

## IMPROVING INTERNATIONAL STUDENTS' COMMUNICATION SKILLS AND INTEGRATION AT THE UNIVERSITY OF MISKOLC BY THE COMBINATION OF LEADERSHIP AND TECHNOLOGY ACCEPTANCE MODEL

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**Abstract:** *Recent studies in multicultural societies have begun to integrate sociological ideas into the modeling of personal behavior. In particular, this new approach emphasizes how social interdependence influences the way a person behaves and communicates. By developing communication skills, international students can reduce individual stress, improve their academic achievements, and also become successful in the job market by integrating and cooperating better with people who have different cultural backgrounds. In addition, digitalization has become a widespread global phenomenon and the main driving force in this era of mankind. Introducing new technologies to any organization doesn't mean it's easy and involves many challenges, like the acceptance and adoption of new technologies by employees and customers. In this field, Davis (1985) introduced the technology acceptance model to determine the individual usage of technology. Therefore, the objective of our research is to analyze the factors that affect international students' communication skills via the usage of email at the University of Miskolc, Hungary, based on applying the technology acceptance model and transformational leadership. Unfortunately, we could not access all the international students because of COVID-19 and restrictions. Therefore, our sample size is not big enough.*

**Keyword:** Technology Acceptance Model, Transformational Leadership, Behavioral intention.

**JEL classification:** D83, M14.

### 1. Introduction

Communication skills are critical for developing one's personality in a global environment, such as a university. While academic performance is the most important element for developing individuals, "the balance between academic performance and these competencies is an aspect emphasized by employers (Iksan et al., 2011)". For example, students could graduate and be excellent in their academic skills but poor in their self-awareness and communication skills. Therefore, some activities and workshops such as developing personality, intercultural communication skills, and cultural awareness are needed to improve emigrate people. Such activities are sometimes run by universities and student organizations because of the importance of these skills in relation to preparation for entering the job market. In particular, international students especially need to know why it is

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so important to have high-level skills in these areas. International students may face some problems in adjusting to the new culture, and climate, or how to manage their stress and anxiety at the University of Miskolc. Developing emotional support such as social support, familiarity and similarity of culture, language ability could manage their acculturative stress (Thomas and Choi, 2006). Consequently, the university should provide some programs such as engagement in various activities or social support for coping with acculturative stress for freshmen.

## **2. Literature Review**

A university's role is not just to provide degrees for students in various fields needed for the global market and businesses, but also to develop students' generic skills, or soft skills, which are required to compete in the global market (Iksan et al., 2011). In this area, international students could provide extremely useful opportunities and also challenges for the university as well. International students are from different countries, with diverse knowledge, experience, and cultural background perspectives. International students, by providing different types of knowledge and attitudes, can develop and spread a wide range of knowledge and experiences at the university. In contrast, freshmen could face different barriers, difficulties, and stress, which is called acculturative stress. For instance, difficulties with the language and adjusting to the academic culture, misunderstandings in their communication with others, culture shock, and difficulties managing their financial needs (Wu et al., 2015). Vergara et al. (2010) argued that there is a relationship between acculturative stress and emotional intelligence with coping responses and length of stay in foreign countries. Acculturative stress, such as language, academic, emotional, cultural, financial, social, and political, could have significant effects on acculturation (Pan et al., 2008). They may have dramatic effects on the emotional (Paukert et al., 2006), psychological, social, and physiological dimensions of adjustment (Scherer and Berry, 1991). According to our knowledge, reducing acculturative stress for freshmen could boost their confidence, which, eventually, could improve their relationships with other international students and staff at the University of Miskolc.

### **2.1 Leadership**

Nowadays, with the phenomena of globalization and developments in organizational culture, a significant role of leadership is to recognize and analyze issues concerning the diversity of cultures. While the main roles of the managers in the organization are controlled, planned, and analyzed, promoting trust, cohesion, and vision among the members of the organization can also be related to the role of the leader. Effective organizations need both tactical and strategic thinking as well as a cultural characteristic that is built upon and improved by their leaders. One of the most effective definitions of leadership was presented by Kim and Maubourgne (1992), who stated that leadership is a special skill and ability to encourage confidence in the individual that is intended to achieve organizational goals. A leader's leadership style is determined by the leader's actions, attitudes, and behavior to lead their followers to a specific goal (Dubrin, 2001). Several types of leadership styles have already been introduced, such as transformational, or bureaucratic leadership. Each leadership style can be used for a specific situation, which can be related to organizational culture as well. Also, Robbins (1993) suggests that national culture has an important role in determining the types of leadership in an organization. So, to better interpret this type of leadership in the next part, we will discuss it.

#### **2.1.1 Transformational Leadership**

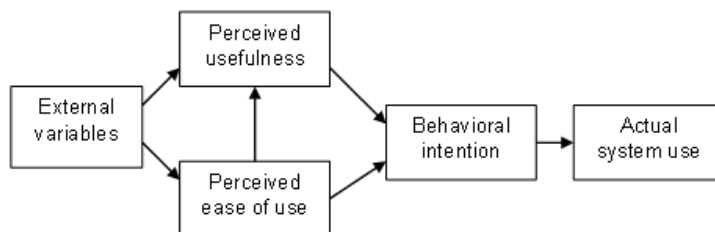
Transformational leaders can provide a clear vision and mission for the members' activities in the organization. Transformational leaders try to show a high degree of trust and

emotional interest in the use of new technology in the organization. For transformational leadership to reach the organizational goal and succeed, try to use specific communication. Besides, a transformational leader with charismatic skills could foster more commitment from the members to the progress of the organizational performance while using new technology. Transformational leadership may meet the emotional needs of each member in the multicultural organization, and finally, this leader may intellectually stimulate the members through the use of new technology in the organization. Kirkan (2011) noted that transformational leadership tries to change the current situation of the organization by identifying and determining the main problems facing it and then developing the inspiration to achieve those goals (Alqatawenh, 2018). There are five behaviors that are characteristic of transformational leaders (Bass and Avolio 1990).

- **Idealized Influence by attitude:** Provides a vision and a clear mission for their employees.
- **Idealized Influence by behavior:** They provide the role model for their followers.
- **Inspiration of Motivation: Concentrate on the followers' efforts and use simple methods to achieve their goal.**
- **Intellectual Stimulation:** Better problem solving, developing the followers to take the risk and make decision independently.
- **Individualized Consideration:** Gives the personnel a high level of attention, treats each employee individually, and coaches him or her.

## 2.2 Technology Acceptance Model

The Technology Acceptance Model was developed by Fred Davis (Davis et al., 1985). In addition, the theory of reasoned action (TRA) was established by Ajzen and Fishbein (1975). Both the theory of reasoned action (TRA) and the technology acceptance model (TAM) have strong behavioral elements concerning the usage of the technology when a person can act without any limitation. However, in the real world, there are many limitations to using technology, such as personal ability to use, factors of time, the environment, and social and organizational limits and conditions, (Davis et al., 1992). Davis et al. argue that although technology is developing very fast, people still have some ambiguity concerning the usage of technology because they believe that this technology is very complex for usage. People, based on their attitudes and intentions, try to learn and use new technology for their performance before knowing the exact meaning and way of its use. Attitudes toward using new technology can cause low confidence, or after trying to learn how to use the new technology can be stable. Therefore, the actual usage of technology cannot be an immediate outcome of such attitudes and intentions (Davis et al., 1992). Predicting system use became a focus for many researchers in the mid-1970s, when new technology was threatening to cause increasing failures in system adoption in organizations. Based on the work of Fishben and Ajzen (1975), who formulated the theory of reasoned action, Davis shaped the technology acceptance model (TAM) in his PhD dissertation in 1985. He finally presented his conceptual model of the Technology Acceptance Model (Davis, 1986), as shown in Figure 1.



**Figure 1:** The Technology Acceptance Model  
Source: Davis, F.D. (1986).

**Perceived Usefulness:** Indicates that the individual believes using a particular system can enhance his or her job performance.

**Perceived Ease of Use:** Indicates that the individual believes using a particular system is free of physical and mental effort.

For better analysis in this study, we would like to add two more external factors to the technology acceptance model. These two factors are:

**Perceived Security: The significance of security and privacy in accepting and employing technology** (DuFour et al., 2017).

**Perceived Social Norm:** Social norm or normative pressure is defined as the person's perception that most people who are important to her or him should or should not perform the behavior in question (Fishbein and Ajzen, 1975 as cited in Nysveen et al., 2005).

### 3. Methodology

The problem being addressed in this research is the impact of transformational leadership on perceived usefulness, perceived ease of use, perceived sense of security, and social norms of the technology acceptance model variables, which can result in the behavioral intention of the international students towards the usage of email for communication at the University of Miskolc. After providing the questionnaire and holding a few classes and workshops with the international students, we decided to create an online survey to gather information from the international students' community. Also, the technologies, such as Gmail and Whatsapp, have provided better and easier conditions for collecting information in a short time. The choice of the students was constrained by the outbreak of COVID-19, which has minimized our chances of contact with the surveyed group, and we had to select the subjects of the survey at random. Stratified sampling is used in this study, which means the population is divided into heterogeneous groups and these, in turn, are subdivided into homogeneous groups with common characteristics to be studied according to the requirements of the researcher. In this research, we used primary data for our data collection as well. Finally, in this research, the structural equation model with Smart PLS software was used to analyze the data and examine the research hypothesis. This research includes two hypotheses:

- H1: Transformational Leadership has a direct effect on Technology Acceptance Model.
- H2: Transformational Leadership has an indirect effect on behavioral intention.

The impact of five characteristic of transformational leadership on four factors of the technology acceptance model is:

L: Transformational Leadership - L<sub>1</sub>: Idealized Influence Behavior; L<sub>2</sub>: Idealized Influence Attribute; L<sub>3</sub>: Inspirational Motivation; L<sub>4</sub>: Individualized Consideration and L<sub>5</sub>: Intellectual Stimulation

T: Technology Acceptance Model - T<sub>1</sub>: Perceived Usefulness; T<sub>2</sub>: Perceived Ease of Use  
T<sub>3</sub>: Perceived Sense of Security; T<sub>4</sub>: Perceived Social Norms

#### 3.1 Descriptive Statistics

Some demographic characteristics of international students who participated in this research, such as gender, marital status, age, and education, are shown in table 1. Based on the International Relations Office report, the total number of international students at the University of Miskolc is 272 units. We attached a questionnaire to be filled in and sent it back to them in digital form. Among 272 international students, only 105 of them filled out the questionnaire (39% of the total sample size). So, in this research, the total sample size of students at the University of Miskolc is 105. Table 1 shows the demographical factors among international students at the University of Miskolc.

**Table 1:** Descriptive Statistics of Demographic Characteristics of Participants in the Study

		<b>N</b>	<b>N %</b>
Gender	Male	66	62.9%
	Female	37	35.2%
	I prefer not to say	2	1.9%
Age	<=30	70	66.7%
	>30	35	33.3%
Degree	Bachelor	27	25.7%
	Master	52	49.5%
	PhD	26	24.8%
Marital Status	Married	23	21.9%
	Single	71	67.6%
	In a long-term relationship	8	7.6%
	Divorced	1	1.0%
	I prefer not to say	2	1.9%
Higher Education Years Categories	1-2	9	8.6%
	2-3	0	0.0%
	3-4	20	19.0%
	4-5	0	0.0%
	5-6	41	39.0%
	More than 6 years	35	33.3%

Source: Own Edition

The result shows that male students (62.9%) under the age of 30 (66.7%) and studying for a Master's degree gave the most answers.

### 3.2 Inferential Statistics

To investigate the research questions and Hypothesis about the impact of Transformational Leadership and its dimensions on the Technology Acceptance Model and its dimensions, a structural equation model with Smart PLS software using partial least squares (PLS) has been used (Wetzels et al., 2009). Analysis of variance (ANOVA) and SPSS software are also used to influence the demographic variables on the dimensions of the Transformational Leadership and TAM. The structural equation model can be used as a tool for showing which variables could cause changes in the other variables. If the model being drawn is confirmed and the data fits with the parameters of the model, that model can be used to test questions and hypotheses about the existence of a causal relationship between variables in the path diagram. Therefore, first, we are going to study the characteristics of the drawn model based on the conceptual models of the research (Figures 6), then we will examine the objectives of Hypothesis our research.

#### 3.2.1 Evaluation of Measurement Model (Validity and Reliability)

To evaluate the model's measurement, Cronbach's alpha, Composite reliability, factor load coefficients, convergent validity, and discriminant validity are used. Cronbach's alpha is a classic measure of reliability and internal consistency. Values of this criterion above 0.7 indicate a high amount of variance between one dimension and related questions (Cronbach, 1951). Thus, the results in Table 3 indicate the acceptance of the model's variables. Composite reliability is a more modern criterion than Cronbach's alpha. In this model, the reliability of the dimensions is calculated according to the factor load of the questions, and values above 0.7 are desirable for this index (Nunnally, 1978). According to the results in Table 2, the composite reliability of the latent variables introduced in the model indicates the strong reliability of the extracted factors. When instead, convergent validity is

evaluated by the Average Variance Extracted (AVE), results show the degree to which one-dimension has correlated with its questions; the higher the correlation, the better the fit. The value of the AVE above 0.5 is indicated as an acceptable convergence (Fornell and Larcker, 1981). According to the results, the latent variables introduced in the model are above 0.6 (Table 2), so, it is desirable.

**Table 2:** Cronbach's Alpha Coefficient, Combined Reliability and Convergent Validity of each Dimension in the Impact of Leadership in Technology Acceptance Model

Convergent	Combined	Cronbach's	Dimensions
0.79	0.9	0.950	L: Transformational
0.661	0.907	0.871	L <sub>1</sub> : Idealized
0.691	0.899	0.849	L <sub>2</sub> : Idealized
0.821	0.932	0.891	L <sub>3</sub> : Inspirational
0.712	0.908	0.866	L <sub>4</sub> : Individualized
0.763	0.928	0.896	L <sub>5</sub> : Intellectual
0.62	0.86	0.940	T: Technology
0.672	0.935	0.918	T <sub>1</sub> : Perceived
0.694	0.919	0.889	T <sub>2</sub> : Perceived Ease
0.794	0.951	0.935	T <sub>3</sub> : Perceived Sense
0.763	0.906	0.844	T <sub>4</sub> : Perceived Social

Source: Own Edition

**Table 3:** Assessing Discernment Validity Using the Fornell-Larker Matrix Method in the Impact of Transformational Leadership on the Technology Acceptance Model

T4	T3	T2	T1	L5	L4	L3	L2	L1	
								<b>0.813</b>	L1
							<b>0.831</b>	0.686	L2
						<b>0.906</b>	0.762	0.679	L3
					<b>0.844</b>	0.760	0.637	0.629	L4
				<b>0.874</b>	0.652	0.712	0.558	0.535	L5
			<b>0.820</b>	0.460	0.630	0.542	0.461	0.433	T1
		<b>0.833</b>	0.799	0.509	0.585	0.492	0.455	0.450	T2
	<b>0.891</b>	0.455	0.483	0.291	0.435	0.350	0.444	0.388	T3
<b>0.873</b>	0.392	0.377	0.455	0.207	0.256	0.261	0.200	0.129	T4

Source: Own Edition

Based on Table 3, the correlation of the questions with their dimensions is greater than the correlation of the questions with other dimensions, and this means the validity of the Leadership measurement on Technology Acceptance Model.

Another indicator for evaluating the discriminant validity of the measurement model is the cross-loading matrix. In this method, the degree of one-dimensional correlation with that dimension and the degree of correlation between one-dimensional questions and other dimensions are compared. In this case, if the correlation of the questions with their dimensions is less than the correlation of the questions with other dimensions, the discriminant validity of the model is called into question (Hensler et al., 2009). These results are shown in Table 4, where the yellow cells indicate the correlation of the questions with their dimension.

**Table 4:** Discriminant Validity by Cross-Loading Matrix (Transformational Leadership's Impact on the Technology Acceptance Model)

T4	T3	T2	T1	L5	L4	L3	L2	L1	
0.146	0.285	0.353	0.417	0.349	0.430	0.417	0.480	0.722	Ld1q1
0.166	0.378	0.363	0.360	0.437	0.558	0.592	0.648	0.847	Ld1q2
0.001	0.328	0.327	0.301	0.458	0.515	0.588	0.534	0.820	Ld1q3
0.152	0.297	0.450	0.450	0.483	0.553	0.540	0.530	0.822	Ld1q4
0.065	0.289	0.339	0.249	0.440	0.491	0.605	0.587	0.850	Ld1q5
0.236	0.355	0.262	0.326	0.291	0.363	0.483	0.709	0.404	Ld2q1
0.109	0.324	0.421	0.419	0.529	0.547	0.717	0.886	0.617	Ld2q2
0.148	0.366	0.417	0.390	0.477	0.572	0.656	0.875	0.587	Ld2q3
0.200	0.439	0.388	0.389	0.516	0.600	0.648	0.842	0.638	Ld2q4
0.283	0.319	0.394	0.453	0.592	0.570	0.889	0.688	0.617	Ld3q1
0.311	0.333	0.499	0.553	0.702	0.762	0.930	0.700	0.595	Ld3q2
0.118	0.300	0.440	0.464	0.637	0.725	0.899	0.683	0.635	Ld3q3
0.214	0.415	0.480	0.594	0.542	0.851	0.669	0.563	0.543	Ld4q1
T4	T3	T2	T1	L5	L4	L3	L2	L1	
0.266	0.347	0.466	0.514	0.447	0.837	0.560	0.461	0.448	Ld4q2
0.198	0.405	0.571	0.559	0.693	0.887	0.789	0.648	0.652	Ld4q3
0.198	0.287	0.439	0.448	0.480	0.799	0.499	0.443	0.442	Ld4q4
0.276	0.184	0.380	0.415	0.837	0.624	0.648	0.505	0.479	Ld5q1
0.141	0.212	0.477	0.409	0.889	0.565	0.553	0.435	0.441	Ld5q2
0.134	0.248	0.427	0.344	0.882	0.542	0.634	0.438	0.440	Ld5q3
0.168	0.366	0.492	0.436	0.885	0.545	0.646	0.562	0.506	Ld5q4
0.379	0.328	0.565	0.802	0.315	0.524	0.417	0.398	0.334	Td1q1
0.387	0.508	0.673	0.843	0.400	0.570	0.493	0.445	0.428	Td1q2
0.522	0.414	0.618	0.821	0.365	0.565	0.505	0.409	0.393	Td1q3
0.442	0.362	0.602	0.794	0.341	0.436	0.398	0.322	0.309	Td1q4
0.283	0.349	0.719	0.798	0.326	0.459	0.400	0.316	0.331	Td1q5
0.326	0.431	0.671	0.826	0.393	0.500	0.424	0.329	0.328	Td1q6
0.271	0.363	0.730	0.852	0.490	0.553	0.464	0.417	0.352	Td1q7
0.338	0.369	0.730	0.549	0.513	0.615	0.584	0.506	0.534	d2q1
0.309	0.438	0.857	0.647	0.541	0.566	0.499	0.468	0.416	Td2q2
0.307	0.327	0.857	0.717	0.313	0.384	0.305	0.270	0.226	Td2q3
0.289	0.348	0.836	0.719	0.398	0.422	0.327	0.326	0.368	Td2q4
0.331	0.413	0.877	0.687	0.368	0.467	0.361	0.344	0.353	Td2q5
0.378	0.902	0.407	0.441	0.305	0.457	0.413	0.500	0.414	Td3q1
0.408	0.903	0.410	0.454	0.318	0.450	0.419	0.485	0.405	Td3q2
0.300	0.888	0.439	0.440	0.308	0.419	0.365	0.425	0.373	Td3q3
0.297	0.831	0.356	0.378	0.121	0.210	0.079	0.201	0.198	Td3q4
0.356	0.929	0.410	0.434	0.229	0.383	0.255	0.345	0.323	Td3q5

0.798	0.337	0.179	0.329	0.090	0.062	0.076	0.028	-0.007	Td4q1
0.909	0.327	0.397	0.416	0.217	0.285	0.297	0.213	0.189	Td4q2
0.909	0.365	0.380	0.437	0.217	0.290	0.279	0.251	0.130	Td4q3

Source: Own Edition

Based on Table 4, the correlation between the questions and their dimensions is greater than the correlation between the questions with other dimensions, which means the validity of the Leadership measurement on Technology Acceptance Model is acceptable.

### 3.2.2 Evaluation of Structural Model

To evaluate the structural model, which includes the ability to predict the predictor variables of the model from the criteria of the model, the coefficient of determination ( $R^2$ ) and ( $Q^2$ ) have been used.  $R^2$  is a criterion used to connect the measurement part and the structural part of the structural equation model and shows the effect an exogenous variable has on the endogenous variable. In the coefficient of determination, 0.19, 0.33, and 0.67 indicate weak, medium, and strong values, respectively (Chin, 1998). Henseler et al., (2009) argued that if in one model, one endogenous dimension is affected by only one or two exogenous dimensions, and the value of  $R^2$  is 0.33 or above, this indicates the strength of the relationship between those dimensions and the endogenous dimension in the model. According to Table 5, the coefficient of determination for the endogenous variables defines the impact of Leadership on the Technology Acceptance Model as above average. Therefore, the model has a favourable situation from both the structural point of view and the point of view of this index. For example, in interpreting this value, we can say that the L1 dimension (Idealized Influence Behavior) has a coefficient of determination of 0.696, which means that the Leadership variance can explain 69.6% of the L1 changes. In other words, 69.6% of the changes in idealized influence behavior is related to Leadership. The  $Q^2$  indicator was introduced by Stone and Geisser and determines the predictive power of the model. Hensler et al. (2009) determined the predictive power of the model as 0.02, 0.15, and 0.35, where 0.02 indicates poor predictive power. Referring to Table 5, we can see that a value is obtained above 0.15 for all the endogenous variables, which indicates good predictive power for this model.

**Table 5:**  $R^2$  and  $Q^2$  Values of the Leadership Model's Impact on Technology Acceptance Model

$Q^2$	$R^2$ (Adjust)	Dimensions
0.447	0.696	L1
0.468	0.720	L2
0.660	0.829	L3
0.501	0.740	L4
0.477	0.650	L5
0.171	0.390	T
0.549	0.843	T1
0.512	0.761	T2
0.397	0.519	T3
0.249	0.345	T4

Source: Own Edition

### 3.2.3 General Evaluation of the Model:

For evaluating the fitting of the general research model, the criterion SRMR (Standard Root Mean Square Residual) has been used in this research. A lower index shows a stronger fit of



the model, and values- less than 0.08 are considered optimal values(Hu and Bentler, 1999). The results show that the value of the index obtained for the model is close to the desired value. Another measure model is the Goodness of Fit (GOF) index. Wetzel et al. (2009) introduced three values- as 0.01, 0.25, and 0.36, which mean the weak, medium, and strong values for the GOF index. According to Table 6, in the assumed model, this value is within the allowable range, and the developed model is within the acceptable range and shows the optimal fit of the model.

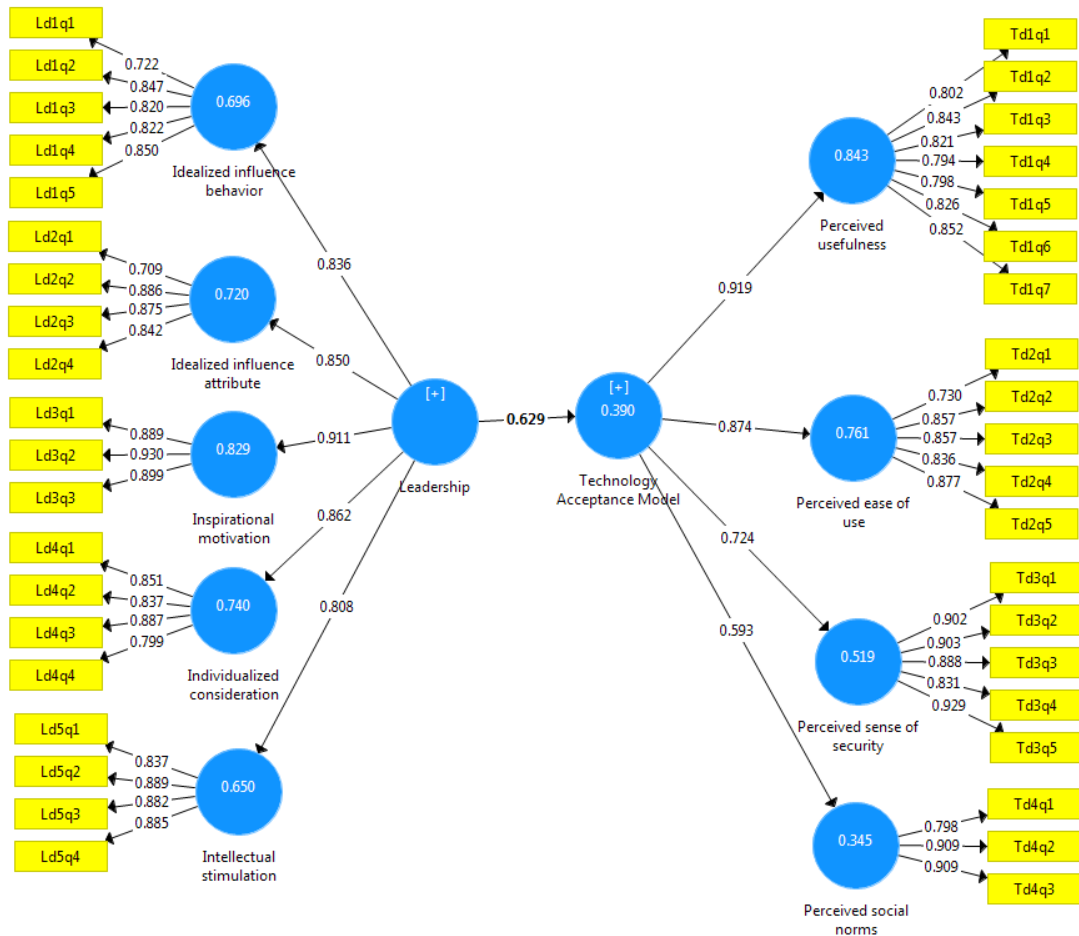
**Table 6:** Overall Fit Index of Transformational Leadership's Impact on Technology Acceptance Model

<b>Estimated Model</b>	
SRMR	0.105
GOF	0.56

Source: Own Edition

#### **4. Investigating the Structural Model Indicators of the Impact of Leadership on Technology Acceptance Model**

The structural equation model for the impact of Transformational Leadership on the Technology Acceptance Model is presented in Figure 2. According to the drawn model, the impact of the Leadership and Technology Acceptance Model from each of their dimensions and their significance is one of the main factors for indicating the confirmation of the overall structure of the conceptual model of the research. The results of this effect and their significance are presented in Figure 2 and Table 7, respectively.



**Figure 2:** Structural Equation Model of the Transformational Leadership’s Impact on Technology Acceptance Model  
Source: Own Edition

**Table 7:** Estimation of Coefficients in the Transformational Leadership’s Impact on Technology Acceptance Model

Confidence Interval		P-Values	T Statistics	Direct Effects	Inner Model
97.5%	2.5%				
0.924	0.675	0.000*	13.181	0.836	L -> L1
0.907	0.755	0.000*	21.890	0.850	L -> L2
<b>0.944</b>	<b>0.858</b>	<b>0.000*</b>	<b>39.817</b>	<b>0.911</b>	<b>L -&gt; L3</b>
0.913	0.766	0.000*	22.375	0.862	L -> L4
0.901	0.682	0.000*	13.625	0.808	L -> L5
<b>0.772</b>	<b>0.427</b>	<b>0.000*</b>	<b>7.041</b>	<b>0.629</b>	<b>L -&gt; T</b>
<b>0.946</b>	<b>0.887</b>	<b>0.000*</b>	<b>58.002</b>	<b>0.919</b>	<b>T -&gt; T1</b>
0.930	0.782	0.000*	23.622	0.874	T -> T2
0.847	0.552	0.000*	9.035	0.724	T -> T3

<b>0.716</b>	<b>0.448</b>	<b>0.000*</b>	<b>8.426</b>	<b>0.593</b>	<b>T -&gt; T4</b>
97.5%	2.5%	P Values	T Statistics	Indirect Effects	
0.720	0.385	0.000*	6.582	0.578	L -> T1
0.705	0.346	0.000*	6.019	0.549	L -> T2
0.626	0.251	0.000*	4.883	0.455	L -> T3
0.504	0.231	0.000*	5.338	0.373	L -> T4

\*P Value<0.05

Source: Own Edition

**L: Transformational Leadership**

**L<sub>1</sub>: Idealized Influence Behavior**

**L<sub>2</sub>: Idealized Influence Attribute**

**L<sub>3</sub>: Inspirational Motivation**

**L<sub>4</sub>: Individualized Consideration**

**L<sub>5</sub>: Intellectual Stimulation**

**T: Technology Acceptance Model**

**T<sub>1</sub>: Perceived Usefulness**

**T<sub>2</sub>: Perceived Ease of Use**

**T<sub>3</sub>: Perceived Sense of Security**

**T<sub>4</sub>: Perceived Social Norms**

Based on the results of Figure 4 and Table 7, we can say that Transformational Leadership is affected by all its dimensions ( $T > 1.96$ ,  $P < 0.05$ ), so the variance explained by this variable is significant for each dimension. According to the result, Leadership is most affected by L3 (Inspirational Motivation) with a coefficient of 0.911, and the leadership variance can explain 82.9% ( $R^2 = 0.829$ ) of L3 changes. Since the obtained confidence interval for this dimension overlaps with other confidence intervals (0.944, 0.858), we can say that there is no significant difference between the L3 dimension and other dimensions. On the other hand, the outcomes show that the highest and lowest effects of the Technology Acceptance Model are related to perceived usefulness and perceived social norms, with coefficients of 0.919 and 0.593, respectively. Consequently, the variance of the Technology Acceptance Model can explain 84.3% and 34.5% for the variance of T1 and T4. On the other hand, since the confidence intervals obtained by these two dimensions [other (0.946, 0.887) and (0.716, 0.448)] do not overlap with each other, we can say that the variance of the Technology Acceptance Model for these two dimensions is significantly different from each other. Finally, according to the result, we can conclude that Transformational Leadership has a significant indirect effect on the dimensions of the Technology Acceptance Model.

**5. Investigating the Hypothesis of the Impact of Transformational Leadership on Technology Acceptance Model:**

A structural equation model is used to investigate the hypothesis of the effect of Transformational Leadership on Technology Acceptance Model. The structural model was fully investigated and analyzed, and all factor loads and model fit indices were confirmed. Therefore, according to the approval of the studied model, in this section, the hypothesis can be examined.

***Hypothesis 1:** Transformational Leadership has a direct effect on Technology Acceptance Model.*

***Hypothesis 2:** Transformational Leadership has an indirect effect on behavioral intention.*

As shown in Figure 4, one of the relationships discussed in the research model is the effect of Transformational Leadership on the Technology Acceptance Model. According to the outcomes, the significance level of this path (L → T) is less than 0.05 ( $P < 0.05$ ), so this path is significant and Leadership affects the Technology Acceptance Model. Also, the magnitude of this effect was 0.629, which shows that Leadership has a significant direct effect of 62.9% on the Technology Acceptance Model. In other words, Leadership is 39% effective in explaining the variance ( $R^2 = 0.39$ ) in the Technology Acceptance Model. Therefore, based on the results, the hypothesis that transformational leadership could also influence behavior intention by affecting the Technology Acceptance Model is accepted.

## 6. Discussion and Conclusion

The objective of this research is to analyse the factors that affect international students' virtual communication's skills by applying the technology acceptance model at Miskolc University. To investigate the research Hypothesis about the impact of transformational leadership on TAM, the structural equation model with Smart PLS software by the partial least squares (PLS) method has been used. We considered various stages in our research: In the first stage, based on helping transformational leadership, we decided to develop the international students' personalities and self-awareness to better manage and cope with their acculturative stress and improve the students' communication skills at the University of Miskolc. In our opinion, without applying transformational leadership, we could not have been a success in these regards. We have already reached an interesting result concerning the role of leadership in improving personalities among the international students at the University of Miskolc. According to our results, individualized consideration and intellectual stimulation of the transformational leadership dimension have the highest impact on the PhD students than the other groups, while the idealized influence attribute and inspirational motivation have the highest impact in the Master's group. Furthermore, the results show that all of the transformational dimensions, rather than the idealized influence behavior, are more prevalent in women than in men. However, the significance level of the ANOVA test for all dimensions of transformational leadership is more than 5%, so it is assumed that gender and education do not affect leadership. In the second stage: after improving the communication skills, we were very interested in how transformational leadership could be effective in the technology acceptance model (TAM) and its dimension for improving virtual communication. The outcome was very interesting. For instance, transformational leadership has a significant direct effect of 62.9% on the technology acceptance model. In contrast, transformational leadership also has an indirect effect on behavioural intention. Overall, we can conclude that transformational leadership can play a role in influencing people's inclination to use technology.

## 7. Limitation

The findings of the present study carry significant limitations and suggestions that are relevant for future research. For example, we didn't consider the impact of Emotional Intelligence for improving and developing communication skills. Emotional intelligence, according to our understanding, is the ability and skill for recognizing, motivating, and managing our feelings with others in our relationships. Therefore, emotional intelligence is highly beneficial in the areas of education, work, and mental health. According to Preeti (2013, p.9), "emotionally intelligent people are more likely to succeed in everything they undertake". Teaching and encouraging emotional intelligence and social skills are very important in educational fields, which could affect academic achievement positively. Improving these skills and abilities has also had a long-term positive effect on achievement in our successful lives. In short, emotionally intelligent students would have better academic

achievement and have better communication skills. Emotional intelligence became well known when Daniel Goleman (1995) argued that EI (also called EQ) has more value than IQ. While IQ reflects an ability in verbal, mathematical, or mechanical skills, memory is also improved, which could improve performance in an educational field very well. Goleman (1995) argued that an IQ score could not foresee a person's success and happiness in his/her life. A person's ability to use his/her emotions and identify others' emotions could better predict his/her mental and physical health in both personal and social life's success. Therefore, we recommend future researchers consider the impact of emotional intelligence on their studies. In our opinion, developing emotional intelligence could act as the main factor for successful relations, especially within cross-cultural organizations. On the other hand, the condition of COVID-19 didn't allow us to access more information and data at the University of Miskolc. Consequently, it could be better for future researchers to consider the time of their researchers as well.

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