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Formation of TPACK and Acmeological Competency of Future Teachers in Foreign Language Education

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Abstract

The aim of this study is to determine the effects of acmeological-based teaching activities in foreign language lessons on learners' foreign language self-efficacy, foreign language learning motivation and Technological Pedagogical Content Knowledge (TPACK) skills. The research was carried out in the Faculty of Foreign Languages, Department of the Theory and Practice of Foreign Languages Training of a university in Kazakhstan in the 2021-2022 academic year. The study, which was conducted with 35 students in the experimental and 35 control groups for 6 weeks, was designed according to the experimental model with the control group, which is one of the quantitative research methods. Foreign language learning self-efficacy scale, foreign language learning motivation scale and TPACK skill test were used as data collection tools in the study. According to the findings of the study, it was determined that there was a significant difference in favor of the experimental group in the post-test scores (foreign language learning self-efficacy, foreign language learning motivation and TPACK skill test scores) of the experimental group, in which activities based on the acmeological approach, and the control group, in which traditional teaching was applied.

Introduction

In the age of information and technology, which has been developing at a dizzying pace over the past few years, access to information has accelerated so much that people can now exchange information instantly. It takes a great deal of time for many people to read this information. Therefore, it has become important for students to be aware of their own skills and to seek ways to improve them, especially in the foreign language teaching process (Balci & Sünbül, 2015). In this direction, in parallel with the contemporary developments in the field of education, the necessity of studies focusing on the individual and the learning process emerges. While learning a foreign language, conscious students constantly follow their own thoughts by controlling their experiences in unexpected events (Davras & Bulgan, 2012; Smagulova et al., 2021; Zhussuparov & Kazberova, 2016). Teachers can help students develop this skill, shaping it and simply providing more to help students.

Today, scientific and technological developments in the field of education have caused radical changes in traditional education understandings. For this reason, it has become inevitable for teachers and students to improve themselves in every field (Kibici & Sarıkaya, 2021; Kılınçer, 2021; Tleuzhanova et al., 2019). It has been noticed, particularly in developed countries, that skill is crucial in the human model created by the modern world, and more importance has been attached to this issue in education systems. In recent years, people's academic self-evaluation thanks to their own insights has ceased to be the privilege of a small part of the society and has become one of the important elements of adaptation to social life. It can be said that most people prefer communication tools such as telephone, television, radio and internet, where they can reach the transmitted messages more easily, rather than just books and periodicals. It is also seen that people try to improve themselves cognitively, especially in societies where social change occurs in an unbalanced way (Russel, 1949; Şengül & Sünbül, 2015).

Learning a foreign language contributes to the development of individuals in many different ways (Tleuzhanova et al, 2021). İşcan (2012), Liu (2022), and Mrazek et al. (2022) enlist the qualities that learning a foreign language will bring to people as follows: (1) Better knowing, understanding and developing tolerance of the world and different perspectives, (2) Accelerating their cultural development. and other cultures, (3) Having critical and creative thinking skills, (4) Being able to follow the necessary terminology in the fields of literature and fine arts, (5) Gaining the ability to express themselves in a foreign language in environments where languages other than their mother tongue are spoken, (6) Developing the self-confidence, social and communication skills necessary for them to continue their education abroad, (7) Achieving outstanding achievements in higher education and further education, (8) Increasing job opportunities, (9) Following technology with the privilege of knowing a foreign language, improving leadership skills, and being able to participate in a high-level work environment, (10) Being able to take place in the global world and to be lifelong learners in international platforms.

As it can be understood from the mentioned qualities, a person who knows other cultures, is tolerant, can think creatively and critically, has a good command of the works and events all over the world, and develops lifelong learning skills will of course be successful in many subjects. As a result, the individual who learns a foreign language will be a more beneficial individual both for his/her individual development and indirectly for his/her/her country (Mrazek et al., 2022). For this reason, foreign language teaching should be supported and developed in every country. According to Chamot (2004), students are expected to be aware of their potential skills for content-based and academic activities in foreign language learning. In the language learning process, students can have the ability to reconsider their previous teaching stages and their own internal states when necessary, so that foreign language education can be applied more effectively (Chamot, 2004).

The Acmeological Approach is the exploration and use of ways to activate students' potential and desire for self-development through foreign language. The Acmeological Approach refers to the processes that monitor our ongoing thought processes and control the allocation of mental resources (Turgunbayeva et al., 2013; Zvyagintseva & Drobysheva, 2018). Understanding these processes requires one to think on two levels. Object-level processes perform basic cognitive work such as perception, recall, classification, decision making, and so on. It is clearly seen that this approach is not only a skill to be gained in foreign language lessons, but also a basic educational tool required at all levels of education.

It has been shown in many studies that acmeology, as the science of creative potential self-realization on the way to the heights of productivity, cannot bypass the problem of the development of human subjectivity. For the development of individual abilities, being the subject of various types of activity and the subject of their own life is the main criterion for their upbringing. Therefore, especially in higher education, the development of the personal professional position of the future teacher as an important outcome of education should be taken into account. While some researchers examine academic success factors including general ability, content knowledge, self-efficacy and academic achievement, it has been seen that university students consider the development of their own potential skills within the scope of general ability. Self-knowledge of students in educational environments regulates study time, thus enabling them to learn more than they are responsible for (Metcalf & Finn, 2018), which can contribute to the development of people's potential (Heyes et al, 2020). Knowing their own potential and keeping themselves open to continuous improvement provides higher self-confidence and self-efficacy in the learning process (Ku & Ho, 2010; Dent & Hoyle, 2015; Zhao et al, 2014; Young & Fry, 2012).

As a result of personal development, acmeological point of view helps the professional and moral enrichment of the individual, along with the enlargement of the individual's environment, including an increase in responsibility, sense of duty, conscience and dignity. The orientation of the personality changes, the interests expand, the system of needs changes, the motivations for success are realized, the individual's need for self-development and creativity increase. The abilities of a person in complex situations are professionally important and become acmeological invariable elements of professionalism, such as the development of personal qualities (organization, diligence, initiative, discipline, normative behavior), anticipation, self-regulation, figurative space, decision-making ability (Turgunbayeva et al., 2013; Todaka, 2017). Over time, personal potential emerges, motivations and value systems change, and it becomes more dominant in the hierarchy of motivation for self-development and professional success. As a result of the formation of a productive professional self-concept, a system of standards of professional activity and behavior is developed, psychological readiness for various activities, including complex situations, increases, experience is gained and qualifications are raised, professional competence is formed, creativity increases and the individual style of activity is developed (Kuz'mina, 2016).

Several empirical studies on students' self-development have shown that self-efficacy in learning in many areas can affect students' motivating actions such as making effort, perseverance, and seeking help through intrinsic motivation (Skaalvik et al., 2015). In addition, it was stated that students should grasp their own potential strengths in order to understand the potential mediation pathways underlying the relationship between cognitive activity and academic achievement (Alvarez et al., 2016). Self-efficacy, which stands out in social cognitive theory and is described as an important concept, is the judgment that an individual develops about his/her ability to organize well and achieve. Bandura (1997) defines self-efficacy as "individuals' judgments about how well they can perform the actions necessary to cope with possible situations". Self-efficacy perceptions are the most decisive phenomenon in matters such as how individuals think, how they behave, how they react to which situations and how they motivate themselves at every stage of their lives (Kara, 2020; Kaleli, 2021).

In the studies conducted to date, it has been clearly observed that high or low self-efficacy perceptions cause very significant differences in the behaviors of individuals. Self-efficacy is "an individual's self-perception about

his/her capacity to organize and successfully perform the necessary activities to show a certain performance” (Bandura, 1997). Self-efficacy, as a word, is the degree to which an individual feels competent for a solution in the face of a problem situation. Individuals' self-efficacy beliefs are influenced by four sources. These are full/true experiences, indirect experiences/experiences, social persuasion, and physiological and emotional state (Bandura, 1997). Self-efficacy is an extremely important concept for both teachers and students in education because a student who does not feel competent will not be able to learn, and a teacher who does not feel competent will not be able to teach. Having a high self-efficacy perception is important for learners to make decisions, organize learning, learn how to learn, motivate, and interact well (Kara, 2020). For teachers, the concept of self-efficacy emphasizes the knowledge, skills and attitudes necessary to fulfill the duties and responsibilities required by the teaching profession (Üstüner, Demirtaş, Cömert, & Özer, 2009). It has been revealed that there are behavioral differences between teachers with high and low self-efficacy levels, such as classroom organization, using new methods, and giving feedback to students with learning difficulties, which affects student motivation and success (Kibici, 2022; Yılmaz, Köseoğlu, Gerçek, & Soran, 2004).

Self-efficacy perception has a significant impact on success and performance for both teachers and learners in the learning-teaching process as well as in daily life. Self-efficacy perception can be measured in different sub-areas. For example, perception of teaching self-efficacy, perception of information technology self-efficacy, perception of internet self-efficacy, perception of foreign language self-efficacy, etc. Studies on foreign language and information technology self-efficacy perceptions of prospective teachers who will work in foreign language teaching in the future are very limited in the literature (Doğru, 2020; Kaleli, 2020; Sarıkaya, 2022; Şendoğdu & Koyuncuoğlu, 2022).

In the last two decades, researchers interested in second language acquisition have focused their attention on the cognitive aspects of language learning. Conducted studies reveal that there are significant differences among students in terms of their use of language learning strategies and their achievements at the end of the language learning process. At this point, it is seen that it is of great importance to examine the factors that lead students to approach a specific language learning task differently and cause individual differences observed even in students with similar language proficiency (Mori, 1999). It is accepted that the beliefs that students bring with them to the learning environment in the classroom environment contribute significantly to the learning process and final success (Breen, 2001). It can be said that beliefs are subjective "value-laden, clinging" (Wenden, 1999) "very powerful filters that filter the truth" (Arnold, 1999). Second and foreign language students may have strong beliefs about the structure of the language learned, language acquisition, certain language learning strategies, success and learning methods (Bernat & Gvozdenko, 2008). In recent years, researchers have intensified their studies on students' beliefs about the nature of language learning and the effectiveness of the strategies they use (Cotterall, 1995; Erlbaum, Berg, & Dodd, 1993; Grotjahn, 1991; Horowitz, 1994; Kern, 1995; Kuntz, 1996a, 1996b). As explained in the model proposed by Abraham and Vann (1987), students' beliefs guide their approach to specific learning contexts, and the approach manifests itself in observable and unobservable strategies that directly affect the degree of success in language learning. In addition, some studies have shown that student motivation is shaped by their beliefs about foreign language learning and the attitudes they develop in this regard (Gardner, 1985).

Ashworth (1985), who investigated how different communities, common interests, and professional education institutions affect students' attitudes, expectations and foreign language learning goals, on the effects of communities on second and foreign language teaching, socio-economic status of students attending foreign language courses and students' revealed that it affects the behavior of learning a foreign language, which determines the level of success. Regarding the subject, in the study conducted by Piquemal and Renaud (2006), it was revealed that university second or third year students developed a more positive attitude towards foreign language learning than first year students. The study revealed that foreign language courses at university have a significant impact on students' ability to learn foreign languages, and perceived opportunities are a more important factor in foreign language learning decisions of non-native English speakers compared to native speakers. Although first-year students in this study stated that attending classes had a significant impact on student behavior related to foreign language learning, this perceived importance was higher among upper-class students.

In other words, it can be said that while taking these courses, students realize the importance of learning a foreign language and even learning a foreign language has become a goal corresponding to the interest in a particular discipline. The conclusion from Rifkin's (2000) study is to support Piquemal and Renaud (2006). In his study on individual learning strategies and learning styles, Rifkin (2000) indicated that there is a relationship between beliefs, motivation and attitudes towards foreign language learning and education level. Motivation is derived from the English word "move", which means to move, and is expressed as the force that moves the organism. The better the determination of the needs that motivate people, the more effectively people can be motivated. The basis of his motivation is to meet the needs (Hanks, 1999). It can be said that the factors affecting motivation are perception, effort, directing towards real goals, focusing, self-efficacy and self-control (Garcia, 1995). Motivation is one of the most important factors that emphasize the effectiveness of the learning-teaching process, as it gives energy to the individual and makes him/her willing to reveal the behavior (Akbaba, 2006).

In our changing world with technology, language education has also been affected by this change (Baş, Kubiakto, & Sünbül, 2016). Nowadays, people want to learn a foreign language without going to school or a course. Foreign language teaching programs prepared on the computer do not escape the attention of young people, most notably those who are close to technology. Hearing-understanding, speaking, reading and writing activities, which are the pillars of language, are programmed in the virtual environment. Developing technology provides great opportunities for the preparation of visual and audio materials using computer technologies (Paudel, 2021; Thekes, 2021). Information and instructional technologies appear as a separate dimension in teaching English as a foreign language. In this context, it is crucial for foreign language teachers and teacher candidates to be aware of the innovations they can use with the developing technology, to be aware of what equipment they can benefit from, and to have sufficient knowledge about the use of all these in foreign language learning. In the current era, new generations are growing closely with technology, especially in foreign language education (Ng, 2012; Thekes, 2021; Toleubekova & Sarzhanova, 2016). Ng (2012) states that the new generation that grows up with technology is called "net generation" or "digital natives" and that this new generation may have differences in learning styles compared to previous generations. This situation made it necessary for teachers to add technology to their competencies (Sünbül, Gündüz & Yılmaz, 2002; Toleubekova & Sarzhanova, 2018), and thus the concept of Technological Pedagogical Content Knowledge (TPACK) emerged.

Considering the studies on TPACK in the literature, it can be said that it is mostly conducted on science and mathematics teachers and pre-service teachers. Since our sample group was primary school teacher candidates, we mostly included some studies conducted with primary school teachers and candidates. Schmidt et al. (2009) conducted a scale development study to measure the TPACK competencies of classroom teachers and claimed that the scale they developed differed from other scales in order to allow teachers to make self-evaluation in terms of TPACK development. Chai et al. (2010) found that, as a result of the study they conducted with 889 pre-service teachers, who also had participants from different departments who were studying at the master's level, they predicted the TB, AB and PB, TPACKs of the pre-service teachers statistically.

According to Mishra and Koehler (2006), TPACK is a type of knowledge that is different from the field knowledge of the field expert, the technological knowledge of the technologist and the pedagogical knowledge of a teacher and comes before these three components. In addition to their pedagogical content knowledge, TPACK teachers apply educational technologies in their classrooms effectively and efficiently, integrate technology with their teaching and subject area in order to be able to provide effective education and training (Timur & Taşar, 2011). Teachers should be able to create an effective learning-teaching environment by choosing technological materials suitable for their field knowledge and the pedagogical method they will use in their lessons, that is, they should be able to blend technological, pedagogical and content knowledge together.

According to Mishra and Koehler (2006), in today's world where technology develops rapidly and new technologies are used in the social environment every day, teachers and teacher candidates need to be able to use technology effectively in their lessons. Teachers with advanced TPACK can become aware of their students' understanding and thinking levels by presenting information using technological tools in their classrooms (Akkaya, 2009). The primary way of raising individuals who can use technology equipped with knowledge and skills is for teachers to use technology (Karakuyu, 2015). We can say that many individual differences are also effective in teacher candidates in the education and training process. It can also be said that motivation and self-efficacy will be due to individual differences that may affect the TPACK levels of primary school teacher candidates. Motivation is activating and activating the internal energy of individuals in order to direct them towards certain goals (Düren, 2000; Zhetpisbayeva et al., 2021). Motivation includes various internal and external factors and their working mechanisms that push the human organism to the behavior, determine the violence and energy level of these behaviors, give a certain direction and enable them to continue (Akbaba, 2006).

When international studies on learning-teaching processes and the use of ICT are examined, it is seen that individuals' self-efficacy perceptions and motivations are affected by different variables such as attitudes towards technology, applied teaching approach and experience. Therefore, the high motivation of teachers and teacher candidates may be one of the factors that may affect their professional competencies and TPACK levels, which is one of these competencies. For example, Vekiri and Chronaki (2008) state in their research that the students who are less self-confident in their abilities and less interested in computers avoid experiences where they can improve their computer and field proficiency.

In this context, the relationship of the experimental application based on the acmeological approach to foreign

language self-efficacy perception, foreign language learning motivation and TPACK skills was examined in the study. In this context, answers to the following questions were sought in the study:

- Do experimental applications based on the acmeological approach significantly affect the perception of foreign language self-efficacy compared to traditional teaching?
- Do experimental applications based on the acmeological approach significantly affect foreign language learning motivation compared to traditional teaching?
- Do experimental applications based on the acmeological approach significantly affect TPACK skills in a foreign language compared to traditional teaching?

Method

In accordance with the quantitative research paradigm of this research, the pretest-posttest experimental design with a control group, one of the semi-experimental models, was used. Since the students were not allowed to be randomly assigned to the groups in the university where the research was conducted, the semi-trial model was used instead of the real trial model. The symbolic view of the experimental design is given in Table 1.

Table 1. Experimental Pattern

Groups	T1	Experimental Process	T2
G1	T1, ₁₂	X (6 Weeks)	T2, ₁₂
K	T1, ₁₂	- (6 Weeks)	T2, ₁₂

G1-Experimental group

K- Control Group

T1: Pre-test

X: Experimental Process - Action Taken in the Control Group

T2: Post-test

T1,1- Pre-test Foreign Language Self-Efficacy Perception Measurement

T1,2-Pretest TPACK measurement

T1,3-Pretest Foreign Language Learning Motivation Measurement

T2,1- Post-test Foreign Language Self-Efficacy Perception Measurement

T2,2-Post-test TPACK measurement

T2,3-Post-test Foreign Language Learning Motivation Measurement

Before the research, foreign language self-efficacy perception scale, TPACK scale and foreign language learning motivation scales were applied to the experimental and control groups as a pre-test. The same measurement tools were applied to both groups as a post-test.

The following activities were carried out in the experimental and control groups in the study: Daily plans and worksheets were prepared to be used in the research from the English course and source books in the 2nd grades of the Department of Foreign Languages. Before starting the research, 2 class hours of warm-up activities were

carried out in order to accustom the subjects in the experimental group to activities based on the acmeological approach. In the experimental processes of the study, teaching on the basis of acmeological approach was used in the experimental group, and traditional teaching was applied on the basis of the existing program in the control group. In the experimental group, as a teaching practice based on the acmeological approach: Introductory activities, collaborative learning, Writing Learning Articles, Feedback-correction, Participating in Reflective Daily Discussions, Collaborative Learning activities were carried out. These events are as follows:

Introductory activities: The lesson starts with visual stimuli, video presentations, on-line interactions, case studies and interesting information in order to attract students' attention to the teaching process, subject and activities on the basis of the acmeological approach, to arouse curiosity and motivate them.

Collaborative Learning: Collaborative learning is the participation of students in decisions about the learning process. Students have signed a contract to take responsibility for their own learning. This stage was implemented individually and in groups. When students put their contracts into practice, they worked at different speeds, levels and tasks, focused on common goals, and tried to develop their independent learning and thinking skills.

Writing Learning Papers: On the basis of the acmeological approach, students write diaries in which they have recorded their personal reactions, questions, feelings, changing views, thoughts, learning processes and information about the content of learning English.

Feedback–correction: The instructor offers guidance on the activities in the course and the level reached by the students and gives them feedback.

Reflective Journaling: It was ensured that the students kept reflective diaries of the application processes on the acmeological basis. Through reflective diaries, students reflected on their own learning processes, such as What they learned?, Why they should learn? and How they learned? by establishing relationships between English learning theory and practice.

Participating in Group Discussions: At this stage, the students in the experimental group carried out reflective discussions on the basis of the acmeological approach. Discussions were held in English. In these discussions, students were encouraged to make constructive criticisms about each other's performances, correct each other's mistakes, and reinforce the activities they did right.

The current curriculum of the course was applied in the control group. In the experimental and control groups, the same subjects and achievements were carried out in equal time. As a final test for all groups, foreign language self-efficacy perception scale, TPACK scale and foreign language learning motivation scales were applied.

Participants

The study was carried out in the Faculty of Foreign Languages, Department of the Theory and Practice of Foreign Languages Training of a university in Kazakhstan in the 2021-2022 academic year. Factors such as the permission of the administrators of this university to research, the suitability of the faculty, department and classroom environment for the experimental practice, the equal socio-economic status of the university students, and their willingness to research were effective in the selection of the groups in the research process. In order to determine the experimental and control groups of the research, attention was paid to the general academic success of the students studying in all branches of the department in the previous academic year, their scores in the English exams and the distribution of the classes according to the gender variable. In terms of all these variables, two English branches, each consisting of 35 students, were determined for the applications in the quantitative methods of the research. These two branches were then assigned as the experimental and control groups by lottery. The distribution of the experimental and control groups according to the pre-test scores of the research is shown below.

In Table 2, the results of the t test performed on the pre-test foreign language self-efficacy levels of the students in the experimental group, in which acmeology-based learning activities were applied, and in the control group, in which traditional instruction was applied, are shown. According to the analysis, at value of 1.247 was calculated between the pre-test mean scores of the two groups. According to this finding, there is no significant difference between the foreign language self-efficacy scores of the experimental and control groups. Before the experimental procedures of the research, the students in the experimental and control groups had an equivalent level in the English self-efficacy scale.

Table 2. Comparison of Pre-test Foreign Language Self-Efficacy Perception Scores of Experimental and Control Group Students

	Group	N	Mean	Std. Deviation	t	p
Foreign Language	Experimental	35	3.58	0.53	1.247	0.217
Self-Efficacy Pre-test	Control	35	3.45	0.34		

Table 3 shows the t-test results of the pre-test TPACK skills of the students in the experimental group, to whom acmeology-based learning activities were applied, and of the control group students who were given traditional instruction. According to the analysis, the pre-test TC mean score of the two groups was 0.165; the mean score of PK was 0.298; CK mean score was 1.22; TPK mean score of 0.150; 0.011 in WCK score averages; t values were calculated as 0.528 in PCK mean scores and 0.758 in TPACK mean scores. According to this finding, there is no significant difference between the TCPK scores of the experimental and control groups. Before the experimental procedures of the research, the students in the experimental and control groups had an equivalent level of proficiency in the TPACK scale.

Table 3. Comparison of Pre-test TPACK Scores of Students in Experimental and Control Groups

TPACK Pre-Test	Group	N	Mean	Std. Deviation	t	p
Technological Knowledge	Experimental	36	2.76	0.23	-0.165	0.869
	Control	35	2.76	0.23		
Pedagogical Knowledge	Experimental	36	3.66	0.79	0.298	0.767
	Control	35	3.61	0.69		
Content Knowledge	Experimental	36	3.64	0.34	-1.220	0.226
	Control	35	3.79	0.63		
Technological pedagogical knowledge	Experimental	36	2.57	0.35	0.150	0.881
	Control	35	2.56	0.34		
Technological content knowledge	Experimental	36	2.77	0.30	-0.011	0.994
	Control	35	2.77	0.36		
Pedagogical content knowledge	Experimental	36	2.23	0.35	-0.528	0.599
	Control	35	2.27	0.27		
Technological pedagogical content knowledge	Experimental	36	1.96	0.12	-0.758	0.451
	Control	35	1.99	0.23		

Table 4 shows the results of the t-test performed on the pre-test foreign language learning motivations of the students in the experimental group, to whom acmeology-based learning activities were applied, and of the control group students who were given traditional instruction.

Table 4. Comparison of Pre-test Foreign Language Learning Motivation Scores of Participants in Experimental and Control Groups

Foreign Language Learning						
Motivation Pre-test	Group	N	Mean	Std. Deviation	t	p
Instrumental Motivation	Experimental	35	4.03	0.74	0.469	0.641
	Control	35	3.96	0.52		
Integrative Motivation	Experimental	35	3.41	0.55	-1.656	0.102
	Control	35	3.63	0.53		
Intrinsic Motivation	Experimental	35	3.69	0.80	0.082	0.935
	Control	35	3.67	0.66		
Extrinsic Motivation	Experimental	35	3.66	0.83	0.890	0.910
	Control	35	3.76	0.51		
Total Motivation	Experimental	35	3.70	0.64	-0.370	0.788
	Control	35	3.75	0.30		

According to the analysis, the pre-test instrumental motivation mean score of the two groups was 1.469; 1.656 in integrative motivation scores; intrinsic motivation scores were 0.082; 0.89 t values were calculated in extrinsic motivation scores and 0.37 t values in the pretest total foreign language motivation score averages. According to

this finding, there is no significant difference between the pretest foreign language learning motivation scores of the experimental and control groups. Before the experimental procedures of the research, the students in the experimental and control groups have the same motivation to learn English.

Data Collection Tools

Foreign Language Self-efficacy Perception scale, TPACK scale and Foreign Language learning Motivation scales were used to collect research data.

Foreign Language Learning Motivation Scale (FLLMS)

In the study, the Foreign Language Learning Motivation Scale developed by Griffiths and Özgür (2013, pp. 1109-1114) to measure the motivation level in foreign language learning environments was used to collect data on the participants' foreign language learning motivation levels. The scale is 8-item five-point Likert type. The sub-dimensions of the scale are instrumental motivation, integrative motivation, intrinsic motivation and extrinsic motivation. Each sub-dimension consists of 2 items. The score that can be obtained from the scale is a minimum of 8 and a maximum of 40. A high score obtained from the scale means that the level of foreign language motivation is also high. The Cronbach Alpha coefficient was calculated as .75 for the entire scale. Within the scope of this research, Cronbach Alpha and McDonalds Omega coefficient were also calculated for the reliability analysis of the FLLMS. The Cronbach Alpha coefficient of the scale was determined as .67 and the McDonalds Omega coefficient as .68. These values show that the scale reliability is sufficient.

The self-efficacy perception scale for foreign language lessons developed by Yanar (2008) was also used in the study. The scale consists of 34 items. The scale is likert-type 5 degrees. Questions; It includes "5 Completely Agree", "4 I Agree", "3 I Partially Agree", "2 I Disagree", "1 I Disagree At All" and the options are scored from positive to negative. The scale consists of 'Reading', 'Writing', 'Listening' and 'Speaking' consists of 4 sub-dimensions in English learning. The Cronbach reliability coefficient in the original study was calculated as .97. In this study, the reliability coefficient was calculated as .94 for the foreign language self-efficacy scale. It was determined that the reliability of the foreign language self-efficacy scale was high.

Technological Pedagogical Content Knowledge (TPACK) Scale

In the study, the scale developed by Şahin (2011) was used to measure the TPACK skills of the participating students. "Technological Pedagogical Content Knowledge (TPACK) Scale" developed by Şahin (2011) consists of 47 items and 7 sub-dimensions (1. Technological Knowledge, 2. Pedagogical Knowledge, 3. Field Knowledge, 4. Technological Pedagogical Knowledge, 5. Technological Content Knowledge, 6. Pedagogical Content Knowledge and 7. Technological Pedagogical Content Knowledge). Participants score each item in the scale from 1 to 5 (1: I do not know at all, 2: I know very little, 3: I know moderately, 4: I know well, and 5: I know very well).

It was observed that the Cronbach Alpha reliability coefficients for the sub-dimensions of the scale ranged from .85 to .91. Therefore, it was concluded that the developed scale could make a reliable measurement. According to the data obtained from this study, the Cronbach Alpha reliability coefficient of the TPACK scale was found to be .96 for the whole scale. It was determined that the Cronbach Alpha reliability coefficients for the sub-dimensions of the scale ranged from .83 to .94.

Data Analysis

Before analyzing the research data, it was tested whether it met the assumptions of normal distribution (Yurt, 2011). According to the analysis performed with the Shapiro Wilk test, the data obtained from the foreign language self-efficacy perception scale, TPACK scale and foreign language learning motivation scales applied in the research show normal distribution. For this reason, parametric statistical techniques were used in the analysis of the research data. In this context, Independent Samples t-test techniques were used to compare the scores of the experimental and control groups' foreign language self-efficacy perception scale, TPACK scale and foreign language learning motivation scales.

Findings

In Table 5, the results of the t-test performed on the post-test foreign language self-efficacy levels of the students in the experimental group to whom acmeology-based learning activities were applied and the control group students who were given traditional teaching applications are shown. According to the analysis, t value of 3,296 was calculated between the post-test self-efficacy mean scores of the two groups. According to this finding, a significant difference was found between the foreign language self-efficacy scores of the experimental and control groups ($p < 0.05$). After the experimental procedures of the research, the students in the experimental group, who were applied acmeology-based learning activities, achieved higher self-efficacy levels than the students in the control group, which was applied traditional teaching.

Table 5. Comparison of Post-test Foreign Language Self-Efficacy Perception Scores of Participants in the Experimental and Control Groups

	Group	N	Mean	Std. Deviation	t	p
Foreign Language Self-Efficacy Posttest	Experimental	35	4.16	0.40	3.296	0.002
	Control	35	3.88	0.29		

Table 6 shows the results of the t-test performed on the post-test TPACK levels of the students in the experimental group, to whom acmeology-based learning activities were applied, and of the control group students, who received traditional instruction. According to the analysis, no significant difference was found in the post-test PK scores of the two groups. However, a significant difference was found between the mean scores of TK, CK TPK, WCK, PCK, TPCK and total TPACK ($p < 0.05$). After the experimental procedures of the study, the students in the experimental group, who were applied acmeology-based learning activities, obtained higher post-test TPACK skills than the students in the control group, which was applied traditional teaching.

Table 6. Comparison of Post-test TPACK Scores of Participants in Experimental and Control Groups

TPACK Post-test		N	Mean	Std.		t	p
				Deviation			
Technological Knowledge	Experimental	35	3.24	0.28		4.314	0.000
	Control	35	2.81	0.21			
Pedagogical Knowledge	Experimental	36	3.88	0.45		1.602	0.114
	Control	35	3.70	0.47			
Content Knowledge	Experimental	35	4.26	0.44		3.040	0.003
	Control	35	3.86	0.66			
Technological Pedagogical Knowledge	Experimental	35	3.40	0.85		4.045	0.000
	Control	35	2.69	0.34			
Technological Content Knowledge	Experimental	35	3.40	0.65		3.734	0.000
	Control	35	2.86	0.34			
Pedagogical Content Knowledge	Experimental	35	3.37	0.54		2.668	0.017
	Control	35	2.99	0.39			
Technological Pedagogical Content Knowledge	Experimental	35	3.11	0.55		3.283	0.000
	Control	35	2.60	0.12			

Table 7 shows the results of the t-test on the post-test foreign language learning motivations of the experimental group and the control group students, to whom acmeology-based learning activities were applied. According to the analysis, a significant difference was found in the post-test foreign language learning motivation mean scores of the two groups ($p < 0.05$). After the experimental procedures of the research, the students in the experimental group, who were applied acmeology-based learning activities, obtained higher foreign language learning motivation in the post-test than the students in the control group, who was applied traditional teaching.

Table 7. Comparison of Post-test Foreign Language Learning Motivation Scores of Participants in Experimental and Control Groups

Group		N	Mean	Std.		t	p
				Deviation			
Instrumental Motivation	Experimental	35	4.41	0.68		4.449	0.000
	Control	35	3.84	0.34			
Integrative Motivation	Experimental	35	4.51	0.61		5.662	0.000
	Control	35	3.86	0.31			
Intrinsic Motivation	Experimental	35	4.53	0.57		6.132	0.000
	Control	35	3.77	0.46			
Extrinsic Motivation	Experimental	35	4.59	0.58		6.710	0.000
	Control	35	3.86	0.29			
Total Motivation	Experimental	35	4.51	0.49		7.364	0.000
	Control	35	3.83	0.23			

Discussion and Conclusion

Significant results were obtained in the study, which examined the effects of experimental applications based on the acmeological approach on foreign language learning motivation, foreign language self-efficacy and technology proficiency compared to traditional teaching. According to the findings of the study, the atmosphere-based teaching approach applied in the experimental group led the students to obtain higher foreign language learning motivation compared to traditional teaching. Students in the experimental group had a significantly higher foreign language learning motivation than those in the control group. These findings are similar to the findings of studies conducted by Kirichenko (2020), Kumral (2002), Turgunbayeva et al. (2013), Zvyagintseva and Drobysheva (2018). According to Kumral (2002), when the source of the motivation problem in language learning is not seen personally, the "reflection" defense mechanism comes into play. The fact that there are positive examples of language learning in the same environment suggests that one of the sources of the problem is related to personal motivation. This situation can be associated with the intrinsic motivation levels of individuals. Low intrinsic motivation may affect the quality of language learning. In this respect, reflection activities and activities related to the importance of language in the experimental group positively affected the motivation of the students for language learning on an inquiry basis. According to Li (2006), student motivation is accepted as one of the most important prerequisites for successful learning. Most of the studies on this subject have focused on the role of students' attitudes towards the society and culture in which the target language is used. For the students learning English in the experimental group, where the integrative and rich opportunities for use were presented on the basis of the acmeological approach, understanding how to motivate the student in the English lesson and maintaining this continuously provided a more effective and more enjoyable learning environment for everyone involved in the process.

Another finding of the research is about the effects of acmeology-based teaching approach on foreigner self-efficacy of students. According to the analysis, the participants in the experimental group achieved significantly higher foreign learning self-efficacy scores than those in the control group. These findings are similar to the findings of studies conducted by Anyadubalu, (2010), Ghonsooly and Elahi (2010), Jain, Apple and Ellis (2015), Todaka (2017). The self-efficacy perception of the individual in language skills is associated with self-efficacy belief, and the self-efficacy belief for foreign language learning is related to the quality of activities related to language skills such as reading, speaking, listening and writing rather than the quantity of information about this language (Büyükduman, 2006). One of the most important goals of the acmeologically based learning approach is to increase the self-confidence and self-efficacy of learners in learning foreign languages. It is seen that self-efficacy beliefs have direct and indirect effects on different aspects of language learning. Nasa (2014) explains academic self-efficacy as the ability to organize, execute and regulate action in order to achieve performance. Acmeologically-based foreign language teaching includes many direct and indirect activities for students to achieve high performance. Especially in experimental applications, goal setting, planning, commitment and participation in group activities positively affected the foreign language learning self-efficacy of the participants.

Another finding of the study is about the effects of acmeology-based teaching approach on students' foreign language TPACK skills. According to the analysis, the participants in the experimental group achieved

significantly higher TPACK skills than those in the control group. These findings are similar to the findings of studies conducted by Cavin (2008), Jang and Chen (2014), and Liwei (2016). As demonstrated by Jang and Chen (2010), TPACK skills focus on how to integrate the pattern between pedagogy, content and technology into second/foreign language learning. The students in the experimental group increased their TPACK skills on the one hand and their foreign language acquisition on the other hand, by including innovation and technology in their training rehearsals. According to Tuncer and Bahadır (2016), Technological Pedagogical Knowledge (TBP) is essential for teachers to gain self-confidence about how they can change the learning and teaching process through certain technologies. It is one of the important aims of the acmeological approach.

During the research process, the same instructor attended the lessons of both the experimental and control groups. According to both the findings of the research and the observations of the researcher, the students' self-efficacy, motivation, TPACK skills, attitudes and behaviors were positively affected in the experimental applications based on the acmeological approach. For this reason, it is recommended to give seminars to foreign language teacher candidates and teachers for the active use of the acmeological approach in foreign language teaching. In addition, testing the changes that will occur in the cognitive and affective learning products and skills of students in English lessons, based on the acmeological approach, will make significant contributions to the field.

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