

Role of Teachers in Supply Chain Education in Indonesia

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Abstract--- Creating student's interest in supply chain learning is most crucial and significant to achieve better outcomes. It is challenging for the teachers to develop student's interest in learning. Teachers have been developing and establishing new techniques to stimulate students interest. Therefore, in this direction, the main purpose of this study is to ensure the student's interest in supply chain education with the help of teacher's willingness and ability. Furthermore, the moderating role of fun learning by the teacher for enhancing the student's interest has also been discussed. Besides this was a cross sectional study. Sample size of this study was 300 students of schools. 5-point Likert scale was used to collect the response. Smart PLS software was used to analyze the data. Findings of this study were that teacher's willingness and ability created interest with the help of fun learning which increases supply chain performance (SCP). Further, it's also been concluded that fun learning put a strong effect in enhancing student's creativity and SCP.

Keywords: Supply Chain, Teacher Willingness, Teacher Ability, Fun Learning, Student Interest.

1. Introduction

Supply chain is one of the important element in most of the organizations [1]. Better supply chain increases the performance of organizations. Most of the studies examine the supply chain with various aspects, however, in rare cases any study examined the effect of teachers on supply chain learning.

The literature is missing with the element of supply chain education. Therefore, the current study carried out to fill this literature gap.

Creating student's interest in supply chain and learning new knowledge now a day has been challenging for the teachers. Teachers have been developing and establishing new techniques to stimulate students interest [2]. For example, teachers some time show the scientific videos to the students to make the lecture effective [3]. Teachers' words matter to make the students learnt the new knowledge [4]. The way teachers deliver the lecture has been count a lot. Students can disengage in a few minutes sitting in a class room

if they feel lecture is boring [5]. So, teacher now a day takes help to make fun to learn the students in a class room. Fun learning has been emerging successful trends for making the effective lecture.

In Indonesia, a pre-school education program is an early educational program for children before they enter formal education in Year One primary school. Pre-school is an optional education for children before entering school. Pre-school is part of the Indonesian education system. The Indonesia Ministry of Education provides pre-school education to enable children aged four to six years old to enter early schooling, especially children who come from the lower income background.

Pre-school education aims to nurture the potential of children in all aspects of development, master basic skills and foster positive attitudes in preparing them for primary school. The concept used is "Learning while Playing" by emphasizing the "Themed Learning". And these learning methods include class activities, group activities and individual activities. The uniqueness of pre-schools organized by the Indonesian Ministry of Education is the group activities which can enhance the quality of emotional and intellectual control. The early exposure to this activity is to provide a solid foundation for the concept of smart schools. All these activities have relationship with supply chain.

The concept of learning while playing, allows them to master (learn) the skills or the lesson in a fun situation. Various plaining activities related to supply chain develop supply chain skills among students. This atmosphere exists because the attitude to win is certainly innate in every child. The advantages of learning while playing are:

- Students can learn without knowing that they are learning
- no pressure
- trying to win.

Likewise, without the presence of a teacher, the learning process does not seem to be effective. Teachers must capable of creating an effective teaching and learning process [6]. Therefore, teachers need to be aware of the importance of fun learning elements while teaching in order to create good relationships with students [7].

During the training of teachers at the Indonesian Teacher Education Institute, mathematics teacher trainees have been exposed to various teaching methods that focus on pupils, teaching motivation, teaching resources and how to use teaching aids effectively. These methods are expected to be explored and used when they serve as math teachers in schools. A teacher should also be able to identify, decide on choosing the most effective teaching aid and to optimize resources in order to achieve their planned teaching objectives. It will automatically enhance the teaching method and supply chain learning.

[8] stated that the use of teaching materials can enhance students' understanding as well as to stimulate their interests and attitudes to be more positive. On the same note the ability of the pupils learning depends on the effectiveness of the teachers in choosing and using the appropriate teaching aids and abilities. A school with a well-equipped teaching resource center cannot help the pupil in learning if the teacher is not competent to use the material effectively. However, there are still many mathematical teachers that only in teaching the 'chalk and talk' approach [9]. This situation causes the student to become bored and the teaching became less satisfactory. Therefore, various supply chain activities increase the student interest. In the same way, Pre-schools are already familiar with the multiplication operations in their daily lives. They often use multiplication concepts in their daily life in buying and selling business. Therefore, an easy concept of multiplication needs to be exposed to pre-school students is the Fun-Learning to the Kid's tool without them making them aware of it. By using this tool, it is hoped that it can help students to solve their daily problems.

1.2 Research Objectives

- To determine the effect of teacher's willingness that has a notable consequence concerning the student's interest in supply chain learning.
- To examine the effect of teacher's ability in order to give the positive impression in arousing student's interest in supply chain learning.
- To inspect the linkage between teacher's willingness and student's interest via the moderating role of fun learning.
- To scrutinize the linkage between teacher's ability and student's interest that gives the impression of the moderating role of fun learning.

2. Literature Review

2.1 Student's Interest

Students' interest mean being active and participative during the lecture in order to learn more. It depends on teacher how much he keeps them engaged in inculcating the lesson delivered in class room. Student interest reflects input into the course, such as attention level in class, interest in learning the material, perception of a course's intellectual challenge, and acquired competence in the field. Student interest facilitates effective teaching and creates a more favorable learning environment [10] related to supply chain knowledge. Students reject the learning environment that runs contrary to their preferences. When learners are more interested, they perceive themselves as learning more [11], and this reflects their overall evaluation of the supply chain learning process.

In the Indonesian quality of education standards element 9.13, teacher's disposition has highlighted the importance of fun learning practices among school teachers. The policy projected by the ministry is in line with the Multiple Intelligence Theory by [12], which has outlined the eight potential inclinations of the study. Typically, everyone will have at least one or two more prominent intelligence compared to other intelligences. All intelligence can be developed through education, experience and environment. This diversity demands the creativity of teachers to help students learn in a way and meet the students' interest and ability [13-14] which automatically boost supply chain skills.

2.2 Fun Learning

In the context of language while teaching, the element of humor will make learning outcomes more meaningful to students [15]. Teachers need to use fun learning elements that can express funny feelings and using graphs like cartoons and body language that can create a fun atmosphere for students [16]. However, it needs to be taught in a comfortable and enjoyable environment through different supply chain activities. Because students usually get bored when a language teacher is able to teach grammar well, but in a dull state. According to [17], joke trainer practice can create a fun learning environment. Moreover, innovation can be more beneficial [18] to introduce new learning techniques, however, the performance could be influence politically [19].

The students were exposed on how to use Fun-Learning. They are taught to solve problems in their daily lives involving multiple operations. They can solve the problem without having to memorize the multiplication table [20]. They managed to solve the multiplication problems just by playing using the Fun-Learning. It showed that

100% of the students can answer exactly 6 questions that are presented to them. The Fun-Learning tool can stimulate their cognition to think apart from they were having fun playing it [20].

2.3 Teacher's Willingness

Willingness in teaching has a significant effect on student's interest in supply chain activities. As a passionate teacher inspired student in the great manner. Likewise, a passionate teacher as: "someone in love with a field of knowledge deeply stirred by issues and ideas that change our world, drawn to the dilemmas and potentials of the young people who come into class every day". For a high-quality student, learning passion is indispensable. "When we discover and explore our passions about teaching and learning, and begin to share them with others, doors are opened, and the possibilities are endless."

Although teacher's willingness matters a lot in rising student's interest, but just teacher's willingness is not enough other's factors are also important by the side of willingness like fun learning [21]. Teacher's need to use language that can express funny feeling, using graphs like cartoons and body language that can create a fun atmosphere for students [21]. In addition, teacher's joke practices can also play a positive role regarding the student supply chain learning. Hence, it's bringing to a close that fun learning strengthens the relationship between teacher's willingness and student interest [22] in learning supply chain skills.

2.4 Teacher's Ability

In the accordance with ability view, various aspects define good teacher in terms of knowledge, experience and so on. On the similar note, teacher's ability of having pedagogical knowledge which refers to the clear understanding of the concept that being taught and the effective communication skills to evaluate the student is important is describing the teacher's worthiness. Based on this view, a good teacher is described as able to keep order and give clear instructions [23]. Because the effective communication and clear instructions are pretty much helpful in rising student's interest in supply chain learning. Knowledge, skill and understanding of what work methods are clearly describe the level of good teachers under the ability perspective [24]. While on the same note, teacher's ability is also measured on the amount of fun learning that they deliver to students to foster the interest among students [25].

Hypotheses

- H1:** There is a significant relationship between teacher's willingness and student's interest in supply chain skills learning.
- H2:** There is a significant relationship between teacher's ability and student's interest in supply chain skills learning.
- H3:** There is a significant relationship between fun language and student interest in supply chain skills learning.
- H4:** There is a significant moderating effect of fun learning between the relationship of teacher's willingness and student's interest in supply chain skills learning.
- H5:** There is a significant moderating effect of fun learning between the relationship of teacher's Ability and student's interest in supply chain skills learning.

*Influential Factors of
Supply Chain Education*

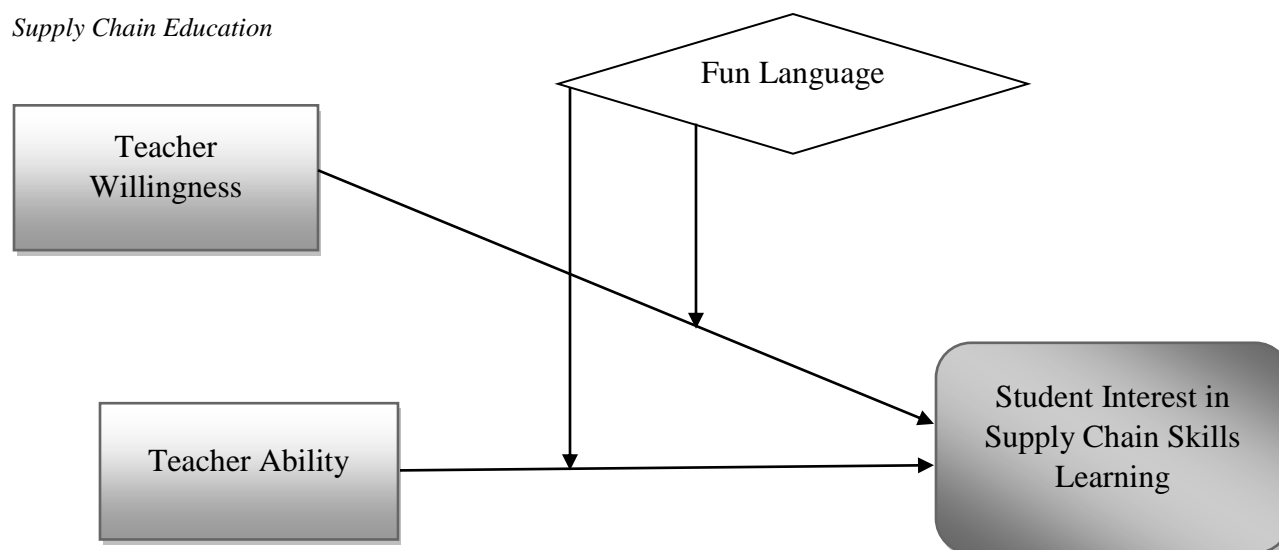


Figure 1. Theoretical framework of the study

3. Research Method

The current study is based on teacher's willingness and his ability working in Indonesian schools to create student's interest in supply chain skills learning with the help of fun learning technique. Data were collected from students. Moreover, by considering the problem and objectives of research, quantitative research techniques were selected as the research methodology is most crucial element of every research and it is based on research problem, objective and nature of the study [26-27].

Data were collected through self-visit to the school. However, the 5-point Likert scale was used to conduct survey. Moreover, random sampling techniques was used to collect the data. Therefore, to

cover the whole area this sampling technique is appropriate. According to [28] "Sample having less than 50 participants will observed to be a weaker sample; sample of 100 size will be weak; 200 will be adequate; sample of 300 will be considered as good; 500 very good whereas 1000 will be excellent." Therefore, in current study 300 sample sizes was selected.

Hence, 300 questionnaires were distributed among the students of Indonesia school. From these 300 questionnaires, 238 valid questionnaires were returned. Finally, SmartPLS 3 was used as a statistical tool. Response rate is given in below Table 1.

Table 1. Response Rate

Response	Frequency/Rate
Total questionnaires distributed	300
Total questionnaires returned	245
Total Useable questionnaires	238
Total questionnaires excluded	07
Total response rate	79.33%

4. Research Analysis and Results

In analysis section, first of all reliability and validity were examined. To check the reliability, Cronbach's alpha and composite reliability was determined. [29] stated that composite reliability and Cronbach alpha should be 0.7. Table 2 shows that Cronbach's alpha

and composite reliability is higher than 0.7. Additionally, factor loading, and average variance extracted (AVE) was investigated for external consistency. Factor loading should be more than 0.5 [30] and AVE should be more than 0.5 [30]. Results are shown in Table 2 and Figure 2. Moreover, discriminant validity is shown in Table 3.

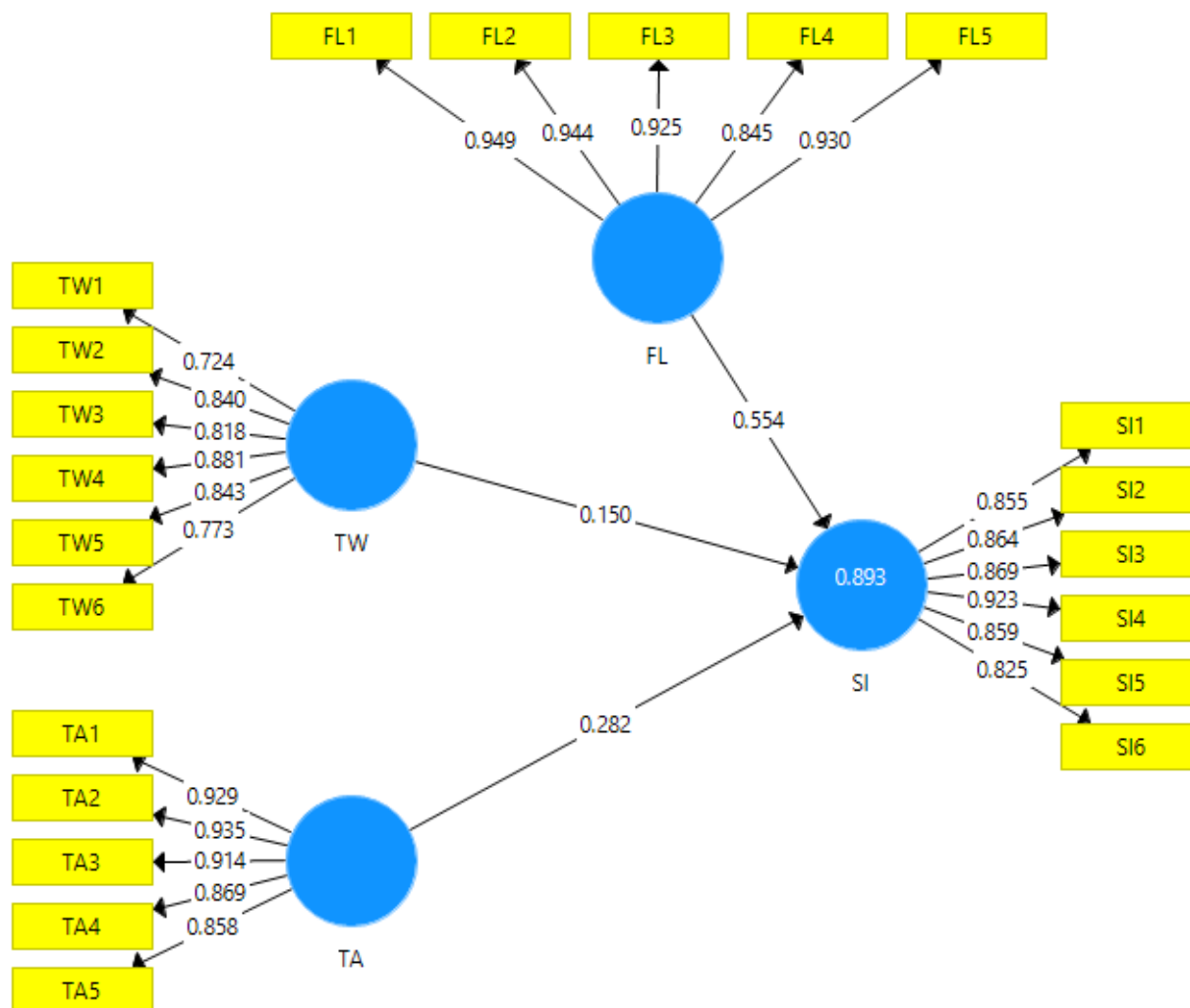


Figure 2. Measurement model assessment

Table 2: Factor loading, composite reliability, VAE

Variables	Items	Factor Loadings	Cronbach alpha	Composite reliability	AVE
Teacher Willingness	TW1	.724	.898	.922	.664
	TW2	.840			
	TW3	.818			
	TW4	.881			
	TW5	.843			
	TW6	.773			
Teacher Ability	TA1	.929	.942	.956	.813
	TA2	.935			

	TA3	.914			
	TA4	.869			
	TA5	.858			
Fun Learning	FL1	.949	.954	.965	.845
	FL2	.944			
	FL3	.925			
	FL4	.845			
	FL5	.930			
Student Interest in supply chain skills learning	SI1	.855	.933	.947	.751
	SI2	.864			
	SI3	.869			
	SI4	.923			
	SI5	.859			
	SI6	.825			

Table 3: Discriminant Validity

	FL	SI	TA	TW
FL1	0.949	0.897	0.838	0.800
FL2	0.944	0.876	0.816	0.787
FL3	0.925	0.852	0.811	0.805
FL4	0.845	0.785	0.685	0.777
FL5	0.930	0.848	0.804	0.807
SI1	0.733	0.855	0.745	0.757
SI2	0.761	0.864	0.743	0.735
SI3	0.776	0.869	0.751	0.730
SI4	0.831	0.923	0.835	0.793
SI5	0.873	0.859	0.766	0.759
SI6	0.834	0.825	0.756	0.720
TA1	0.796	0.802	0.929	0.770
TA2	0.822	0.812	0.935	0.763
TA3	0.758	0.760	0.914	0.716
TA4	0.726	0.744	0.869	0.737
TA5	0.774	0.859	0.858	0.778
TW1	0.700	0.624	0.541	0.724
TW2	0.727	0.692	0.608	0.840
TW3	0.621	0.648	0.604	0.818
TW4	0.734	0.786	0.724	0.881
TW5	0.677	0.701	0.692	0.843
TW6	0.756	0.755	0.711	0.773

After measurement model assessment, PLS bootstrapping was performed to check the hypotheses. The 1.96 threshold level of t-value was considered to accept or reject the hypothesis. Table 4 shows the results of direct hypothesis. From Table 4

it is evident that all relationships have t-value above 1.96. Therefore, all the direct hypotheses H1, H2 and H3 are supported. PLS bootstrapping is shown in Figure 3.

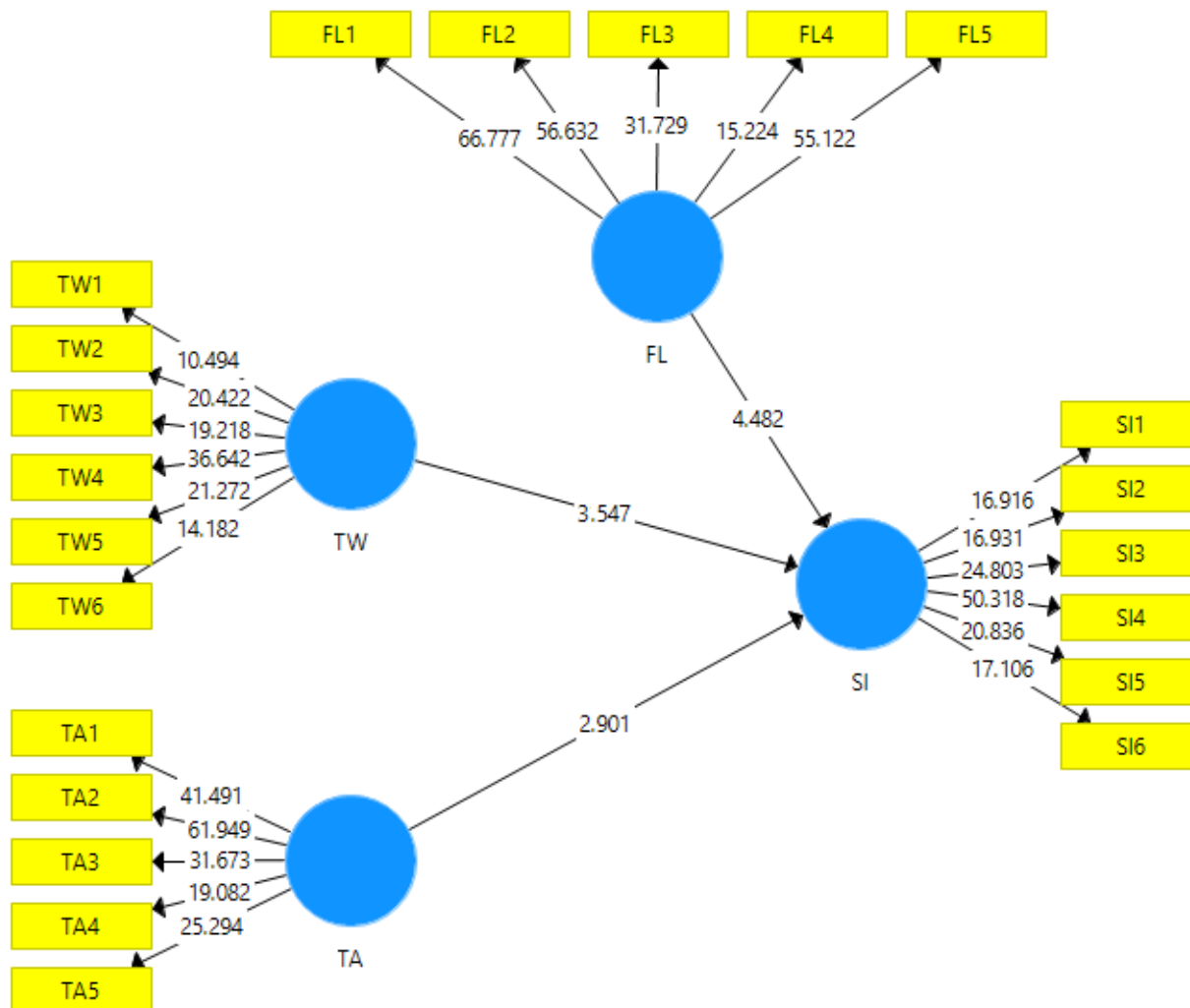


Figure 3. Structural Model Assessment

Table 4: Direct hypotheses results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ((O/STDEV))	P Values	Decision
FL -> SI	0.554	0.561	0.124	4.482	0.000	Supported
TA -> SI	0.282	0.281	0.097	2.901	0.004	Supported
TW -> SI	0.150	0.144	0.042	3.547	0.001	Supported

Moderation Effect

Moreover, Table 5 and Figure 4 shows the moderation effect. T-value for moderation effect is more than 1.96 which confirms the H4 and H5. Thus,

fun learning moderates the relationship between teacher's willingness and student's interest. Moreover, fun learning moderates the relationship between teacher's ability and student's interest.

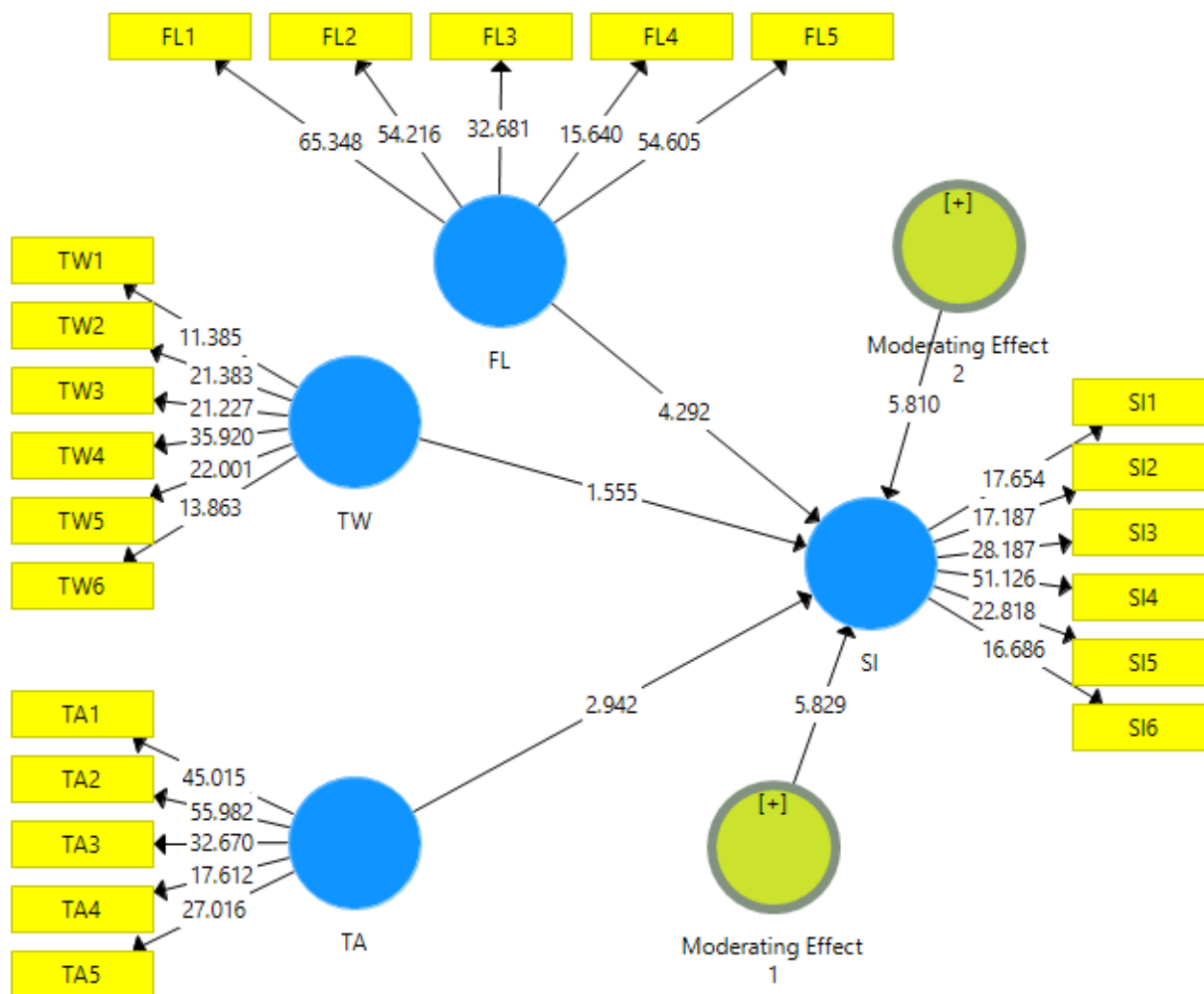


Figure 4. Moderation Effect

Table 5: Moderation effect

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ((O/STDEV))	P Values	Decision
TW* FL -> SI	0.351	0.361	0.114	3.065	0.003	Moderation
TA* FL -> SI	0.342	0.341	0.096	3.498	0.001	Moderation

Table 6 demonstrates that R² value is 0.893. According to [31] this R² value is strong. It indicates that three set of latent variables (teacher’s willingness, teacher’s ability, fun learning) are expected to explain 89% of variance in student’s interest.

Table 6: R-Square

Latent Variable	Variance Explained
Student Interest in Supply Chain Skills Learning	.893

[32, 33, 34, 35] determines that effect size (f^2) 0.02 is small, 0.15 is moderate and 0.35 is considered as strong. However, in this study teacher's willingness (TW) has moderate $f^2 = 0.24$, teacher's ability has strong $f^2 = 0.57$. On the other hand, fun learning has small effect in Table 6.

Table 6: Effect Size (f^2)

Variable	(f^2)	Effect Size (f^2)
Teacher Willingness	0.24	Moderate
Teacher Ability	0.57	Strong
Fun Language	0.08	Small

5. Findings

This study examines the effect of teacher's ability and willingness on student's interest in supply chain skills learning. Further, moderating role of fun learning was examined. It is found that teacher's willingness and teacher's ability have a significant relationship with students' interest in supply chain skills learning with t-value 3.547, 2.901 respectively. The positive β -values of 0.150, 0.282 were found for these direct relationships between teacher's willingness and teacher's ability with student's interest in supply chain skills learning. The positive β -value shows a positive relationship between these two variables and student's interest in supply chain skills learning. It demonstrates that teacher's willingness; teacher's ability has significant positive relationship with student's interest in supply chain skills learning. Improvement in these two elements will automatically enhance the students' interest in learning. Additionally, teacher's willingness had moderate effect 0.24, however, teacher's ability has strong effect (0.57), but fun learning has small effect (0.08).

Moreover, t-value and β -value for the relationship of fun learning and student's interest in supply chain skills learning are 4.482 and 0.554 respectively. It indicates that increase in fun learning could enhance student's interest in learning. Nevertheless, moderating role of fun learning between teacher's willingness and student's interest in supply chain skills learning found significant t-value 3.065 with β -value 0.351. On the other hand, moderation between teacher's ability and student's interest in supply chain skills learning found t-value 3.498 and β -value 0.342. All these values depict that fun learning had a moderating role and it enhanced the positive effect of teacher's willingness and ability on student's interest in supply chain skills learning. Figure 5 shows that fun language enhances the positive relationship of teacher willingness and student interest in supply chain skills learning. Moreover, Figure 6 shows that fun language enhances the positive relationship of teacher ability and student interest in supply chain skills learning.

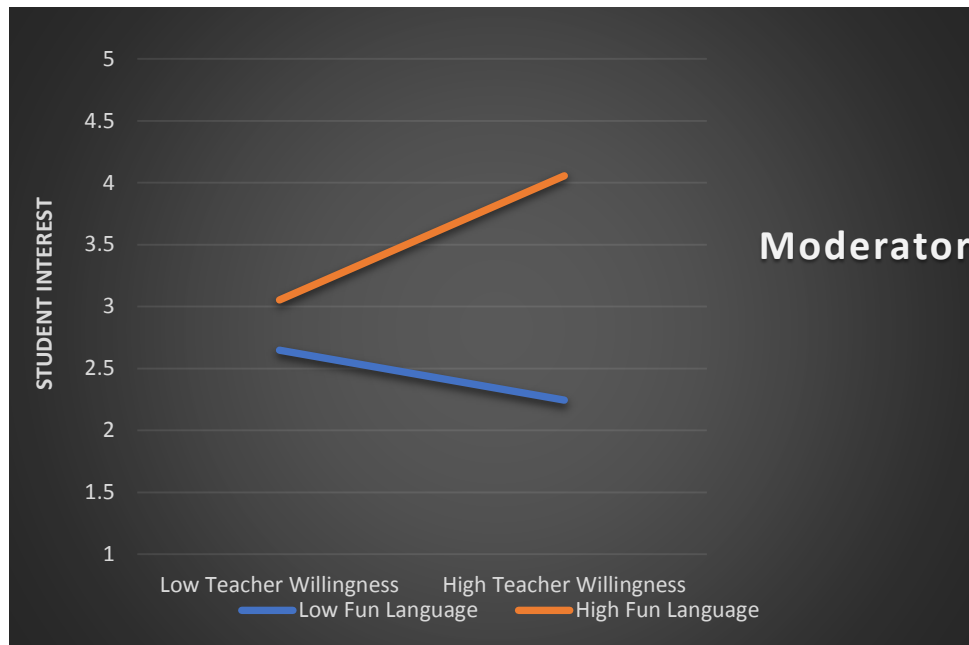


Figure 5. Moderation effect 1

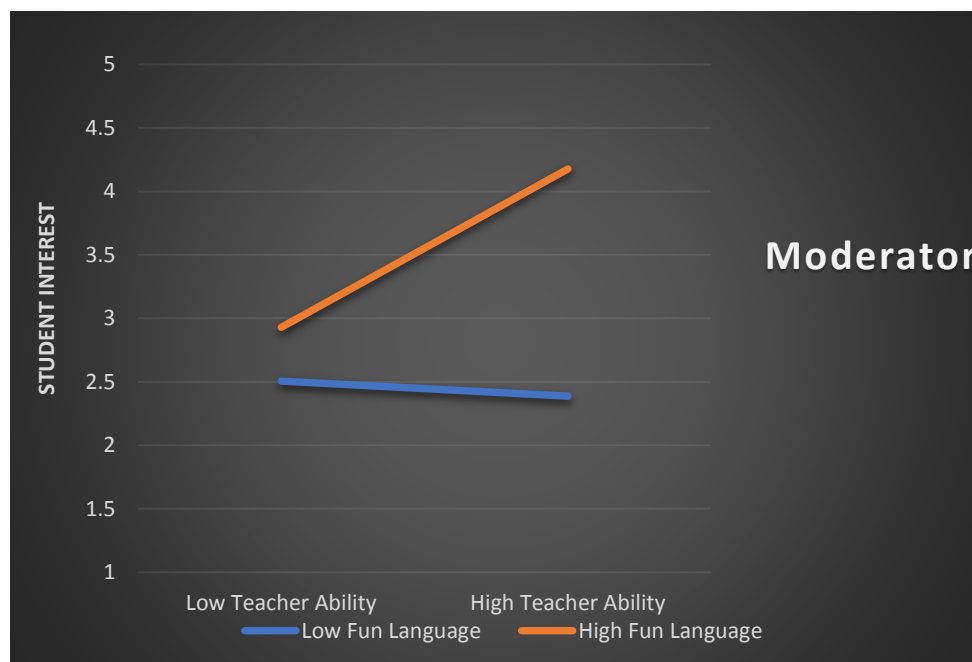


Figure 6. Moderation effect 2

6. Conclusions

Teacher's willingness and ability have been a backbone for teacher to create interest for students to learn new knowledge. Hence, it's been concluded that teacher's ability as well as teacher's willingness play the fundamental role in creating fun learning which increases the students interest to learn supply chain

skills. In this way, students ultimately develop interest in learning when they don't have to experience the long-established interesting teaching methods.

Moreover, teacher's Willingness in the form of passion in teaching via fun learning has been observed as the great predictor in developing and sustaining student's interest in supply chain skills

learning. Further, it's also been concluded that fun learning put a strong effect in enhancing student's creativity. It is recommended to the teachers to focus on fun language to build the student interest in supply chain skills learning.

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