

## Lecturer's transformational leadership and student's attitude outcome: Organizational effectiveness in higher education context

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World Journal of Advanced Research and Reviews, 2023, 19(02), 1116–1131

Publication history: Received on 07 July 2023; revised on 19 August 2023; accepted on 21 August 2023

Article DOI: <https://doi.org/10.30574/wjarr.2023.19.2.1693>

### Abstract

Higher education institutions are the witness of organizational perception shifting from "student" to "customer". Therefore, an effective lecturer's leadership is critically needed. This study aims at analyzing the role of a lecturer's transformational leadership and class climate in influencing student's attitude in the higher education context. The samples of this study were 150 students in the big five faculty at Udayana University, Bali, Indonesia, namely the Faculty of Humanities, Medicine, Engineering, Law, and Economics and Business determined by quota sampling. The data collection method used was a self-administered questionnaire. The technique of analysis implemented for testing the hypotheses was Structural Equation Modeling-Partial Least Square (SEM-PLS). The findings show that for direct effect, transformational leadership of the lecture has a positive and significant effect on objective commitment, learning motivation, and learning satisfaction of students; class climate has a positive and significant influence on learning satisfaction of students; and learning motivation has a positive and significant effect on student's objective commitment. Meanwhile, learning motivation has no impact on learning satisfaction. The results of the indirect effect show that learning motivation partially mediate the effect of lecturer's transformational leadership on student's objective commitment. Meanwhile, the learning motivation of students does not emerge as a mediator of the effect of transformational leadership on learning satisfaction. It is for the lecturers to develop and improve student learning motivation through their leadership which furtherly affects students' objective commitment in the endeavor to achieve high academic performance.

**Keywords:** Transformational Leadership; Class Climate; Objective Commitment; Learning Motivation; Learning Satisfaction

### 1. Introduction

Education has become an important part of the acquisition and continuity of human life quality [1]. The Act of the Republic of Indonesia Number 12 Year 2012 states that higher education is the educational level after intermediate education which consists of diploma, bachelor, master, doctoral, professional, and specialist programs put on by higher education institutions based on Indonesian culture.

Education is categorized as economic goods because it is not easy to obtain, so it must be shared, and it needs a sacrifice to gain it. From a knowledge-based economic perspective, education emerges as a growth engine and prominent element of society development, especially in the economic era [2]. In other words, high-quality education is needed for contributing significantly to the improvement and development of a country's economic condition. Generally, there are three elements involved in the determination of higher education quality, namely lecturer, student, and educational system. These three determinants will make higher education outcomes as a reflection of organizational effectiveness become certain.

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Reformation of the teaching-learning process takes a prominent position in determining higher education competitive advantage. Lately, there is a shifting of perspective in the higher education sector in which the student is no longer become student per se, but also seen as a customer, so quality "sold" to the student become the main focus of all activities in higher education institution [3][4]. As a consequence, attention is focused on the identification and comprehension of factors that contribute to the perception of teaching-learning process quality [5]. This is reflected in the student's attitude outcome e.g., learning motivation, learning satisfaction, and objective commitment.

Empirical studies show that a lecturer's leadership has a prominent effect on academic performance and student attitude formation in their learning experience. One leadership style which is fit with an improvement in teaching-learning quality is transformational leadership. A lecturer who implements a transformational leadership style will contribute to developing learning motivation, learning satisfaction, and objective commitment of his/her student who is under his/her tutelage. Moreover, class climate can also affect students' learning satisfaction. The more conducive the class climate, the higher the student's learning satisfaction.

Like profit-motive organizations, higher education institutions have to make an effort to actively participate in the educational field at the local, national, regional, and also international levels. The difference between profit-motive organizations and non-profit motive organizations such as higher education lies in the values that have to be maintained by higher education institutions to develop academic values and continuity of knowledge formation. Higher education institutions can be distinguished by its interest, goal, values, needs, and motivational instincts [6]. Based on such unique characteristics, the customer of higher education, student specifically, deserved special treatment for gaining a high-quality learning experience.

Leadership emerges as a prominent variable needed to be analyzed in social science context [7]. Results of empirical studies show that several factors contribute to organizational effectiveness. One of them is leadership style. There are many measurements used to estimate organizational effectiveness. Among others are work motivation, job satisfaction, and organizational commitment. In the higher educational context, these three elements lay in the student's attitude domain as outcomes of organizational effectiveness. Additionally, the class climate is also suspected to contribute to the attitude outcome of students in their learning experience. Transformational leadership is fit to be implemented in the learning process which is defined as the ability of the lecturer in motivating and driving the student to use his/her assessment and intelligence to face educational obstacles, transfer mission to students, and express acknowledgment to the high level of performance.

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## **2. Literature Review and Research Hypothesis**

### **2.1. Two-Factor Theory and Goal-Setting Theory**

The two-factor theory developed by Herzberg in 1996 is referred as the grand theory of this study. According to this theory, approaches used by the leader will affect follower satisfaction [7]. Associated with the educational field, it can be said that the leadership style implemented by a lecturer will determine a student's experience positively or negatively. The negative approach used by the lecturer will form a negative attitude of the student. On the contrary, a positive approach chosen is expected to contribute to the formation of a student's positive attitude.

Goal setting theory, as the supporting theory in this study, postulates that an individual will feel satisfied when his/her objective is achieved. This theory is mainly implemented in studies related to motivation and satisfaction and in an educational context. Two types of objectives that are generally expected to be achieved by students are scholastic performance and development of knowledge and skill [8].

### **2.2. Learning**

Learning is knowledge and skill acquisition through experience, studying, or teaching. In the higher education context, learning is not only good for improving students' knowledge but also for cultivating their attitudes and behavior. This would give lecturers a chance to use their creativity and critical thinking skills, especially when it comes to scheduling their numerous teaching and learning activities for teacher preparation [9]. Lecturers at teacher training institutions should be the first to equip themselves with these skills in order to provide future teachers with knowledge about planning abilities as well as putting innovative teaching and learning activities into practice [10]. Therefore, outcomes such as academic performance, skill acquisition, and attitude will be seen after students receive education [11]. Additionally, creative leaders are required to offer direction in knowledge management to advance innovations in teaching and learning [12]. Transformational leaders should be employed in order to influence and encourage the

adoption of knowledge management among lecturers in order to develop teaching and learning innovations in line with the new transformation idea of teachers training institutes [10].

### **2.3. Transformational leadership, organization effectiveness, and class climate**

Multifactor leadership theory postulates that leadership style consists of transformational, guardian, and laissez faire leaderships. [13] argue that the most frequently study done based on these theories was related to the association between transformational leadership and organizational effectiveness.

Enhancing education quality is remaining become a critical plan for the authorities department in the Republic of Indonesia [14]. Improve of the quality of learning process emerges as one prominent effort must be done in achieving high quality of education. An effective learning process is determined by the lecturer, student, and learning environment in which they interact with each other [15]. [16] who carried out a study about the theory of e-learning system states that learning as a system consists of three entities i.e. lecturer, student, and learning system which continually interact with each other and with the environment to optimize outcomes and student's satisfaction. Therefore, student-lecturer interaction will determine the achievement of learning objectives [11].

Research on organizational effectiveness in the context of higher education is rarely carried out [3]. It was explained that organizational effectiveness in the field of education is directed at teacher and student satisfaction. In this study, indicators of organizational effectiveness were reviewed from the perspective of students as measured by learning motivation, learning satisfaction, and objective commitment as elements of their attitude in learning process in tertiary institutions or higher education.

The learning environment where the teaching-learning process takes place will contribute a lot to the learning objectives that have been set. According to [11], the learning climate can be defined in a narrow and broad sense. In a narrow sense, the learning environment refers to physical space, while in a broad sense, it refers to all physical and social environments that are relevant to student learning.

The teaching-learning environment is the social, psychological, and pedagogical context within which learning occurs and which in turn influences student outcomes and attitudes [17]. In the context of business organizations, [18] suggested that learning culture determines job satisfaction. Given that an organizational climate is part of organizational culture, in this study, the climate that occurs in learning, named class climate.

The results of studies related to education noted that student satisfaction is determined by the learning climate in which they experience learning [19]. This research group defines the learning climate as a space in which the teacher (lecturer) facilitates interaction with students in carrying out their learning activities. If the classroom environment matches student preferences, then satisfaction with the learning experience will arise [20]. This can be interpreted that the class climate will contribute positively to student learning satisfaction.

### **2.4. Transformational leadership, objective commitment, learning motivation, and learning satisfaction**

Knowledge, skills, and attitudes are the elements involved in the delivery of education and emerge as the basic factors that influence learning outcomes [11]. Therefore, the selection of lecturers in designing and transferring learning content and structure plays a prominent role in determining student learning experiences [5]. It was further explained that an understanding of the selection's contribution to student outcomes such as perceptions of learning satisfaction would be important for the development of instructional strategies to increase student commitment in achieving the goals of the teaching and learning process in tertiary institutions. [6] suggested that effective leadership can influence work motivation, job satisfaction, and employee organizational commitment. This condition also applies in the context of education, higher education in particular, when it is related to lecturer leadership in lecturer-student interaction.

Transformational leadership, which was initially focused on the leader himself, has now shifted to the quality of leader-followers relationship [21]. In educational context, lecturers act as leaders, while students become the followers. Transformational leadership, if applied by instructors or lecturers, is expected to guarantee the success of study programs, faculties, and universities because it can increase student satisfaction in educational process [22]. It was explained that the concepts and definitions of transformational leadership are related to "leadership and performance above expectations". Therefore, it is logical that several studies referred to this research group found a positive relationship between lecturer leadership and student learning satisfaction. Through clarity on issues related to education such as learning missions and defining clear learning objectives as the embodiment of transformational leadership, lecturers will have a positive impact on student learning satisfaction.

Learning objectives for adults who carry out learning activities are learning outcomes and learning satisfaction [11]. As well as the importance of satisfying customers to maintain their loyalty in profit-oriented organizations, student satisfaction is just as important to maintain their attitude toward the achievement of goals [22] because students are one of the internal stakeholders of the organization [19]. Student learning satisfaction is a key aspect in evaluating learning effectiveness [23] and is generally used as a measure to evaluate learning outcomes [11]

[24] states that in general, satisfaction is an attitude that shows inner feelings or pride in doing a task, while referring to the opinion of [1] student's satisfaction is an idea that display the result and mutual understanding that raise among lecturer and students [19][23] showed that there is a relationship between the instructor (lecturer) element which consists of knowledge and facilitation abilities and student outcomes, namely learning satisfaction.

The level of learning motivation influences student learning satisfaction [11], Motivation is the main element that influences student success in the learning process [18]. In other words, the success of students in a learning environment is determined by their ability to self-regulate. In line with that, in the constructivist paradigm, it is stated that knowledge is constructed individually and freely, so students learn better when they find their knowledge in their own space and time. In the model developed by this researcher, it is described that learning motivation as one of the student attributes that will contribute to their learning satisfaction.

More significant learning outcomes are achieved through more significant learning motivation [11]. [23] found that learning motivation as an element of self-regulation is positively related to learning satisfaction. [25] argued that characteristics of successful students is their ability to motivate themselves.

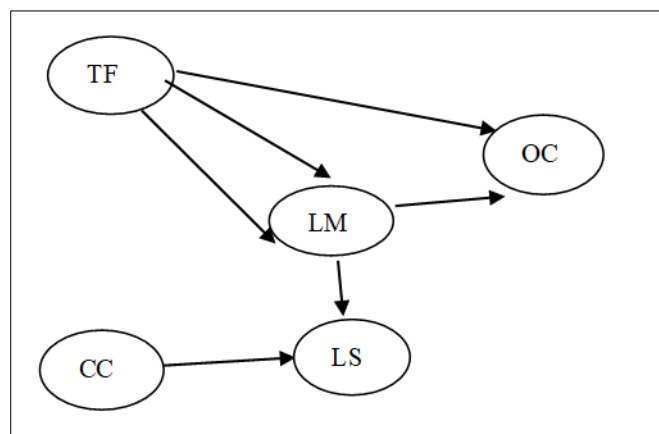
One important aspect of transformational leadership in the context of learning is the ability of lecturers to deliver teaching subjects in class. The ability of lecturers to transfer knowledge will affect student motivation in their learning experiences [26] It can be stated that the lecturer's transformational leadership will contribute positively to student learning motivation.

Understanding the process of teacher (lecturer) commitment is important because it determines students' academic achievement [27]. In their research that took elementary school teacher as respondents, it was explained that the transformational leadership of school principals had a positive effect on teachers' organizational commitment. When someone experiences low commitment, he/she will show behavior that leads to failure in carrying out duties and responsibilities within the organization. The stronger the transformational leadership of lecturers, the higher the objective commitment shown by students because individuals who are led have higher congruence, thus directing them to make greater efforts towards carrying out their duties [28].

Learner attitudes as the outcome of learning are satisfaction, commitment, and motivation [24]. Students are a group of learners who have a specific purpose in their learning activities, among others to remind knowledge and cultivate attitudes and behavior [11]. Educators are a professional group who besides having the flexibility to determine the form and content of work in the classroom, also have obligations related to administrative and organizational policies.

- H1: lecturer transformational leadership has a positive and significant effect on student objective commitment
- H2: lecturer transformational leadership has a positive and significant effect on student learning motivation.
- H3: lecturer transformational leadership has a positive and significant effect on student learning satisfaction.
- H4: class climate has a positive and significant effect on student learning satisfaction.
- H5: learning motivation has a positive and significant effect on student learning satisfaction.
- H6: learning motivation has a positive effect on student objective commitment
- H7: learning motivation mediates the influence of lecturer transformational leadership on student objective commitment
- H8: learning motivation mediates the influence of lecturer transformational leadership on student learning satisfaction.

The conceptual framework of the study can be seen in Figure 1.



**Figure 1** Conceptual Framework

**Note:** TF: transformational leadership; CC: class climate; LM: learning motivation; LS: learning satisfaction; OC: objective commitment

### 3. Materials and Methods

This research was conducted at five major Faculties in Udayana University, Bali, Indonesia, namely the Faculty of Humanities, Medicine, Engineering, Law, and Economics and Business. The study population was all active students in the five faculties. The number of samples was 150 students with a distribution of 30 students in each faculty.

The sample was determined through a purposive sampling method with the criteria of students occupying the second year or above (semester 3 or above). The rationale for this criterion is that in the second year, students are already familiar with the situation of the teaching and learning process, so they are expected to be able to fill out the questionnaire well according to the conditions they are experiencing. Methods of data collection using a questionnaire.

At the time of data entry, it turned out that 8 questionnaires were filled incomplete. The things that were missed by the respondents in answering the questionnaires collected were related to the cumulative grade point average (GPA), the origin of the Senior High School, and the semester occupied at the time the survey was conducted. Thus, data that can be analyzed in this study amounted to 142 according to the number of respondents who answered the questionnaire fully.

Transformational leadership is defined as the extent to which lecturers motivate and encourage students to use their judgment and intelligence to overcome educational-related obstacles, transfer missions to students, and express appreciation for good performance. The lecturer transformational leadership questionnaire was referred to [22] with indicators of the ability of lecturers to make students proud of them, encouraging students to learn, passing on missions to students, and freeing students to use their intelligence to face obstacles both inside and outside the classroom.

Class climate is defined as a learning climate where lecturers facilitate interaction with students in carrying out their learning activities. Class climate questionnaire based on [20] which consists of the transfer of knowledge and instructional technology.

Learning motivation is defined as a psychological stimulus that triggers a person's behavior toward a predetermined goal. The indicators of learning motivation in this study refer to [25] which consist of the achievement of goals and direction toward goals.

Learning satisfaction is defined as an evaluative description of a task and the characteristics of the task in the learning process. The learning satisfaction questionnaire was referred to [22] with indicators of satisfaction with assistance received from lecturers, the teaching style of lecturers, and the quality of education provided by lecturers.

Objective commitment refers to involvement in their duties and obligations in the learning process to achieve the goals that have been set. The indicator of objective commitment in this study refers to modified dimensions proposed by [29].

Statement items on transformational leadership, class climate, learning motivation, learning satisfaction, and objective commitment were measured using a five-point Likert Scale ranging from 1 = "strongly disagree" to 5 = "strongly agree".

Other variables to describe the characteristics of the respondents in this study are age as the number of years passed since birth until the time the research was conducted, gender as the biological condition grouped into male and female, and the name of the faculty and study program enrolled by students.

The analysis technique used are descriptive analysis to describe the characteristics of the respondents and inferential analysis to test the hypothesis which consists of two stages, namely the evaluation of measurement model/outer model and evaluation of structural model/inner model. Measurement model was conducted to determine the validity and reliability of the indicators of each variable. The validity of an indicator is indicated by convergent validity and discriminant validity and the reliability of the variables are measured by composite reliability and Cronbach's Alpha. The structural model/inner model stage is carried out to determine the accuracy of the research model through the R-Square ( $R^2$ ), Q-Square Predictive Relevance ( $Q^2$ ), and Goodness of Fit (GoF). Evaluation of the outer model and inner model is based on the results of SEM-PLS data processing through Smart PLS 3.0 software, Structural Equation Model-Partial Least Square (SEM-PLS).

## 4. Result and Discussion

### 4.1. Characteristics of respondents

The characteristics of the respondents were examined in terms of age, gender, and name of the faculty/study program as shown in Table 1.

**Table 1** Distribution of respondents according to age, gender, and faculty/study program

No	Age (years)	Number (student)	Percentage
1	18	1	0.70
2	19	5	3.50
3	20	36	25.40
4	21	92	64.80
5	22	7	4.90
6	23	1	0.70
Total		142	100,00
No	Gender	Number (student)	Percentage
1	Male	65	45.80
2	Female	77	54.20
Total		142	100,00
No	Faculty Name/ Study program	Number (student)	Percentage
1	Faculty of Humanities	30	21,13
	Archaeology	3	10.00
	Balinese Literature	3	10.00
	English Literature	18	60.00
	Japanese Literature	5	16.67

	History	1	3.33
2	Faculty of Medicine	25	17.60
	Bachelor of Medicine and Doctor Profession	14	56.00
	Psychology	9	36.00
	Physiotherapy	2	8.00
3	Faculty of Engineering	29	20.43
	Civil	14	48.28
	Architecture	8	27.59
	Electronic	1	3.45
	Technology and Informatics	6	20.68
4	Faculty of Law	28	19.71
	Legal studies	28	100
5	Faculty of Economics and Business	30	21.13
	Management	9	30.00
	Development Economics	9	30.00
	Accountancy	12	40.00
Total		142	100,00

Source: Primary data processed

The data in Table 1 show that most of the respondents are 20 years old and 21 years old. Dominant of them (about 65%), are 21 years old. Meanwhile, only less than 1% are 18 years and 23 years old. This condition is logical considering that respondents were purposively targeted at those who occupy the 4th semester and above. If they enter elementary school at the age of 6 years, then in semester 4 and above they will be 20-21 years old. In terms of gender, there were more female (almost 55%), and the rest (45%) were male students. This is probably due to female students coming to campus more often during holidays compared to male students, considering that data collection in this study was carried out during the semester breaks.

In the Faculty of Medicine, there are 3 study programs where respondents reported in this study. Of the 25 respondents, the majority, namely 14 people (more than 55%) are from the Bachelor of Medicine and Doctor Profession Study Program. The rest, namely 9 people (36%) come from the Psychology Study Program. Some students enrolled at the Physiotherapy Study Program, but the number is not much, only 2 people or 8 percent. This is caused more or less by the relatively new establishment of this study program.

Respondents from the Faculty of Engineering who were successfully met and given questionnaires came from four study programs namely Civil, Architecture, Electrical, and Technology and informatics. The first and second order for the most respondents were occupied by Civil Engineering and Architectural Engineering study programs, namely 14 students (28.57%) and 8 students (27.59%) respectively. Meanwhile, only 6 respondents studied at the Technology and informatics Study Program, there were 6 students (20.68%). The smallest number is the respondent from the electronic study program, which is only 1 person.

At the Faculty of Law, all respondents studied in the Legal Studies, which is the only study program at the Faculty the Law. There were 30 respondents from the Faculty of Economics and Business (FEB) and the most from the Accountancy Study Program, namely 12 students (40%). The rest, 9 students (30%) are from Management and Development Economics Study Program, respectively.

#### 4.2. Inferential Analysis

Analysis of the research model consist of two stages, namely the evaluation of the measurement model/outer model and the structural model/inner model. Measurement model stage was conducted to determine the validity and reliability of the indicators of each latent variable. The validity of an indicator is indicated by several criteria, namely convergent validity, discriminant validity, composite reliability, and Cronbach's Alpha. The structural model/inner model stage is carried out to determine the accuracy of the research model through R-Square ( $R^2$ ), Q-Square Predictive Relevance ( $Q^2$ ), and Goodness of Fit (GoF). Evaluation of outer model and inner model based on the results of SEM-PLS data processing with SmartPLS 3.0.

#### 4.2.1. Results of the Evaluation of the Measurement Model/Outer Model

Evaluation of measurement models/outer model was conducted to determine the validity and reliability of the indicators on each latent variable, namely transformational leadership, class climate, learning motivation, learning satisfaction, and objective commitment. Indicators on variables latent in this study are all reflective, so the evaluation of the measurement model is based on criteria convergent validity, discriminant validity, composite reliability, and Cronbach's Alpha.

#### 4.2.2. Convergent Validity

Convergent validity is a criterion for determining the validity of the indicators on each latent variable. Validity evaluation is done by looking at the value of outer loading of each indicator to its latent variable. An indicator is said to be valid if the coefficient of outer loading is greater than 0.50 and significant ( $t$ -statistics > 1.96) and has the same coefficient (covary). Coefficient of outer loading shows the magnitude of the indicator's contribution to the latent variable, means that the bigger the coefficient of outer loading the greater the contribution of the indicator to the latent variable.

The results show that the indicators have a value of outer loading > 0.50. Likewise, when viewed from the cross-loading coefficient of the indicators of each variable, it shows a coefficient that is greater than the indicator coefficients on other variables.

#### 4.2.3. Discriminant Validity

Discriminant validity is a validity criterion carried out by comparing the coefficients square root of variance extracted ( $\sqrt{AVE}$ ) of each variable with a correlation coefficient between latent variables in the research model. The indicators of a latent variable can be said to be valid based on discriminant validity criteria if the value of  $\sqrt{AVE}$  is greater than the correlation coefficient between latent variables in the model. AVE value must be greater than 0.50. Based on Table 2, the AVE value is greater than 0.50 and the AVE square root indicates a greater value than the correlation between other latent variables.

**Table 2** Discriminant Validity of Transformational Leadership, Class Climate, Learning Motivation, Learning Satisfaction, and Objective Commitment

Variable	AVE	X <sub>1</sub>	X <sub>2</sub>	Y <sub>1</sub>	Y <sub>2</sub>	Y <sub>3</sub>
TL(X <sub>1</sub> )	0.859	0.742				
CC(X <sub>2</sub> )	0.849	0.535	0.766			
LM(Y <sub>1</sub> )	0.777	0.604	0.516	0.758		
LS (Y <sub>2</sub> )	0.878	0.515	0.665	0.460	0.841	
OC(Y <sub>3</sub> )	0.888	0.556	0.756	0.604	0.473	0.756

Source: Primary data processed

TL: transformational leadership; CC: class climate; LM: learning motivation; LS: learning satisfaction; OC: objective commitment

#### 4.2.4. Composite Reliability and Cronbach's Alpha

Composite reliability and Cronbach's Alpha is a measure of reliability between blocks of indicators from the variables that make up the research model. Composite reliability and Cronbach's Alpha are said to be good if the value is above 0.70. Reliability and Cronbach's Alpha results can be seen in Table 3.

**Table 3** Composite Reliability and Cronbach's Alpha of Transformational Leadership, Class Climate, Learning Motivation, Learning Satisfaction, and Objective Commitment

Variable	Composite Reliability	Cronbach's Alpha
TL(X <sub>1</sub> )	0.859	0.759
CC(X <sub>2</sub> )	0.849	0.788



LM(Y1)	0.777	0.762
LS(Y2)	0.878	0.792
OC(Y3)	0.888	0.861

Source: Primary data processed; TL: transformational leadership; CC: class climate; LM: learning motivation; LS: learning satisfaction; OC: objective commitment

The data in Table 3 show that the value of composite reliability and Cronbach's Alpha for each variable is above 0.70, so the variables are reliable. Measurement model evaluation results/ outer model which is based on criteria convergent validity, discriminant validity, composite reliability, and Cronbach's Alpha, indicating that it has fulfilled the validity and reliability testing criteria, then each indicator can be declared as valid and all variables under consideration is reliable.

#### 4.2.5. Structural Model Evaluation/Inner Model

The measurement of the structural model (inner model) is carried out to find out how well the research model is formed with several variables. The criteria for testing the measurement model in this study are shown by R-Square ( $R^2$ ), Q-Square Predictive ( $Q^2$ ), Goodness of Fit (GoF), and Effect size ( $f^2$ ) (Table 4).

**Table 4** R-Square ( $R^2$ ) of Learning Motivation, Learning Satisfaction, and Objective Commitment

Variable	R-Square ( $R^2$ )	Description
LM(Y <sub>1</sub> )	0.365	High
LS(Y <sub>2</sub> )	0.481	High
OC(Y <sub>3</sub> )	0.372	High

Source: Primary data processed; LM: learning motivation; LS: learning satisfaction; OC: objective commitment

#### 4.2.6. R-Square ( $R^2$ )

Based on Table 4, the value of R-Square ( $R^2$ ) for learning motivation ( $Y_1$ ), learning satisfaction ( $Y_2$ ), and goal commitment ( $Y_3$ ) is 0.365, 0.481, and 0.372 respectively. Referring to the criteria set by [38], the value of  $R^2$  is classified as high.  $R^2$  value of 0.365 in the endogenous variable of learning motivation means that 36.5 percent is transformational leadership is determined by learning motivation, the rest (73.5%) is caused by other factors.  $R^2$  value of 0.481 of learning satisfaction meaning that 48.1 percent of this endogenous variable influenced by transformational leadership, work climate, and learning motivation, and the remaining 52.9 percent is influenced by other factors.  $R^2$  value of objective commitment of 37.2 means that objective commitment is 37.2 percent influenced by transformational leadership and motivation and the rest (72.91%) is influenced by other factors outside the research model.

#### 4.2.7. Q-Square Predictive Relevance ( $Q^2$ )

Q-Square Predictive Relevance ( $Q^2$ ) is a measure of how well the observations can be produced by the research model.  $Q^2$  has a value ranging from 0 (zero) to 1 (one). The closer to the value of one, the better the observations of the model. Evaluation of the structural model (inner model) with the  $Q^2$  predictive relevance is based on value of  $R^2$  on each other endogenous variable shown in Table 4 and calculated as follows:

$$\begin{aligned}
 Q^2 &= 1 - \{(1-R^2Y_1) (1-R^2Y_2) (1-R^2Y_3)\} \\
 &= 1 - \{(1-0.365) (1-0.481) (1-0.372)\} \\
 &= 1 - \{(0.635) (0.519) (0.628)\} \\
 &= 1 - 0.207 \\
 &= 0.793
 \end{aligned}$$

The result of  $Q^2$  shows a value of 0.793, which means that 79.3% of the relationship between latent variables can be explained strongly by the research model, while the remaining 21.7% is explained by other factors that are not taken into account in the research model. This implies that 79.3 percent of student objective commitment can be explained by transformational leadership, class climate, learning motivation, and learning satisfaction, while 21.7 percent is explained by other factors outside the research model.

#### 4.2.8. Goodness of Fit (GoF)

Goodness of Fit (GoF) is a criterion to determine the level of accuracy (fit) of the model. GoF has a range of values between 0 (zero) to 1 (one). The closer to the value of one, the better the GoF is said to be. The GoF calculation is based on the  $R^2$  and the AVE values for each variable shown in Table 2 and Table 4. The GoF calculation is as follows.

$$\begin{aligned}
 GoF &= \sqrt{(\bar{A}\bar{V}\bar{E} \times R^2)} \\
 &= \sqrt{\{(0.586+0.707+0.550+0.572+0.575)/5\} \times \{(0.481+0.372 +0.365)/3\}} \\
 &= \sqrt{\{(2.99/5) (1.218/3)\}} \\
 &= \sqrt{\{(0.598) (0.406)\}} \\
 &= \sqrt{(0.2428)} \\
 &= 0.4927
 \end{aligned}$$

The calculation GoF show a value of 0.4927. Based on the criteria of *GoF* according to Akter et al. (2011), the model has a high level of accuracy because it is above 0.36. This means that the research model has a high level of accuracy.

Based on evaluation of the structural model/inner model as measured by the criteria of R-Square ( $R^2$ ), Q-Square Predictive Relevance ( $Q^2$ ), and Goodness of Fit (GoF), the model can be declared as in the good category. Because all the structural model evaluation criteria used ( $R^2$ ,  $Q^2$ , and GoF) showed good results, the research model that integrates the variables of transformational leadership, class climate, learning motivation, learning satisfaction, and objective commitment includes as a good model.

### 4.3. Hypothesis testing

The hypothesis testing in this study consisted of six direct effect hypotheses and two indirect effect hypotheses.

#### 4.3.1. Direct Effect Testing

The direct effect test consists of 6 (six) hypotheses, namely 1) the effect of transformational leadership on objective commitment; 2) the effect of transformational leadership on learning motivation, 3) the effect of transformational leadership on learning satisfaction, 4) the effect of class climate on learning satisfaction, 5) the effect of learning motivation on learning satisfaction, and 6) the effect of learning motivation on objective commitment. Each research hypothesis was evaluated in detail and the results are shown in Table 5 and Table 6. It can be seen in Table 5 that transformational leadership ( $X_1$ ) has a positive and significant effect on objective commitment ( $Y_3$ ). It is shown the value of the path from  $X_1$  to  $Y_3$  is big 0.367 with t-statistics of 3.827 ( $>1.96$ ). Therefore, hypothesis 1 ( $H_1$ ) which states that the lecturer's transformational leadership has a positive and significant effect on student objective commitment, is supported.

The effect of transformational leadership ( $X_1$ ) on learning motivation ( $Y_1$ ) is positive and significant. This is indicated by the path value of  $X_1$  to  $Y_1$  of 0.604 with t-statistics of 9.059 ( $<1.96$ ). The results of this test prove that hypothesis 2 ( $H_2$ ) which states that the lecturer's transformational leadership has a positive and significant effect on student learning motivation is accepted.

**Table 5** Direct Effect of Transformational Leadership, Class Climate, Learning Motivation, and Learning Satisfaction on Objective Commitment

Relationship Between Variables	Coef. of Direct Effect	t-statistics	Description
$X_1 \rightarrow Y_3$	0.367	3.827	Significant
$X_1 \rightarrow Y_1$	0.604	9.059	Significant
$X_1 \rightarrow Y_2$	0.188	2.142	Significant
$X_2 \rightarrow Y_2$	0.525	4.394	Significant

$Y_1 \rightarrow Y_2$	0.076	0.821	Not significant
$Y_{12} \rightarrow Y_3$	0.314	3.273	Significant

Source: Primary data processed;  $X_1$ : transformational leadership,  $X_2$ : class climate,  $Y_1$ : learning motivation,  $Y_2$ : learning satisfaction,  $Y_3$ : objective commitment

Table 5 also shows that transformational leadership ( $X_1$ ) has a positive and significant effect on learning satisfaction ( $Y_2$ ). This result is indicated by the path value of  $X_1$  to  $Y_3$  of 0.188 with t statistics of 2.143 ( $> 1.96$ ). The results of this test indicate that hypothesis 3 ( $H_3$ ) which states that lecturer transformational leadership has a positive effect on student learning satisfaction, is supported.

Class climate ( $X_2$ ) shows a positive and significant effect on learning satisfaction ( $Y_2$ ). This is indicated by the path value from  $X_2$  to  $Y_2$  of 0.525 with t statistic of 4,394 ( $> 1.96$ ). This test proves that hypothesis 4 ( $H_4$ ) which states that class climate has a positive and significant effect on student learning satisfaction, is confirmed.

The results of data processing in Table 5 show that learning motivation ( $Y_1$ ) does not affect  $Y_2$  (learning satisfaction). This result is indicated by the path value of  $Y_1$  to  $Y_2$  of 0.076 with t-statistics of 0.821 ( $< 1.96$ ). The results of this test prove that hypothesis 5 ( $H_5$ ) which states that student learning motivation influences student learning satisfaction, is not supported.

Testing the hypothesis about the effect of learning motivation on objective commitment has shown that learning motivation ( $Y_1$ ) has a positive and significant effect on  $Y_3$  (objective commitment). This is indicated path coefficient from  $Y_1$  to  $Y_3$  of 0.315 with t-statistics of 3.273 ( $> 1.96$ ). The results of this test prove that hypothesis 6 ( $H_6$ ) which states that learning motivation has a positive and significant effect on objective commitment of is accepted.

#### 4.3.2. Indirect Effect Testing

Testing the indirect effect consists of 2 (two) hypotheses, namely  $H_7$  which states that learning motivation mediates the influence of lecturer transformational leadership on student objective commitment and  $H_8$ , namely learning motivation mediates the influence of transformational leadership of lecturer on student learning satisfaction.

The results of the indirect effect test in Table 6 show that learning motivation ( $Y_1$ ) is a mediator of the influence of transformational leadership ( $X_1$ ) on student goal commitment ( $Y_3$ ). This is indicated by the path coefficient value of 0.189 with t-statistics value of 2.822 ( $> 1.96$ ).

**Table 6** Indirect Effect of Transformational Leadership and Learning Motivation on Learning Satisfaction and Objective Commitment

Relationship Between Variables	Mediating Variables	Coef. of Indirect Effect	t-statistics	Description
$X_1 \rightarrow Y_3$	$Y_1$	0.189	2.822	Significant
$X_1 \rightarrow Y_2$	$Y_1$	0.046	0.780	Not significant

Source: Primary data processed ;  $X_1$ : transformational leadership,  $Y_2$ : learning satisfaction,  $Y_3$ : objective commitment

The results of this test illustrate that  $H_7$  which states that learning motivation mediates the effect of transformational leadership on student objective commitment is supported. The results of hypothesis testing show that the effect of transformational leadership on learning motivation is positive and significant and the effect of learning motivation on goal commitment is also positive and significant. It can be said that learning motivation partially mediates the effect of transformational leadership on student objective commitment. Additionally, Table 6 shows that learning motivation ( $Y_2$ ) does not emerge as a mediator of the influence of transformational leadership ( $X_1$ ) on learning satisfaction ( $Y_2$ ). This is indicated by the path value from transformational leadership to learning satisfaction through learning motivation of 0.046 with a t-statistics value of 0.780 ( $< 1.96$ ). Thus, hypothesis 8 which states that learning motivation mediates the influence of lecturer transformational leadership on learning satisfaction, is rejected.

#### **4.4. The influence of lecturer transformational leadership on student goal commitment**

The results of hypothesis testing regarding the influence of lecturer transformational leadership on student objective commitment is positive and significant. This indicates that the stronger the lecturer's transformational leadership, the higher the student's commitment to achieving predetermined learning objective/goals.

The results of the descriptive analysis show that the average score of the respondents' perceptions on transformational leadership is included in the strong category (4.12). This indicates that the lecturer's transformational leadership abilities are reflected in the points of the statement that quite strongly affect student goal/objective commitment. If the lecturer gives flexibility in using students' academic abilities to overcome academic obstacles encountered in the learning process both inside and outside the classroom and gives the mission/learning objectives in the student study process, there is a tendency that students will intend to devote their efforts beyond normal limits to achieve the objective/the goals of their study. This condition is in line with the average score of respondents' reports regarding objective commitment which is relatively high (3.76).

Studies on organizational effectiveness are generally carried out in profit-oriented business organizations. So, it is logical that [3] state that research on organizational effectiveness in the context of higher education is very rarely carried out. These researchers explained that organizational effectiveness in the field of education is directed at the satisfaction of teachers/lecturers and students. Organizational effectiveness in this study was reviewed from the perspective of students as measured by learning motivation, learning satisfaction, and objective commitment as elements of their attitude in their learning process in higher education institutions. Therefore, as the results of this study show, the higher the learning motivation, learning satisfaction, and objective commitment of students, the higher the institution effectiveness.

suggested that leadership effectiveness can influence employee organizational commitment. This condition may also occur in the context of education, especially higher education, when it is related to lecturer leadership in the learning context (lecturer-student interaction). If lecturers can create a feeling of pride in students for having a good relationship with their lecturers, then they will devote their time optimally to achieve their learning objectives that have been set. In addition, students will also have a high commitment for fulfilling assignments given by lecturers related to the courses they take.

#### **4.5. The effect of transformational leadership on student learning motivation**

Testing the hypothesis of the effect of transformational leadership on student learning motivation shows positive and significant results. This means that the stronger the transformational leadership of the lecturers, the higher the motivation of students in the teaching-learning process.

The average score of student perceptions of learning motivation is high (3.83). Learning motivation reflects the motivation of students to achieve the highest academic achievement. In this study, it appears that students show the strongest motivation to an effort of completing the tasks/assignments given by the lecturers as perfectly as possible. This can be seen from the highest average score shown in this indicator of learning motivation. If lecturers give flexibility to students to use their academic abilities to overcome obstacles or face challenges in the learning process in class, for example, then there is a tendency for students to be encouraged to make every effort in completing the tasks given as well as possible.

Motivation is the main element that influences student success in process learning [21]. In other words, the success of students in carrying out the learning process is determined by their capability to regulate themselves. Likewise, if the lecturer provides or explains the learning mission/objectives well for the learning process in general, and about certain subjects in particular, students will strive hard to get the best grades for the courses taken, regardless of whether they like the subject taken or not.

#### **4.6. The effect of transformational leadership on learning satisfaction**

The results show that lecturer transformational leadership effect on student learning satisfaction is positive and significant. The stronger the transformational leadership of the lecturer, the students will perceive higher satisfaction in their learning process. It indicates that the implementation of transformational leadership will be able to increase student learning satisfaction in higher education institution.

Based on the results of the descriptive analysis, student learning satisfaction is classified in the high category (3.90). Referring to the opinion of [24], in general, satisfaction is an attitude that shows inner feelings or pride in doing

something. Meanwhile, [1] stated that learning satisfaction is an evaluative description of a task as a reflection of the characteristics of learning attitudes. [15] argued that there is a strong relationship between instructor elements (lecturers) consisting of knowledge and facilitation abilities and student outcomes, namely student learning satisfaction.

[6] suggested that effective leadership can affect employee job satisfaction. In this study, it is suspected that the relationship between these variables will apply to non-profit-motive organizations such as universities. Thus, it can be stated that the lecturer's transformational leadership will influence the level of student learning satisfaction. If the lecturer gives strong encouragement to study and complete certain course assignments well to students, then students will feel satisfied with the teaching style and quality of education provided by the lecturer.

[22] argued that the concept and definition of transformational leadership are related to "leadership and performance above expectations". Therefore, it is logical that several studies referred to this research group found a positive relationship between lecturer professional leadership and student learning satisfaction. Clarity on issues related to education such as learning missions and defining clear learning objectives as the embodiment of leadership transformational of the lecturers will have a positive impact on student learning satisfaction.

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## 5. The effect of class climate on student learning satisfaction

The finding shows positive and significant effect of class climate on student learning satisfaction. The more conducive the classroom climate, the more students will feel satisfied with their learning experience in class. A conducive class climate will increase student learning satisfaction. The result of descriptive analysis shows that the average score of student perceptions of class climate variables is high (3.73). The indicator of "lecturers use adequate learning materials" shows the highest average score (3.85). A conducive classroom climate such as good preparation of and adequate learning materials by lecturers will encourage students to work as hard as possible to be able to carry out the course assignments given because they gain clarity and a good understanding of related material discussed in class.

The learning objectives set will be heavily influenced by the learning environment where the teaching-learning process takes place. According to [11], the learning climate can be defined in a narrow and broad sense. In a narrow sense, the learning environment refers to physical space, while in a broad sense, it refers to all physical and social environments that are relevant to student learning. In the context of business organizations, [18] suggested that learning culture determines job satisfaction of the employee. Bearing in mind that organizational climate is part of organizational culture, this study used the climate that occurs in learning, and the finding shows that class climate contributes the satisfaction of the student positively.

The results of studies related to education note that student satisfaction is determined by the learning climate in which they experience learning [19]. These writers define the learning climate as a space in which the teacher (lecturer) facilitates interaction with students in carrying out their learning activities. If the classroom environment matches with student preferences, then satisfaction with the learning experience will arise [20].

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## 6. The effect of learning motivation on learning satisfaction

The result shows that variations in learning motivation does not affect variations in learning satisfaction experienced by students in their learning experiences. The ups and downs of learning motivation do not affect variations in student learning satisfaction. This condition is in the contrary to the explanation put forward by [11]. Motivation is the main element that influences student success in the learning process [16]. That is, student satisfaction in the learning environment is determined by their ability to regulate themselves. There is a possibility that students have tried to learn and do the assignments given by the lecturer as best they can, but they are not satisfied with the help and teaching style of the lecturer in transferring knowledge in class. [11] argued that more significant learning outcomes are achieved through more significant learning motivation, which is also inconsistent with the results of this study.

### 6.1. The effect of learning motivation on objective commitment

The results of testing the hypothesis regarding the effect of learning motivation on the objective commitment of the students showed positive and significant results. This condition indicates that increasing students learning motivation can increase their commitment toward objective or goals in the learning process.

According to [27], understanding the process of teacher (lecturer) commitment is important because it determines students' academic achievements. In their research that took elementary school teacher as respondents, it was explained that the transformational leadership of school principals had a positive effect on teachers' organizational

commitment. If a person shows low commitment, he/she will behave that leads to failure in carrying out duties and responsibilities within the organization. If it is related to lecturer transformational leadership, then the stronger the transformational leadership implement by the lecturer, the higher the objective commitment shown by students because the individual being led has higher congruence, thus directing them to make greater efforts towards carrying out their duties, as stated by [28].

## **6.2. The role of learning motivation mediates the influence of academic leadership on objective commitment and learning satisfaction**

Based on the results of hypothesis testing, learning motivation appears as a variable that mediates partially the effect of transformational leadership on student objective commitment. Transformational leadership has a positive effect on learning motivation, as stated by [26] One important aspect of transformational leadership in the context of learning is the ability of lecturers to deliver teaching subjects in class. The lecturer's ability to transfer knowledge will affect student motivation in their learning experience. Furthermore, learning motivation has a positive effect on student objective commitment in the teaching-learning process.

The more competent a lecturer to motivate and encourage students to use their judgment and intelligence in dealing with educational-related obstacles, transfer missions to students, and express appreciation for good performance, the higher the psychological stimulus will be driven by the students towards the goals set. Furthermore, students who have high learning motivation, directing all their efforts towards the objective to be achieved will resulted in student involvement in their duties and obligations to achieve the goals that have been set, also getting higher. In other words, strong transformational leadership will have an impact on increasing student learning motivation, which in turn affects the high commitment of students to achieve goals/objectives in their learning experience.

Based on the findings, concerning the concept of [31], if transformational leadership has a significant effect on learning motivation while learning motivation affects goal commitment, then it can be said that learning motivation acts as a mediating variable for the influence of transformational leadership on student objective commitment.

The finding of this study shows that learning motivation does not appear as a mediating variable in the effect of transformational leadership on learning satisfaction. This condition indicates that if the lecturer gives flexibility/discretion to students to use their academic abilities to overcome academic obstacles faced both inside and outside the classroom, then students will feel satisfied in the learning process even though it is not a guarantee that they will achieve good grades. What is more important for them is that lecturers assist them academically in undergoing the learning process and obtaining quality education through the transfer of knowledge obtained from their lecturers. This experience may be expected as valuable in the next work experience when they entering the labor market.

The findings of this study support the Two Factor Theory which is used as the grand theory in this study. The leadership style used by lecturers in the learning process both inside and outside the classroom contributes to the learning satisfaction of the students they teach. The student learning experience will be positively influenced if the lecturer uses a leadership approach positively. On the other hand, students' learning experiences, in turn, will affect their attitudes both inside and outside the classroom negatively if the lecturer uses a leadership approach negatively. On the contrary, Goal Setting Theory is not confirmed by the findings of this study. Student learning motivation does not contribute to student learning satisfaction to achieve scholastic performance and develop their knowledge and skills.

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## **7. Conclusion**

Education is a key element that determines the growth and development of a nation. The progress and quality of life of a nation will be determined by the quality of education. Similar to profit-oriented organizations, leadership in tertiary institutions as non-profit-oriented institution will also determine the achievement of goals and objectives for both the organization as a whole and the elements within it. The main elements in the higher education system that determine the attainment of goals in this context are students, lecturers, and the education system itself.

The outputs of student attitudes, namely learning motivation, learning satisfaction, and commitment to objective which are a reflection of the effectiveness of a higher education institution, are largely determined by the leadership style applied by the lecturer. Lecturer transformational leadership, which is reflected in its relationship with students, the ability to encourage students to study well, the ability to give discretion to students in terms of overcoming academic obstacles, and the ability to deliver learning missions to students, will determine student efforts in carrying out assignments and the attainment of knowledge and skills both inside and outside the classroom. Lecturer leadership will also greatly contribute to student satisfaction through the quality of education provided.

Lecturers should direct their leadership style and behavior to provide flexibility to the students in overcoming academic obstacles, especially outside the classroom. In addition, the learning process in the classroom should be carried out in a more varied way to ensure student satisfaction in their learning experience. Learning activities related to assignments such as case analysis, projects, videos, and posters can be carried out to achieve this effort.

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## Compliance with ethical standards

### *Acknowledgments*

We are grateful to all with whom we had the pleasure to work during this research activity including all respondents and the five coordinator of study programs at Udayana University for giving permission of data collection. Each of the members of researchers has prominent professional contribution in writing process of this research paper.

### *Funding Statement*

This research is funded by Institution of Research and Community Service of Udayana University-Bali-Indonesia, contract number: 26/UN.14.2.7.II/LT/2019.

### *Disclosure of conflict of interest*

No conflict of interest to disclosed.

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