  $t = 2.732$ ,  $p < 0.01$ ), supporting the H2a. Attitude toward learning showed a significant effect on interpersonal relationship

( $\beta = 0.235$ ,  $t = 2.694$ ,  $p < 0.01$ ), supporting the H2b. On the other hand, attitude toward learning showed no effect on problem solving capability ( $\beta = 0.165$ ,  $t = 1.612$ ), rejecting the H2c.

Interpersonal relationship was found to significantly affect problem solving capability ( $\beta = 0.343$ ,  $t = 2.803$ ,  $p < 0.01$ ). Thus, the H3a was supported. Next, interpersonal relationship showed a significant effect on class satisfaction ( $\beta = -0.003$ ,  $t = -0.021$ ), supporting the H3b.

Problem solving capability showed a significant effect on class satisfaction ( $\beta = 0.227$ ,  $t = 2.007$ ,  $p < 0.05$ ), supporting the H4 as well. The results of hypotheses testing are summarized and presented in Table 4 and Figure 2 each.

## 5. Conclusions

The purpose of this study is to examine factors affecting the class satisfaction of team project participants. The study found that team efficacy, attitude toward learning and problem solving capability had a positive effect on class satisfaction. On the other hand, interpersonal relationship was found to have no effect on class satisfaction. Instead, interpersonal relationship showed an effect on problem solving capability. In other words, although interpersonal relationship does not affect class satisfaction directly, it still has an indirect effect on class satisfaction through problem solving capability. Other research results found no effect of team efficacy and attitude toward learning on problem solving capability. Based on these, interpersonal relationship is deemed most appropriate to improve problem solving capability.

Table 4. Results of hypotheses test

Hypotheses	$\beta$	Std. Error	t-value	p-value	Results
H1a.Team Efficacy→Class Satisfaction	0.375	0.048	3.523	0.000	Support
H1b.Team Efficacy→Interpersonal Relationships	0.412	0.047	4.898	0.000	Support
H1c.Team Efficacy→Problem Solving Capability	0.029	0.044	0.293	0.770	Reject
H2a.Attitude toward Learning→Class Satisfaction	0.283	0.054	2.732	0.006	Support
H2b.Attitude toward Learning→Interpersonal Relationships	0.235	0.057	2.694	0.007	Support
H2c.Attitude toward Learning→Problem Solving Capability	0.165	0.053	1.612	0.107	Reject
H3a.Interpersonal Relationships→Problem Solving Capability	0.343	0.097	2.803	0.005	Support
H3b.Interpersonal Relationships→Class Satisfaction	-0.003	0.097	-0.021	0.983	Reject
H4.Problem Solving Capability→Class Satisfaction	0.227	0.114	2.007	0.045	Support

ity. Also team efficacy and attitude toward learning were found to increase interpersonal relationship.

Based on the findings above, the following perspective of process for class satisfaction needs to be considered in order to enhance the satisfaction of team project participants. The process shows in Figure 3.

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