



## Effect of Web-Based Problem Based Learning on School Administrators' Self-Efficacy Beliefs and Attitudes Towards Principals' Profession

Songül Karabatak <sup>1</sup>, Muhammed Turhan <sup>2</sup>

### Abstract

The purpose of this research is to determine the effect of a web-based problem based school administrator training program (WB-PBSAT) on participants' self-efficacy beliefs and attitudes towards principals' profession. For this aim, mixed approach combining quantitative and qualitative research approach was used in this study. The quantitative dimension was carried out with the experimental model. The focus group interviews were conducted in the qualitative dimension. An experimental group and a control group were used. Participants of the experimental and the control groups were determined by purposive sampling. According to the findings, WB-PBSAT process was significantly and positively affected participants' attitudes towards general and professional self-efficacy beliefs and principals' profession. This result shows that the administrator training model used has the potential to make significant contributions in the professional development of school administrators.

### Keywords

School administrator training  
Web based learning  
Problem based learning  
Self-efficacy belief  
Attitude toward principals' profession

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### Introduction

Although case studies are commonly used in management training programs, the fact that the connection between theory and practice could not be established effectively is still criticized (Hallinger & Lu, 2011). Various criticisms are made regarding the fact that traditional school administrator training programs are theory-oriented courses in which the known theories and how these theories will be used by the participants-for themselves- are taught (Cardno & Piggot-Irvine, 1996). In line with these criticisms, as of the mid-1980s, there was a shift from teacher-centered approaches to student-centered approaches in training programs (McCarthy, 1999), and approaches in which inductive and problem-based strategies that are supplied by adult learning theories and school facts are used began to be recommended (McCarthy, 1999; Copland, 2000). In recent times, the popularity of problem-based learning (PBL) has gradually increased by the facts that the information used in professional practice has gradually become important and by realizing that daily life is not an academic discipline or theory.

PBL is a learning approach that allows person to play an active role for the solution of the problem on an individual basis or within the group and to find the answer in the problem by taking a problem as a starting point of teaching (Tanner, Keedy, & Galis, 1995; Copland, 2000). In particular, the idea that learning occurs in practical situations has led to the fact that the idea of directing learners towards practical and problem-oriented activities has come to the forefront. The fact that the difficulties

<sup>1</sup> Firat University, Directorate of Computing, Department of Informatics, Turkey, [s\\_halici@hotmail.com](mailto:s_halici@hotmail.com)

<sup>2</sup> Firat University, Faculty of Education, Department of Educational Administration, Supervision, Planning and Economics, Turkey, [muhammedturhan66@gmail.com](mailto:muhammedturhan66@gmail.com)

of associating theory with application in social life and working areas (generally in the social sciences) have gradually increased has made the idea that PBL can be effectively used in these areas widespread. Because theory is more likely to occur after application, and the information obtained is the integrated information (Jarvis, 2004, p. 171).

Along with the slogan of "stimulate school administrators", PBL approach has just entered into the field of educational administration in comparison with the other fields (Hallinger & Bridges, 2007, p. 6). PBL is frequently used as an adult education approach in the fields of organizational development and management in developed countries and is the basic assumption of the dimension of tendency to learn of the practical adult education (Knowles, Holton III, & Swanson, 2005, p. 4). Because determining the needs of the learner before starting learning activity in PBL (Kesim, 2009), resorting to the opinions and ideas of the learners in the learning process and revealing what is desired to teach as a problem are essential (Akin, 2010). With these aspects, PBL is an adult education approach which is frequently used and recommended in the training of school administrators (Bridges, 1992; Tanner et al., 1995; Copland, 1999; Jarvis, 2004; Smith, 2005).

In the light of the studies suggesting that PBL increases adult learners' academic success, analytical thinking skills, creativity and critical thinking skills (Venkatraman & Krishnamurthy, 2008; Akin, 2010), it can be said that it has a potential to allow school administrators (and candidates) to be acquainted with the possible problems they will encounter in the future in advance and to be informed about these problems. In addition, PBL can also foster administrators' skills by applying acquired information to this problem. Along with its strengths such as developing learners' problem-solving skills, solution implementation skills, leadership skills that facilitate collaboration, emotional capacities and self-directed learning skills, PBL can offer solutions to various problems encountered in theoretical-based administrator training programs. However, it would be useful to support PBL by innovative methods - including educational environments, processes and tools- in order to increase its effectiveness in administrator training programs. Web-based learning (WBL), one of these methods, will provide a more flexible, more fun and more autonomous environment for school administrators in training programs.

WBL is another learning method which is consistent with the adult education tradition because it allows people to plan their own learning processes, thus address individuals' self-directed learning requests and ensure their participation in learning under conditions they want and whenever they want-like problem based learning-. In addition, a well-structured technological education allows adults to transform their previous experiences into appropriate learning experiences and to adapt what they have learned to real-world problems (Knowles et al., 2005, pp. 236-238).

Although WBL has been for different purposes in many fields in recent years, it has also been used frequently for the professional developments of employees. The number of schools which is increasing day by day, increasing workload of school administrators and the absence of compulsory attendance in graduate programs can limit school administrators' professional development efforts (Kesim, 2009). Perhaps, the most important and best feature of WBL, which is a different perspective of learning, is the fact that it can offer solutions to these problems and offer training and professional development needed by individuals who do not go away from the place of duty and who have special needs or family responsibilities (MacDonald, Stodel, Farres, Breithaupt, & Gabriel, 2001; Macdonald & Poniatowska, 2011). Because the effectiveness of each training activity to be organized is related to individual's conformity to physiological, psychological and social characteristics (Yazar, 2012).

#### *Self-efficacy Beliefs of School Administrators*

Although school administration is enjoyable, it is a difficult and complex profession in which heavy responsibilities, information complexity, emotional stress and burnout are frequently experienced (Friedman, 2002, p. 229; Babaođlan, 2006; Ađıkalin, Őiřman, & Turan, 2011, p. 93). For an effective school outcome, deep professional knowledge, some skills, beliefs and dispositions are required about how to act. According to social cognitive theory, self-efficacy beliefs of school administrators are at the centre of this set of skills specified (Tschannen-Moran & Gareis, 2007).

Self-efficacy is a motivation theory put forward by Albert Bandura. It has an important role in social learning theory as it directly affects both actions and the other determinants of the action (Bandura, 2001). Self-efficacy is not related to how talented the individual is but to how much he/she believes in his/her own abilities, and these beliefs affect his/her behavior and performance (Okutan & Kahveci, 2012). It is individual's own judgment regarding his/her capacity to plan and fulfill the action sequence which is required to reach a certain performance. For this reason, self-efficacy beliefs further appear in professions related to the private sphere (Çapri & Çelikkaleli, 2008). For instance, the fact that a school administrator organizes activities, which are necessary to realize a certain performance, and performs self-assessment regarding his/her capacity to implement them successfully is the self-efficacy belief of the school administrator (Bandura, 1977, 1986, 1997).

Self-efficacy is claimed to be effective on the performance of employees because it is possible to change or develop it and it is related to person's individual efficacy. This belief which can be developed by various administrative practices is the self-belief system with an important place in positive organizational behavior approaches (Türkmen, 2009). According to Bandura (1997), people with high self-efficacy beliefs do not run away from the experiences that they have newly encountered and with which they have to struggle and behave quite determinedly to complete their action successfully. Individuals with low self-efficacy beliefs further have the feelings of tension, stress and discontent compared to individuals who have strong self-efficacy beliefs in the stage of fulfilling certain duties.

According to Bandura (1977), there are four basic sources of experience improving the self-efficacy belief: *expertise experiences, indirect experience, verbal persuasion and physiological stimulus*. The expertise experience is the most important source of experience. Because real experiences are powerful source of effect for self-efficacy, and each renewed success increases the person's efficacy perception. Self-efficacy is an important motivation element affecting a range of behavioral and performance results, and the experiences of successes and failures which were previously experienced by a person produce that person's overall self-efficacy beliefs (Chen, Gully, & Eden, 2004; Smith, Kass, Rotunda, & Schneider, 2006; Aypay, 2010). The indirect experience from sources refers to the fact that the person increases his own self-belief by observing the others. The verbal persuasion is to persuade individuals verbally in order for them to exhibit the desired behaviors. It is a preferred technique because of its simplicity and accessibility. According to Tschannen-Moran and Gareis (2005), verbal persuasion comes into question as a source of self-efficacy in the growth process. In physiological stimulus, the emotional state of the individual is important. It is the individuals' feelings of efficacy for themselves regarding any action they will perform in stressful and challenging or exciting and enthusiastic emotional states. It can be argued that correcting individuals' physical conditions and reducing their stress create a more favorable judgment on their own performance (Bandura, 1977; Hoy & Miskel, 2010; Zimmerman, 2000).

The self-efficacy belief can be improved by training programs, and training programs laying emphasis on the development of self-efficacy beliefs of school administrators are always more effective (Darling-Hammond, LaPointe, Meyerson, Orr, & Cohen, 2007; Versland, 2009). According to Versland (2013), the mastership experiences of school administrators can develop after learning certain theories and after these theories are applied to various case studies and problem-based learning tasks. Indirect experience can be built by the fact that students (school administrator candidates) become acquainted with effective school leaders who discuss how they are successful in school improvement initiatives, serve as a model and demonstrate, and learn from them. The verbal persuasion can be possible by the encouragement of school administrators who have just started working by inspectors about dealing with various difficulties by providing them with learning experiences. The physiological stimulus can develop when school administrators -during trainings- realize that they are dealing with the feelings of stress and inadequacy, and their self-belief increases to be successful school leaders.

The employees who perceive themselves significantly effective are more likely to show sustainable effort in order to get successful results. Similarly, the facts that an employee who feels himself inadequate about doing a job does not perform the job properly or quit the job completely are possible situations (Aydın, 2013, p. 196). Therefore, self-efficacy is the belief that enables us to

understand how overall personality traits affect job performance (Alessandri, Borgogni, Schaufeli, Caprara, & Consiglio, 2014), and it is associated with different variables. For instance, while there is a positive relationship between the self-efficacy feeling of a school administrator and his/her integration with the profession (Tschannen-Moran & Gareis, 2005; Federici & Skaalvik, 2011), business continuity, effort, resistance against obstacles and professional performance (Federici & Skaalvik, 2011) motivation and job satisfaction (Federici & Skaalvik, 2012; Federici, 2013), there is a negative relationship between burnout and desire to leave the job (Federici & Skaalvik, 2012).

It has been demonstrated empirically in some studies that the self-efficacy belief is associated with professional commitment (Bakker, 2011) and exhibiting better job performance. Regarding these studies, in the study carried out by Winter, Rinehart, and Munoz (2002) it appeared that school administrator candidates' self-perceptions on their professional skills-eagerness- is the strongest determinant in applying for school administration by pointing out the importance of the training programs in the development of school administrator candidates' professional skills and self-efficacy beliefs. Virga (2012) stated that school administrators with high self-efficacy set high targets both for themselves and their employees and affect employees' motivations and professional commitments. In a study carried out by Alessandri et al. (2014), it was stated that a strong feeling of efficacy is an important motivation factor in maintaining the efforts and ensuring efficacy to achieve and objective, and poor efficacy endangers the transformation of efforts into success.

The school administrators with high self-efficacy believe that they can positively affect students' achievements or increase the significance of academic learning at school. A school administrator becomes more effective and successful when he/she believes what he/she can do while creating effective school, high student success, safe and orderly learning environment and positive school climate. In this context, self-efficacy represents the expectation of reaching certain performance levels (Hoy & Miskel, 2010; Virga, 2012).

The role of self efficacy beliefs is also versatile in effective leadership (Tschannen-Moran & Gareis, 2005). For instance, a strong feeling of efficacy allows for the development of functional leadership strategies masterly execution of these strategies (McCormick, 2001), provides significant effects in keeping teacher at the school and in creating positive school climate (Dahlkamp, 2013), affects school administrator's analytical strategies, direction setting and organizational performance (Wood & Bandura, 1989; Paglis & Green, 2002), enables to continue persistent efforts required in achieving organizational objectives (Wood & Bandura, 1989). Furthermore, the perceived self-efficacy beliefs of a leader are effective both on the performance abilities and attitudes of the subordinates and in ensuring their commitment to job and overcoming their resistance against change (Luthans & Peterson, 2002).

#### ***School Administrators' Attitudes towards Profession***

*Attitude* is defined as individual's stance developed against an object or phenomenon (Başaran, 2008, p. 169) or individual's tendency to think or act positively or negatively on objects, people or events (Langton & Robbins, 2005; Kondalkar, 2007, p. 51). The attitude towards profession can be defined as an adult's conscious, consistent and strong tendency in terms of accepting or rejecting the profession or tendency to perform or not to perform that profession (Başaran, 2008, p. 170). Therefore, the attitude towards profession has cognitive, affective and behavioral components (Kondalkar, 2007, p. 86). The attitudes and perceptions towards profession are important factors affecting employees' professional efficacy perceptions and success in the profession (Terzi & Tezci, 2007). In other words, positive attitude towards profession is one of the requirements for the people who will perform a profession to fulfill the requirements of the profession more effectively. Because a person's attitude towards profession is an important factor affecting his/her business behavior and performance in an organization (Kondalkar, 2007, p. 83). In addition, the attitude of an individual also affects the others and causes others to develop different attitudes. This attitude cycle manifests itself as positive or negative behaviors within the organization (Morgil, Seçken, & Yücel, 2004), therefore the attitude of a person can be specified as an important mood for the organization.

A person may have thousands of attitudes, but few attitudes towards profession are mentioned within the context of organizational behavior. *Job satisfaction, professional commitment and organizational commitment* are stated as the attitudes towards profession (Robbins, 1994; Langton & Robbins, 2005; Kondalkar, 2007, p. 87). *Job satisfaction* refers to individual's general attitude towards his/her job. There are positive serious relationships between job satisfaction and individual productivity, and between organizational productivity, organizational citizenship behavior and customer satisfaction. An employee's job dissatisfaction manifests itself as *leaving the job, utterance, commitment and indifference against job*. While leaving (for instance, looking for a new job or resignation) and indifference (for instance, (chronic absenteeism and delays, reduced effort and increased failure rate) are destructive attitudes, utterance and commitment are constructive attitudes taken by the individual to tolerate unpleasant situations and improve working conditions (Langton & Robbins, 2005).

The *organizational commitment*, one of the attitudes towards profession, refers to the fact that an employee considers himself/herself as a part of the organization and its objectives, his/her desire to work for the organization and remain within the organization. Namely, it is a concept used to express that person's overall attitude towards organization. According to studies carried out organizational commitment, positive attitude is a positive factor in the performance of an employee (Özkaya, Kocakoç, & Karaa, 2006). The organizational values and individual values are consistent with each other. Individuals who properly understand the business requirements and the values of the organization arrange their businesses better, and their job satisfaction and organizational commitment levels increase. In addition, the values shared between employee and organization lead to a more positive attitude towards profession, less capital requirement and more productivity (Langton & Robbins, 2005).

*Professional commitment* is defined as individual's identification with the profession and as individual's devotion to the profession (Özdevecioğlu & Aktaş, 2007). In some studies (Mathieu & Zajac, 1990; Lee, Carswell, & Allen, 2000), it was suggested that there is a positive relationship between professional commitment and organizational commitment (Kim & Mueller, 2011). Professional commitment is mainly related to an employee's commitment to professional career. Unlike organizational commitment, professional commitment refers to the fact that an individual perceives the importance of his/her profession in his/her life and how centralized place it has as a result of the studies he/she has carried out to gain skills and expertise in a particular field (Özdevecioğlu & Aktaş, 2007)

#### ***Can Problem Based Training Programs Affect School Administrators' Self-efficacy Beliefs and Attitudes towards Profession?***

Effective school leadership requires certain knowledge and skills related to technical, human and conceptual competencies. These knowledge and skills can only be obtained through learning (Yıldırım & Aslan, 2008), and school administrators gain these competencies and realize their professional requirements through training programs. The most basic and important objective of training programs is to improve school administrators' behaviors in professional life by means of the knowledge, emotions and skills to be gained, to make them more effective (Üstüner, 2006) and to gain the desired attitude towards school (Başaran, 2008, pp. 179-181). Educational programs are expected to develop the feeling of confidence of the participants -from psychological and sociological aspects, to increase job satisfaction, to raise the moral, to motivate, to facilitate adaptation, to make feel valued and to improve individual satisfaction (Ünsal, Kaplan, & Ertürkmen, 2012). That is to say, training programs should be able to raise school leaders who will experience success in their professional career (Abusham, 2010). In short, a training program should be able to develop the self efficacy beliefs of school administrators.

Self-efficacy belief is moving and is learned by various experiences. It may change in time as new experiences and new knowledge are gained (Hoy & Miskel, 2010). In this context, according to Tschannen-Moran and Gareis (2005), a quality and useful training program make significant contributions on the self efficacy beliefs of school administrators. According to researchers there is a strong relationship between training quality and the programs' degree of benefit. When both of them are included into a regression equation, it is seen that the programs' degree of benefit makes

contribution as an independent variable explaining the self-efficacy belief of a school administrator. This situation can be explained by the fact that the theories acquired in the program process lead school administrators to have stronger self-efficacy beliefs. However, those who apply what they have learned can get the highest benefit from the programs and can further develop their competencies.

In particular, the improved sense of self-efficacy on school leadership enables better management of the change process and creates a positive influence on students (Urton, Wilbert, & Hennemann, 2014). According to Owens and Valesky (2010, p. 298), school administrator should benefit from the self-efficacy theory for the successful implementation of the organizational change. Therefore, school administrators should primarily be trained. It is necessary to make school administrators gain the knowledge, skills, attitudes and behaviors required by the job.

In training processes, it is necessary to include practises-required by their jobs- and to use learning by doing-experience and gaining experience methods for individuals or groups to succeed in their profession. Because the experiences gained by *expertise experience* (learning by doing and experiencing method) are the most accurate and real source of information related to self-efficacy as it is based on the real mastery experiences of a person. Besides, it is necessary to examine and observe the examples of successful practices of others in a part of the educational process. Because *indirect experience* is an observational experience, and school administrators learn by following and imagining what other school administrators do. Individuals are encouraged by providing positive feedbacks during trainings, in other words by verbal persuasion (Aydın, 2013, pp. 194-196).

In the PBL approach, individuals gain experience on the problems that they will encounter in the future and benefit from the experiences of the group members because an attempt to address and solve the complex problems that may be encountered in real life is made (Tekedere, 2009). In this context, in a training process in which PBL is used, it is ensured that a school administrator observes the solution of a problem and the school administrator who observes believes that he/she can solve the problem. School administrators can more expertly solve the problems when they encounter with similar problems for which they found solutions in the training process in the organizational life.

According to Hallinger and Bridges (2007, p. 4-8), traditional administrator training programs assumptions and PBL assumptions are separated from each other with sharp lines. According to traditional assumptions, teaching is considered as the transmission of knowledge, and learning is considered as the acquisition of this knowledge. Therefore, the knowledge to be gained in traditional programs is related to future professional roles of learners, and the new knowledge acquired is acceptable -by learners- when a suitable condition emerges to use. The application of this information is relatively simple and comprehensible. In addition, it is very difficult or impossible to use or remember the information obtained later. According to PBL assumptions, knowledge and ability to use the knowledge have equal importance. Therefore, learning is more functional. In this method, it is assumed that each learning experience of learners constitutes the knowledge. In PBL, it is much more possible that learners acquire new information. Because prior information of the individual is important and new knowledge is built on the existing knowledge in PBL. Learners are offered numerous opportunities to apply this information, and new information is then easily adapted to a different situation. In this context, according to researchers, PBL enables school administrator candidates to become acquainted with the potential problems they may face in the future in advance and thus to have background information about these problems that may have important effects. PBL improves school administrators' abilities to apply the acquired knowledge, problem solving skills, solution implementation skills, leadership skills that facilitate cooperation, professional commitment and emotional capacities and self-directed learning skills.

Consequently, *attitudes* and behaviors formed by these attitudes have great importance in studies to be carried out on self-efficacy beliefs. Because a belief about a subject or phenomenon leads to the development of an attitude towards that subject or phenomenon in the individual (Morgil et al., 2004). For instance, it was seen in the study carried out by Çakır, Adnan, and Sünbül (2006) that the

effectiveness of training programs has a positive effect on participants' professional self-efficacy perceptions and attitudes towards profession. In the study carried out by Klassen and Chiu (2010) and Virga (2012), it was seen that teachers and school administrators' attitudes towards profession also improved as their self-efficacy beliefs improved. Because individuals gain various attitudes throughout their lives, and they will have already developed a pattern of behavior when they go into the professional life. The change of these attitudes which were developed previously is very difficult from now on but it is not impossible. Well-organized trainings and different experiences may allow for the renewal, change and development of the attitudes of adults (Başaran, 2008, p. 169). The opposite is also true. In other words, the fact that the training programs organized for school administrators are problematic or insufficient can negatively affect the professional quality (Cemaloğlu, 2005). As a result, the efficiency and effectiveness of a training program can be assessed by the positive attitudes towards profession of those who graduated from the program and their high self-efficacy perceptions.

In the literature, although there are various studies in which the instruments for measuring individuals' overall or phenomenon-specific self-efficacy beliefs or attitudes towards profession are developed and adapted, there is almost no study addressing school administrators' overall self-efficacy beliefs and attitudes towards principalship that affect their professional performance. The use of PBL in the training of school administrators has been suggested by some researchers (Bridges, 1992; Tanner et al., 1995; Copland, 1999; Smith, 2005), but sufficient studies have not been carried out about application-oriented models, and also their functionality has not been established experimentally (Hallinger & Lu, 2011; Scott, 2014). In addition, the empirical studies that directly investigated the effect of PBL on self-efficacy belief and attitudes towards profession have not received much attention by the colleagues. However, there is a need for further research investigating the effect of PBL, which is presented as an important approach in the training of school administrators, on self-efficacy and attitudes towards profession.

In this study, a web-based problem-based training program was created to be used in the training of school leaders and it was discussed in an experimental research by taking into consideration the problems, deficiencies, suggestions and models put forward by prestigious academicians in the literature. Therefore, the most important contribution of this study to the field is the fact that the PBL approach, which is recommended for the training of educational administrators by many experts, was addressed with the experimental research approach. The study aims to contribute the literature by its subject, approach and proximity to apply.

The purpose of this research is to determine the effect of a school administrator training model that allows the acquisition of theoretical knowledge from applications on school administrators' self-efficacy beliefs and attitudes towards principalship alternative to theoretical knowledge-based administrator training programs for the training of school administrators who can effectively use the knowledge and theory and transform them into practice, and to reveal the effectiveness of the model.

For this purpose, research questions carried out within the frame of a mixed approach paradigm as follows:

1. Are the self-efficacy beliefs of those who participate in web-based problem-based school administration training (WB-PBSAT) program and the self-efficacy beliefs of those who participate in face to face and theoretical school administration training program different?
2. Are the attitudes towards principalship of those who participate in WB-PBSAT program and the attitudes towards principalship of those who participate in face to face and theoretical school administration training program different?
3. What are the changes occurring in the self-efficacy beliefs of school administrators at the end of the training program?
4. What are the changes occurring in school administrators' attitudes towards profession at the end of the training program?

## Method

### *Research Approach*

The quantitative and qualitative methods or mixed approach in which paradigms are used together were used in this research. The mixed approach is a research approach in which the positivist approach which is dominated by the deductive approach for the testing of hypotheses trying to explain causal relationships between variables and using more quantitative data, and the interpretive approach which is dominated by the inductive approach using qualitative data that reveals, examines, tries to interpret the problems experienced as how they were experienced are used together (Saunders, Lewis, & Thornhill, 2006, p. 110; Creswell, 2012, p. 534).

### *Model of the Research*

In the research, it was aimed to determine the effect of WB-PBSAT program on participants' self-efficacy beliefs and attitudes towards principalship. In accordance with this purpose, an experimental group and a control group were used in the research. The mixed method was used to collect research data before and after the experiment.

The deductive experimental model was used while developing theories or hypothesis (hypotheses) within the context of the quantitative dimension. The experimental studies which are also defined as intervention studies or group comparison studies are the types of research in which data to be observed in order to reveal cause and effect relationships between the variables used by the researchers are produced. The most important factors in the experimental research are manipulation and control. Manipulation refers to direct or indirect foreign intervention to the environment including the subject and concept on which study is performed to test the hypotheses (Saunders et al., 2006, p. 136; Creswell, 2012).

In this study, the *true experimental design*, one of the experimental designs, was used. True experimental designs are defined as the studies in which subjects are randomly placed into the groups. In addition, the pretest-posttest control group design, one of the experimental designs which are commonly used especially in medicine, education and psychology, was used in the study. In this design, two groups are firstly formed by random assignment from the subject pool which is determined previously. One group is randomly determined as the control group, and the other is also randomly determined as the experimental group (Creswell, 2012, p. 309; LoBiondo-Wood, Haber, Cameron, & Singh, 2014, p. 218). The appearance of the experimental design is presented in Table 1.

**Table 1.** Pretest-Posttest Control Group Design

Groups	Pretest	Process	Posttest
Experimental group	Generalized Self-Efficacy	Web based problem based school administrator training process	Generalized Self-Efficacy
	Belief Scale		Belief Scale
	Attitude towards Principalship Scale		Attitude towards Principalship Scale
Control group	Generalized Self-Efficacy	Face to face and theoretical administrator training process	Generalized Self-Efficacy
	Belief Scale		Belief Scale
	Attitude towards Principalship Scale		Attitude towards Principalship Scale

The random design with pretest-posttest control group adopted in the research is seen in Table 1. While web-based problem-based administrator training program was applied to experimental group for 6 weeks, face to face and theoretical administrator training program was applied to the control group. Same scales were used to determine the beliefs and attitudes of the participants in both groups before and after the experiment (training process).

The qualitative dimension was performed to take participants' opinions on the effect of WB-PBSAT program on school administrators' self-efficacy beliefs and attitudes towards profession, and



also to support the quantitative findings. For this purpose, focus group interviews were conducted with the participants in the experimental group.

### *Study Group*

The participants constituting the experimental and control groups of the research were determined by the purposeful sampling method. The purposeful sampling is preferred in preliminary studies carried out to test the applicability of a study, when there is a need for people with specific skills and knowledge, in case studies and in cases where population is too small for random sampling (Tongco, 2007).

In the determination of the participants in the study groups, the criteria of ability to use information and communication technologies effectively internet accessibility including willingness were taken into account. Attention was paid to the fact that some of the participants in the experimental and control groups would consist of the members with administrative experiences both while problem scenarios and for an efficient interaction in the group in the experimental process. Demographic characteristics of the participants in the experimental and control groups are presented in Table 2.

**Table 2.** Demographic Characteristics of the Participants

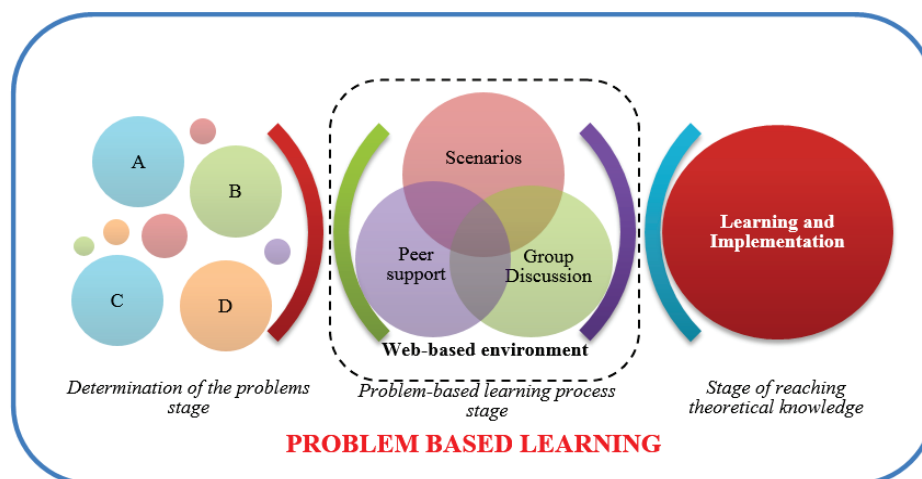
Group	Teacher	%	Administrator	%	Administratorship experiences
Experimental group	24	73	9	27	15
Control group	22	71	9	29	14

As it is seen in Table 2, experimental group consisted of 33 (24 teachers, and 9 administrators) participants and control group consisted of 31 (22 teachers, and 9 administrators) participants. 15 participants in the experimental group and 14 participants in the control group have administratorship experiences. The participants in this group consisting of a total of 29 people were asked for their opinions during the process of creating problem scenarios.

### *Planning of the WB-PBSAT Model and Training Process*

A web-based problem-based school administrator training program model was developed by taking into account both the existing managerial training models in the literature and the model proposed by Brazer and Bauer (2013). The aim of the model is to establish a learning process that goes from the application to the theoretic for the solution of managerial problems that school administrators or administrator candidates may encounter (Turhan & Karabatak, 2015).

WB-PBSAT model which was developed by Turhan and Karabatak (2015) consists of three main stages: Determination of the problems, stage of problem-based learning process, and reaching theoretical knowledge. WB-PBSAT program model is presented in Figure 1.



**Figure 1.** WB-PBSAT Program Model

The determination of the problems stage of the model in Figure 1 is the phase in which the problems to be dealt with in the training process are identified and problem scenarios are created by making use of these questions. In this stage the content and methods of training are determined according to participants' requirements, experiences and interests. The content of the training program consists of urgent and current problems. Therefore, first of all, an answer is sought for the question of "What is (are) the problem (problems) most frequently encountered in the management process as a school administrator?". Both school administrators and domain experts are asked for their opinions to answer this question. In light of the opinions taken, different problem scenarios are created. *The stage of problem-based learning process* is the stage in which participants try to solve the problems given to them by developing and using high level mental skills. This stage includes an intense research and study and reaching the required information. In this stage participants both enter into a self-directed learning and research process and exchange information and opinions by continuously interacting with their group friends. In the *stage of reaching theoretical knowledge*, new information are learned and learning occurs (Turhan & Karabatak, 2015).

Training programs were planned before starting the training processes of the experimental group and the control group. The plan of the school administration training program prepared for the experimental group is presented in Table 3.

**Table 3.** Web Based Problem Based School Administrator Training Program

<i>Purpose of the Program</i>	<i>Purpose 1:</i> to ensure that the administrator can cope with administrative problems and to facilitate his/her comprehension on basic concepts and principles related to educational administration in this way. <i>Purpose 2:</i> to ensure that he/she can define the problem addressed, think over it on an individual basis, determine the ways of access to resources that he/she needs to find a solution to the problem, learn how to use the information obtained and how to share with the group.
<i>Training Content</i>	Training needs of the participants
<i>Training Period</i>	6 weeks
<i>Training Environment</i>	Web-based environment
<i>Teaching Strategy</i>	by investigating and examining
<i>Methods</i>	Problem solving method, discussion method
<i>Techniques</i>	Brainstorming
<i>Type of Studying</i>	Group work, peer support

The plan of the school administration training program prepared by benefiting from traditional educational approach for the control group is presented in Table 4.

**Table 4.** Face to Face and Theoretical Administrator Training Program

<i>Purpose of the Program</i>	<i>Purpose:</i> to facilitate his/her comprehension on basic concepts and principles related to educational administration (vision, culture and climate, environment and resources within the school, cooperation with society, ethics and general context -power and politics-).
<i>Training Content</i>	The basic educational administration concepts that school administrators need to know
<i>Training Period</i>	6 weeks
<i>Training Environment</i>	Classroom environment
<i>Teaching Strategy</i>	Expository (receptive) teaching
<i>Methods</i>	Expression
<i>Techniques</i>	Expression and question-answer
<i>Type of Studying</i>	Individual

As it is seen in the table, the training applied to the experimental group was given to the control group as face to face and theoretical. A presentation was prepared for each week of course conducted with the control group. By these presentations, various administrative information were given on *vision and mission in educational organizations; school culture and climate; individuals and resources at school; external environment and cooperation with society, ethics in education and training; power and politics*. Interactions were performed with the participants in the control group by the question-answer method during courses.

#### ***Preparation of the Training Portal***

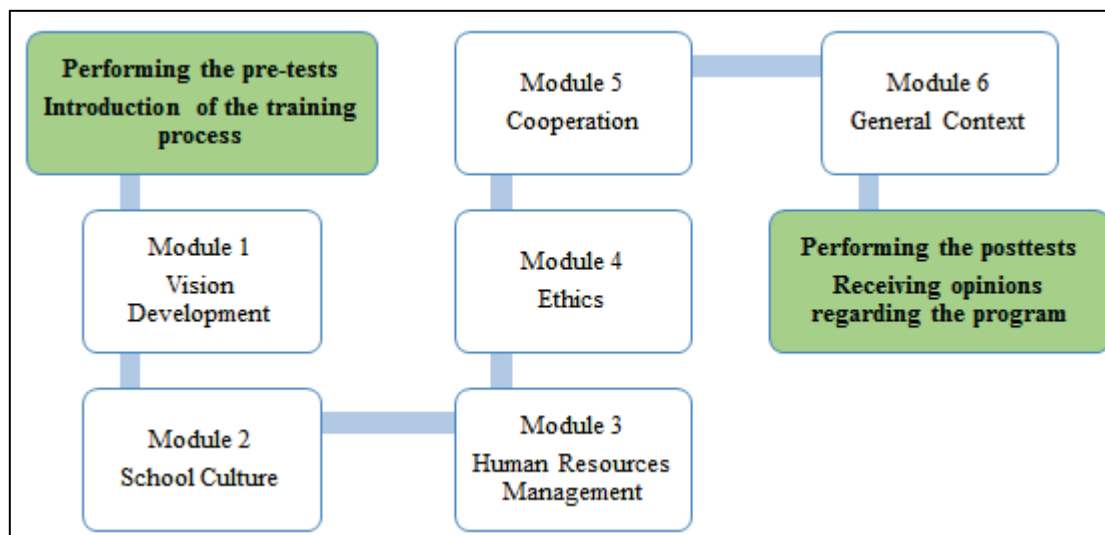
This stage was firstly initiated by determining the learning management system (LMS) where training process would be carried out. LMS is administrative software that allows for learners' course selection and course enrolment, presentation of contents, the execution of assessment and evaluation, monitoring and reporting user information in asynchronous (different-time) or blended education. Alternative LMSs were examined for the training process, and Moodle was preferred because it functions properly and fast. Then, a web domain called *ole.firat.edu.tr* was created. The process for the transfer of the WB-PBSAT model into this domain is as follows:

#### ***Preparation of the Scenarios***

Within the framework of Interstate School Leaders Licensure Consortium (ISLLC) standards, real organizational life problems experienced by the participants with managerial experience at schools were examined. Various case studies were examined by performing field scanning in line with the opinions obtained. 6 up-to-date and real administrative problem scenarios were created by benefiting from the case studies created by Hoy and Miskel (2010) and Okutan (2012).

#### ***Preparing the Web Interface of the Training Portal and Creating the Course Schedule***

WB-PBSAT model was adapted to LMS, and the web interface of the training portal was planned as in Figure 2.



**Figure 2.** WB-PBSAT Modules

As it is seen in Figure 2, the training program was prepared as a modular structure. Because a modular structuring is needed to implement the PBL method (Onargan et al., 2004). The participants were asked to fill in the pre-tests and post-tests before and after the training process which was planned as 6 modules. The learning resources for each module (videos, articles, lecture notes, presentations, and database links) were placed below the relevant module.

#### ***Formation of the Groups***

Finally, experimental and control groups were formed before entering into the experimental research process. The groups formed and member properties are presented in Table 5.

**Table 5.** Formed Groups and Participant Characteristics

Groups		Number of teachers	Number of administrators	Participants had administrative experiences	Previously participated in any training related to educational administration
Experimental Group	Group 1	4	2	2	3
	Group 2	6	1	3	3
	Group 3	5	2	3	4
	Group 4	4	2	3	3
	Group 5	5	2	3	3
	Total	24	9	15	16
<b>Control Group</b>		22	9	14	14

As it is seen in table, there are two groups including experimental and control group. Only the criterion of volunteering was taken as a basis while creating the control group, and all participants were gathered under one group. Participants in the experimental group were divided into 5 sub-groups consisting of 6 or 7 people. While creating sub-groups, groups were ensured to have a homogeneous structure among themselves and a heterogeneous structure within the group. Because the heterogeneous structure of the group is an important factor for PBL when social interaction is considered (Scott, 2014). Therefore, as it is seen in Table 5, the criteria such as the facts that the participants were teachers, have administratorship experiences, and the number of in-service training they have participated regarding the school administration were taken into account while creating subgroups.

#### *Experimental Process*

In this process, the training portal was firstly introduced to participants, and pretests were applied. Then the training process was initiated; and in this process, while the content of the modules was applied to the experimental group in the form of problem-based training program, the same plan was applied to the control group as face to face and theoretical. Finally, posttests were performed, and participants' opinions were taken.

#### *Data Collection Process*

##### *Quantitative Data Collection Process and Tools*

Generalized Self-Efficacy Belief (GSAB) Scale and Attitude towards Principalship (ATP) Scale were used to measure the levels of the variables in the experimental and control groups because of the fact that the quantitative section of the study was carried out by experimental design.

The GSAB Scale which is based on the self-efficacy theory of Bandura (1977) was developed by Jerusalem and Schwarzer in 1981 (Jerusalem & Schwarzer, 1992; Schwarzer & Jerusalem, 1995). 10-item scale which is originally German was translated into 31 different languages. The scale in the Turkish adaptation study carried out by Aypay (2010) was used in this study. The internal consistency value of the scale the internal consistency value of which was found as .83 as result of the reliability analysis performed by Aypay (2010) was calculated as .902.

The ATP Scale was used in the research which was cooperatively carried out by Finance Project, WestEd and Stanford Institute of Educational Leadership. 4 items of the 14-item scale aim to measure participants' positive belief levels on administration, 4 items aim to measure their negative belief levels, and 6 items aim to measure their level of commitment to the school administration. The internal consistency coefficients of the scale were measured as .81 for the dimension of positive beliefs regarding the profession, as .73 for the dimension of negative beliefs, and as .75 for the dimension of professional commitment (Darling-Hammond et al., 2007).

For this study, KMO and Barlett tests were firstly performed in order to test the suitability of data, which are in the scale the language equivalence of which was ensured, for the factor analysis. KMO was obtained as a 0.717, and Bartlett-test value was obtained as  $\chi^2= 514.409$ ;  $sd=69$  ( $p=.000$ ). In the factor analysis performed, item 8 was excluded from the scale as its load value was low. The internal consistency value of the scale with a three-dimensional structure (beliefs about principalship, job satisfaction and professional commitment) was recalculated and found as .741.

While all the participants were asked to fill in the dimension of beliefs about principalship (6 items) of the ATP scale, the participants with school administration experience were asked to fill in the dimensions of professional commitment (3 items) and job satisfaction (4 items).

#### *Qualitative Data Collection Process and Tools*

The focus group interview technique was used to confirm the survey data and to reveal the effectiveness of training and participants' perceptions, reactions and experiences at the end of the training process. Because PBL is a student-centered learning approach requiring the group activity, and group members should evaluate the moderator and each other in PBL (Davis & Harden, 1999). Therefore, *focus group interviews* were conducted with participants in order to take their opinions on the changes caused by a web-based and problem-based learning approach in participants' self-efficacy beliefs and attitudes towards school administration at the end of the training process.

The focus groups formed and the codings related to group members -consisted of the first letters of their names and surnames- are presented in Table 6.

**Table 6.** Focus Groups and Members

<b>Group</b>	<b>Group Members</b>
FG1	YCE, ME, KU, EA, İŞ, NTA, Öİ, AHM, MH, GC, EP
FG2	MK, SKT, YB, AA, AT, Cİ, TG, EB, LS, İHÇ, NK
FG3	HT, CA, ART, MY, AB, MB, ZP, LŞ, SKD, STK, EÖ

In the focus group interviews, the questions in the Focus Group Interview Form were posed to the participants of the training process to evaluate the changes occurring in their self-efficacy beliefs and attitudes towards school administration. Interviews were conducted on different days suitable for the participants. The interviews lasted between 90 and 105 minutes, and 3 separate recording devices were used during the interviews.

#### *Data Analysis*

##### *Analysis of Quantitative Data*

SPSS 22 program was used for analyzing the data of the quantitative dimension of the research. The percentage and frequency techniques were used in the analysis of demographic data.

The validity and reliability analyses were performed by applying scales on a different sample before using in the study. The scales used in the research are five point likert scales. Each item of the scale was scored from 1 (Completely Disagree) to 5 (Completely Agree). In the comparisons to be made in terms of averages, the arithmetic averages between 1.00-1.80 were interpreted as *Completely Disagree*, those between 1.81-2.60 were interpreted as *Disagree*, those between 2.61-3.40 were interpreted as *Partially Agree*, those between 3.41-4.20 were interpreted as *Agree*, and those between 4.21-5.00 were interpreted as *Completely Agree*.

The parametric tests (paired samples t-test and independent samples t-test) for the data with normal distribution and non-parametric tests (Wilcoxon test and Mann-Whitney U-test) for the data without normal distribution were used in order to statistically reveal the differences between the self-efficacy levels and attitudes towards principalship of the participants in the experimental and control groups before and after the experimental procedure. Kolmogorov-Smirnov test was used to determine which one of these tests would be used.

The significance level was taken as .05 in all statistical analyses. The effect sizes were also calculated for those with significant differences between the averages. Effect size is evaluated independently of the sign. The fact that the effect size  $d$  is 0 (zero) means that the average is equal to the fixed value with which it is compared. The value of  $d$  is considered as very large effect if it is greater than 1, as large (big) effect if it is 0.8, as medium effect if it is 0.5, and as less (small) effect if it is 0.2 (Cohen, 1992; Thalheimer & Cook, 2002).

#### *Analysis of Qualitative Data*

The content analysis method was used for analyzing the data of the qualitative dimension. According to Kitzinger and Farquhar (1999), content analysis is the most appropriate method in the analysis of focus group interviews. The purpose of the content analysis is to reach the concepts and relationships that can explain the collected data. The data obtained from interviews were converted into electronic forms and analyzed using computer assisted qualitative data NVivo 8 analysis package program. The stage of encoding the data was firstly performed while performing the content analysis. At this stage, groups were encoded as FG1, FG2 and FG3, and participants were encoded by their first letters of their names and surnames (such as SKT) (Table 6). The codes were firstly divided into categories for their classification under a specific theme. Themes were formed by creating a conceptual framework from the categories obtained. The remarkable opinions of the participants were presented by keeping with the essence.

One more researcher was included in the process of analyzing data and concluding to ensure the reliability of quantitative data of the research. The invalid data (prejudices, misunderstandings, unreal or irrelevant data) were removed before performing the analysis of data. Then, researchers determined the convergent and discrepancy points and calculated the reliability rate by the analyses they performed. For this, the convergent percentage formula ( $P = Na / (Na + Nd) * 100$ ) was used ( $P$ : convergent percentage;  $Na$ : convergent amount;  $Nd$ : discrepancy amount) to calculate reliability rate (Bakeman & Gottman, 1997, p. 60). As a result of the calculations made with convergent percentage formula, the reliability rate regarding the Focus Group Interview Form was calculated as 91%. According to Miles and Huberman (1994, p. 64), the research is considered reliable when the calculated value is greater than 90%. Therefore, it was decided that the qualitative part of the research carried out was adequate.

## Results

The findings obtained as a result of the analyses performed to reveal whether any change occurred in participants' self-efficacy beliefs and attitudes towards principalship at the end of the training process are as follows.

#### *Findings Related to Generalized Self-Efficacy Beliefs*

The independent sample t-test, one of the parametric tests, was performed to perform if there is a significant difference between the averages because the pretest and posttest averages of the self-efficacy beliefs of the experimental and control groups who participated in the training process showed normal distribution ( $p > .05$ ) to obtain the findings related to the research question of "Are the self-efficacy beliefs of those who participate in WB-PBSAT program and the self-efficacy beliefs of those who participate in face to face and theoretical school administration training program different?". The analysis results are presented in Table 7.

**Table 7.** Comparison of Pretest and Posttest Average of GSE of the Experimental and Control Groups

GSE	Groups	N	$\bar{x}$	sd	t	df	p
Pretest	Experimental Group	33	3.70	0.81	-.594	62	.555
	Control Group	31	3.80	0.51			
Posttest	Experimental Group	33	4.29	0.60	2.811	62	.007
	Control Group	31	3.88	0.54			

\*  $p < .05$

According to the t-test results, while there was no significant difference between the self-efficacy beliefs averages of the control and experimental groups before the training process, a significant difference was observed in their self-efficacy beliefs averages at the end of the training process ( $t(62)=2.811$ ,  $p<.05$ ). There is a similarity at the self-efficacy levels of the participants in both groups before the training process. However, there was a significant difference at the self-efficacy belief levels of the experimental group and control group in favor of the experimental group at the end of the training process. The t-test performed revealed that there was a medium-level ( $d=0.70$ ) significant difference between the posttest averages of the experimental and control groups.

The paired samples t-test was performed to reveal whether a significant change occurred in the self-efficacy belief averages of the participants in the experimental and control groups before and after both training processes, and the results are presented in Table 8.

**Table 8.** Comparison of the Pretest and Posttest Average of GSE

Group	Test	N	$\bar{x}$	sd	t	df	p
Control Group	GSE Pretest	31	3.80	0.51	-.911	30	.370
	GSE Posttest	31	3.88	0.54			
Experimental Group	GSE Pretest	33	3.70	0.81	-4.111*	32	.000
	GSE Posttest	33	4.29	0.60			

\*  $p<.05$

As it is seen in the table, the self-efficacy belief average of the participants in the control group was  $\bar{x}=3.80$  before the training process, it was  $\bar{x}=3.88$  after the training process. However, it is seen that this change was not statistically significant ( $t=-0.911$ ;  $p>.05$ ). While the self-efficacy belief average of the participants in the experimental group was  $\bar{x}=3.70$  before the training process, it increased to  $\bar{x}=4.29$  after the training process, and this change was determined to be significant ( $t=-4.111$ ;  $p<.05$ ). This situation indicated that the WB-PBSAT program had a significant and positive effect on the participants' self-efficacy beliefs.

When effect size of the significant difference that emerged between the pretest and posttest averages of the experimental group was calculated, it was calculated as  $d=0.72$ . This situation shows that the difference was at the *medium-level*.

The opinions of the participants in the focus group interviews conducted explain and support the quantitative findings obtained. The opinions of the participants about the effect of the training program organized on school administrators' self-efficacy beliefs were analyzed, and the theme of benefits provided to professional self-efficacy beliefs was created. The categories related to this theme are presented in Table 9.

**Table 9.** Categories Related to the Theme of Benefits Provided to Professional Self-Efficacy Beliefs

Believe that professional knowledge increased
Know the requirements of school administration
Increased my self-confidence
Prepare detailed action plans
Produce quick and efficient solutions to the problems
Deal with the incidents from different perspectives
Establish empathy with others
Decide effectively and quickly

As it is seen in Table 9, under the *theme of benefits provided to professional self-efficacy beliefs*, it was seen that all participants expressed that they believed that *they could establish empathy with others, deal*

with the incidents from different perspectives, produce quick and efficient solutions to the problems, and that their professional knowledge increased due to the program they participated. In addition, participants also stated that they believe that they know the requirements of school administration, experiencing the experience of others increased their self-confidence, could decide effectively and quickly, could prepare detailed action plans. Some of the opinions of the participants related to this theme are as follows:

“...my ability to prepare detailed plans has improved, and I can easily begin to prepare action plans...” (Prepare detailed action plans; FG2-LS).

I think I have started to make decision faster (Decide effectively and quickly; FG3-HT).

“I believe that my horizon related to school administration has expanded, and my awareness has increased” (Believe that professional knowledge increased; FG2-MK).

“I was looking at the problems experienced in the school just with the eye of teacher. I have also started to look at the events and problems with the eye of administrator” (Deal with the incidents from different perspectives; FG2-STK).

I have found out that I have to learn what I need to know to a become school administrator. “I have found out that I have to what I have learned with the others” (Know the requirements of school administration; FG1-NTA).

#### **Findings Related to the Attitude towards Principalship**

All three dimensions of the scale (beliefs about the principalship, professional commitment and job satisfaction) were addressed separately and the necessary statistical analyses were performed to see if there is a significant difference between the pretest and posttest averages of the attitudes towards profession of the experimental and control groups who participated in the training process to obtain the findings related to the research question of "Are the attitudes towards principalship profession of those who participate in WB-PBSAT program and the attitudes towards principalship of those who participate in face to face and theoretical school administration training program different?".

#### **Findings Related to Dimension of Beliefs About the Principalship**

Mann Withney-U test was used in the analysis of data because the data of the dimension of beliefs about the principalship of the ATP scale exhibited abnormal distribution. The results obtained are presented in Table 10.

**Table 10.** Deney ve Kontrol Gruplarının Yöneticiliğe Yönelik İnançlar Boyutu Öntest ve Sontest Ortalamalarının Karşılaştırılması

Beliefs about principalship	Groups	N	$\bar{x}_{rank}$	$\sum rank$	U	p
Pretest	Control Group	31	30.23	937.00	441	0.341
	Experimental Group	33	34.64	1143.00		
	Toplam	64				
Posttest	Control Group	31	26.79	830.50	334.5*	0.016
	Experimental Group	33	37.86	1249.50		
	Toplam	64				

\*p<.05

As it is understood from the Table 10, no significant difference was found between the beliefs about principalship of the control and experimental groups before the training process (U=441; p>.05), a statistically significant difference (U=334.5; p<.05) was found in favor of the experimental group at the end of the training process. Although there is a similarity at the beliefs toward administration levels of the participants in both groups before the training process, it was seen that their belief levels were different at the end of the training process. This finding indicates that the web-based problem-based program is effective in the development of participants' beliefs about principalship.



The results of the Wilcoxon signed rank test regarding whether there was a significant difference in the beliefs about principalship averages of the experimental and control groups before and after the training process are presented in Table 11.

**Table 11.** Comparison of Pretest and Posttest Averages of Beliefs about Principalship Dimension

Groups	Posttest-Pretest	<i>N</i>	$\bar{x}_{rank}$	$\sum_{rank}$	<i>U</i>	<i>p</i>
Control Group	Negative Rank	8	8.25	66.00	-1.173*	0.240
	Positive Rank	11	11.27	124.00		
	Equal	12				
Experimental Group	Negative Rank	6	12.83	77.00	-2.509*	0.012
	Positive Rank	20	13.70	274.00		
	Equal	7				

\* Based on positive ranks

The analysis results indicated that while no significant difference occurred in the beliefs about principalship of the participants in the control group before and after the training process, a significant difference occurred in the beliefs about principalship of the participants in the experimental group before and after the training process ( $z=-2.509$ ,  $p<.05$ ). When the mean rank and sums of the points of difference were taken into account, it was seen that this difference observed was in favor of positive ranks, namely in favor of post-test score. According to these results, it can be said that the web-based problem-based training program organized had a significant effect on participants' beliefs about principalship.

#### *Findings Related to the Dimension of Job Satisfaction*

Parametric tests were used for the analyses as the data of the dimension of job satisfaction of the ATP scale exhibited normal distribution. The independent samples t-test was performed to reveal whether there was a significant difference between pretest and post-test averages of job satisfaction of the experimental and control groups. The results obtained are presented in Table 12.

**Table 12.** Comparison of Pretest and Posttest Averages of Job Satisfaction Dimension of the Experimental and Control Groups

Job Satisfaction	Groups	<i>N</i>	$\bar{x}$	<i>sd</i>	<i>t</i>	<i>df</i>	<i>p</i>
Pretest	Experimental Group	15	2.73	1.05	-.783	27	.440
	Control Group	14	3.00	.75			
Posttest	Experimental Group	15	3.48	.98	.904	27	.374
	Control Group	14	3.16	.94			

According to the results obtained, a significant difference was not observed in the job satisfaction averages of the control and experimental groups before ( $t_{(27)}=-.783$ ,  $p>.05$ ) and after ( $t_{(27)}=.904$ ,  $p>.05$ ) the training process. In other words, the job satisfaction levels of the participants in both groups showed similarity before and after the training process. However, the job satisfaction level of the control group ( $\bar{x}=3.00$ ) was higher compared to the job satisfaction level of the experimental group ( $\bar{x}=2.73$ ) before the training process, it was seen that the job satisfaction level of the experimental group ( $\bar{x}=3.48$ ) was higher than the job satisfaction level of the control group ( $\bar{x}=3.16$ ) at the end of the training process. The paired samples t-test was performed to reveal whether a significant change occurred in the attitudes related to job satisfaction averages of the groups before and after the training process. Results are seen in Table 13.

**Table 13.** Comparison of Pretest and Posttest Averages of Job Satisfaction Dimension

Groups	Test	N	$\bar{x}$	sd	t	df	p
Control Group	Job Satisfaction Pretest	14	3.00	0.75	-0.889	13	0.39
	Job Satisfaction Posttest	14	3.16	0.94			
Experimental Group	Job Satisfaction Pretest	15	2.73	1.05	-2.707*	14	0.017
	Job Satisfaction Posttest	15	3.48	0.98			

\*p&lt;.05

The job satisfaction average of the participants in the experimental group, which was  $\bar{x}=2.73$  before the training process, increased to  $\bar{x}=3.48$  after the training process. It was observed that there was a significant increase in the job satisfaction of participants after the WB-PBSAT process ( $t_{(14)}=-2.707$ ,  $p<.05$ ). While the job satisfaction average of the participants in the control group was  $\bar{x}=3.00$  before the training process, it increased to  $\bar{x}=3.16$  after the training process. However, this change was not statistically significant ( $t_{(14)}=-0.889$ ,  $p>.05$ ). According to the comparisons both in Table 12 Table 13, it can be said that the WB-PBSAT process had a significant effect in the increase in participants' job satisfaction.

The size of the significant difference that emerged between the pre-test and post-test averages of the experimental group was calculated as  $d=0.70$ . This situation showed that the difference was at the *medium-level*.

#### *Findings Related to the Dimension of Professional Commitment*

Parametric tests were used in the analysis of the data as the data of the dimension of *professional commitment* of the ATP scale exhibited normal distribution. The independent samples t-test was performed to determine whether there was a significant difference in the pretest and posttest professional commitment averages between the experimental and control groups. The results obtained are presented in Table 14.

**Table 14.** Comparison of Pretest and Posttest Average of Professional Commitment Dimension of the Experimental and Control Groups

Professional Commitment	Groups	N	$\bar{x}$	sd	t	df	p
Öntest	Experimental Group	15	2.85	.67	-.872	27	.391
	Control Group	14	3.06	.66			
Sontest	Experimental Group	15	3.44	.91	.441	27	.663
	Control Group	14	3.31	.71			

According to the t-test results, there was no significant difference between pretest and posttest professional commitment averages of the control and experimental groups before ( $t_{(27)}=-.872$ ,  $p>.05$ ) and after ( $t_{(27)}=.441$ ,  $p>.05$ ) the training process. There was a similarity in the professional commitment levels of the participants in both groups before and after the training process.

The paired samples t-test was performed to reveal whether a significant change occurred in the professional commitment of the groups before and after the training process, and the obtained results are shown in Table 15.

**Table 15.** Comparison of Pretest and Posttest Averages of Professional Commitment Dimension

Group	Tests	N	$\bar{x}$	sd	t	df	p
Control Group	Professional Commitment Pretest	14	3.06	0.66	-1.326	13	0.208
	Professional Commitment Posttest	14	3.31	0.71			
Experimental Group	Professional Commitment Pretest	15	2.85	0.67	-2.058	14	0.059
	Professional Commitment Posttest	15	3.44	0.91			

As it is seen in the table, there was no significant difference in the professional commitment averages of the participants both in the experimental group ( $t=-1.326$ ,  $p>.05$ ) and in the control group ( $t=-2.058$ ,  $p>.05$ ) before and after the training process. However, while the average of the professional commitment averages of the participants in the control group was  $\bar{x}=3.06$  before the training process, it increased to  $\bar{x}=3.31$  after the training process; and while the average of the professional commitment averages of the participants in the experimental group was  $\bar{x}=2.85$  before the training process, it increased to  $\bar{x}=3.44$  after the training process. This situation indicated that the WB-PBSAT program had a more positive effect on participants' professional commitment compared to face to face and theoretical training program.

When focus group interviews regarding the effect of the training program organized on school administrators' attitude towards their profession were analyzed, participants' opinions were grouped under two themes as the *increase in awareness and sensitivity for the principalship* and as the *increase in awareness regarding the organization*. The categories related to these themes are presented in Table 16.

**Table 16.** Themes and Categories Related to Attitudes toward School Administration Profession

Increase in awareness and sensitivity for the principalship	Realize the mistakes and rights
	Realize what not know
	Look at administrative problems from different perspectives
	Perform self-assessment
	Develop academic writing skills
	Develop academic discussion skills
	Perform self-directed research
	Develop critical thinking skills
	Change the perspective on profession and increase professional interests
	Realize that principalship is a profession that requires skills
Increase in awareness regarding the organization	Learn that administration requires a collective consciousness
	Realize the need for professionalization of school administration
	Realize that administrators can develop their competence
	Awareness of organizational mistakes
	Stakeholder richness is important and should not be ignored
	The fact that school is an open system
	Importance of vision and mission
	Importance of organizational communication
The necessity of examining of schools again	

Under the theme of *the increase in awareness and sensitivity for the principalship*, it is seen that participants have the same opinions regarding *the professionalization of school administration and the need for addressing administrative problems from different perspectives*. The facts that *principalship is a profession that requires skills, their perspective on profession has changed and their professional interests have increased, they can perform self-directed research, their academic discussion skills, critical thinking skills and academic writing skills have developed, they can perform self-assessment, they have realized their mistakes, rights and what they don't know, administrators can develop their competence, and administration requires a collective consciousness* are the other expressions of awareness or sensitivity included under this theme. The opinions that came to the forefront in this theme are as follows:

“Amazon Forests coffee house was the situation which was exactly experienced by me. My first place of duty was just like that. Then, I started to work under more difficult working conditions in Kayseri. I began to miss m first place of duty... It allowed us to

look at and think about the organizational life critically” (Develop critical thinking skills; FG1-NTA).

“...I have found out that the administrator should be a leader, how complex his duties are, it is a profession that requires responsibility. My attitudes and perceptions on principalship have completely changed. I have realized that it is a profession that requires ability” (Realize that principalship is a profession that requires skills; FG1-EA).

“... I have learned that administrator is almost the brain of the school, administration is to be able to administer teachers, students, parents and other school stakeholders like a conductor” (FG3-AB).

“...It helped me to see the wrongs that I had known as true as an administrator” (Realize the mistakes and rights; FG2-SKT).

“...I looked at the answers I gave individually and the discussions I made with the group, I realized that I could not be a school administrator ...” (Perform self-assessment; FG1-KU).

“While school administration was an abstract concept previously, now it has become a more concrete concept. My perspective on school administration has changed a lot” (Change the perspective on profession and increase professional interests; FG2-MK, FG1-AHM).

Participants stated that it led to *increase in various awareness related to organization such as the importance of organizational communication in the educational process, the fact that school is an open system and cannot be isolated, it is necessary to aware organizational mistakes, stakeholder richness is important and should not be ignored, vision and mission are important and the schools should be examined again*. Some of the participants' opinions that came to the forefront in the theme regarding the increase in awareness about the organization are as follows:

“I have realized that school is not a separate institution from the community but it is an institution which is completely intertwined with the society. I have learned that school has a unique structure which is completely associated with the society” (The fact that school is an open system; FG3-EP).

“I have learned that all stakeholders are important for the administrator. I have understood the importance of cooperation and trust, how should a school be, and how to use the laws, conscience and humanity against events” (Stakeholder richness is important and should not be ignored; FG2-SKT).

“We have reviewed our own schools. In particular, we have had lots of opinions on the climate of the school (The necessity of examining of schools again; FG2-TG).

“I think the fact that the subjects were chosen from organizational life and were associated with the problems we had was the best aspect. We have realized how important determining vision is, and how important the realization of the mission is for school outcomes” (Importance of vision and mission; FG3-SKD).

It can be said that participants' opinions on the effect of the training program organized on school administrators' attitudes towards principalship support and explain the findings of the quantitative data.

## Discussion, Conclusion and Suggestions

The problem of training school administrators is an important problem in all world countries, and the point where criticisms made about the training become intense is the fact that the relationship between theory and practice cannot be established sufficiently. The lack of application-weighted methods and techniques in school administrator training programs, and the fact that school administrators mostly need to be trained about creative problem solving related to school administration are the extensions of this problem. Because school administrators receive theory-oriented training during education and have difficulty in transforming the knowledge they have acquired into practice. Bridges (1992), Copland (1999), Donaldson (2008), Smith (2005), Tanner et al. (1995) state problem-based learning (PBL) as an ideal method that should be used in the training of school administrators to solve this problem. Because, according to these researchers, PBL will allow school administrators to become acquainted with the real administrative problems they may face in the future in advance, and to improve their skills by applying the knowledge they have acquired. It is expected that this approach, which is frequently used in the fields of organizational development and management in developed countries, will eliminate the deficiencies of administrator training programs by its strengths such as improving individuals' problem-solving skills, solution implementation skills, leadership skills, attitudes towards principalship and self-directed learning skills (Turhan & Karabatak, 2015). In addition, the interest in how PBL could be applied, designed and used in the relevant field has begun to gradually increase along with the increasing use of experience-centered approaches by the learning and development practitioners and administration educators (Scott, 2014). In this research, it was aimed to determine the effect of a web-based problem-based administrator training program model on participants' self-efficacy beliefs and attitudes towards principalship in the field of educational administration. In accordance with this purpose, a web-based learning environment in which PBL approach is used, independently of time and space, and school administrators can express themselves more comfortably was firstly created. Then the training process was performed. The results related to the findings obtained from the analysis of data collected before and after the training process which was performed within the scope of the model, and the comparison of these results with the other researches in the literature are as follows.

### *Effect of WB-PBSAT Program on Participants' Self-Efficacy Beliefs*

Although there was no significant difference in the self-efficacy belief averages of the control and experimental groups before the training process, a moderately significant difference was observed in the self-efficacy belief averages at the end of the training process. In addition, it was also determined that there was a significant difference in favor of post-test in the opinions of the participants in the experimental group on their self-efficacy beliefs.

According to findings obtained from focus group interviews, participants in the experimental group stated that their overall self-efficacy such as establishing empathy with others, being able to evaluate the events from different perspectives, being able to produce quick, practical, systematic and efficient solutions for the problems were developed. The participants also stated that their professional self-efficacy towards the fact that they know the requirements of school administration now, they can professionally solve the administrative problems, experiencing the experience of others increased their self-confidence, could decide effectively and quickly, could collectively solve the administrative problems, could prepare detailed action plans increased. These opinions support the change occurring in favor of the posttest in the self-efficacy beliefs of the participants in the experimental group. Participants' opinions regarding the facts that they could perform self-directed researches, and their academic discussion skills, critical thinking skills and academic writing skills developed is another result helping to explain the change that occurred in the self-efficacy beliefs.

The results obtained related to the development of school administrators' self-efficacy in the study are consistent with the results of the studies carried out in the literature. In the study carried out by Brown, Lawless, and Boyer (2013), it was revealed that a web-based problem-based learning environment has positive effects on learners' self-efficacy beliefs. In the study carried out by Dalby (2005), it was seen that there was a significant change in participants' feeling of confidence and self-

efficacy regarding new learning and communication skills in the workplace. In the R & D project carried out by Macrae (2000), it was suggested that PBL is effective in learning the issues such as the cooperative solution of the complex problems, developing meeting agenda and the management of large-scale projects. In his study, Scott (2014) put forward that self-efficacy belief is associated with experiential learning and stated that collaborative learning activities -with team- have positive effects on the outcomes of PBL. In their study, Darling-Hammond et al. (2007) emphasized the development of administrators' self-efficacy in training programs by stating that school administrators who are trained in innovative and high-quality programs are more dedicated to their jobs and more effective in their jobs. In the study in which Versland (2009) investigated the relationship between school administrators' self-efficacy beliefs and training programs, it was revealed that the fact that training programs are supplied with experiences is important and that the programs offering opportunities such as real learning experiences, relationships, motivation and leadership experiences support school administrators' self-efficacy.

According to the results of the findings obtained from the interviews, it was also revealed that the training process leads to the increase in participants' self-awareness and sensibility. According to Brownell and Jameson (2004), one of the central objectives of PBL is to increase learners' self-awareness and self-management. A pilot program was prepared in Delaney, Pattinson, McCarthy, and Beecham's study (2015) that provide an insight on how to switch from traditional administrator development programs to a program in which PBL is used. In the study, it was seen that PBL led to an overall improvement in all participants' self awareness levels.

#### ***Effect of WB-PBSAT Program on Participants' Attitudes Towards Principalship***

In the experimental part of the study, the effects of the training process applied on participants' attitudes toward principalship were addressed in three dimensions in the form of *beliefs about principalship, professional commitment and job satisfaction*.

Although there was no significant difference between control and experimental groups' beliefs about principalship before the training process, it was determined that a significant difference occurred in favor of the experimental group at the end of the training process. Although no significant difference occurred in the beliefs about principalship of the participants in the control group before and after the training process, a significant difference occurred in favor of post-test in the beliefs about principalship of the participants in the experimental group before and after the training process.

The job satisfaction levels of the participants in the control and experimental groups showed similarity before and after the training process. In other words, a significant difference was not observed between the job satisfaction levels of both groups before and after the training process. However, while the job satisfaction level of the control group was higher compared to the job satisfaction level of the experimental group before the training process, it was seen that the job satisfaction level of the experimental group was higher than the job satisfaction level of the control group at the end of the training process. In addition, it was observed that there was a moderately significant difference in favor of posttest in the job satisfaction of participants in the experimental group after the training process.

The professional commitment levels of the participants in the control and experimental groups showed similarity both before and after the training process. In other words, no significant difference was observed between the professional commitment levels of both groups before and after the training process.

According to findings obtained from the interviews conducted with the participants in the experimental group, training process positively affected participants' attitudes towards principalship and increased their sensitivity related to the professionalization of school administration. Participants mentioned that principalship is a profession that requires skills, their perspective on principalship has changed and their professional interests have increased, they can perform self-assessments, they have realized their mistakes, rights and what they don't know, they can develop their competence, administration requires a collective consciousness and administrative problems should be addressed from different perspectives.

Participants in the experimental group also stated that various awareness related to organization increased such as the importance of organizational communication, the fact that school is an open system and cannot be isolated from the environment, it is necessary to realize organizational mistakes, stakeholder richness is important and should not be ignored, vision and mission are important and the schools should be examined again. These opinions support the change in favor of the experimental group in beliefs about principalship and job satisfaction at the end of the training process.

No study that directly investigates the effect of PBL on the attitude towards profession was found in the literature. However, some studies trying to explain the relationship between the attitudes towards profession and self-efficacy beliefs were found. Regarding these studies, in the study carried out by Winter et al. (2002) stated that school administrator candidates' self-perceptions on their professional skills-eagerness- is the strongest determinant in applying for school administration by pointing out the importance of the training programs in the development of school administrator candidates' professional skills and self-efficacy beliefs. In the study of Klassen and Chiu (2010), it was seen that there was a significant and positive relationship between job satisfaction and self-efficacy beliefs of teachers. In the study of Alessandri et al. (2014), the presence of a significant and positive relationship between business performance and commitment to work was confirmed. In the study, it was seen that a strong sense of competence is a significant motivating factor in maintaining the efforts to achieve an objective and ensuring competence. Moreover, researchers stated that weak competence is a mood that endangers the transformation of efforts into success.

In relational studies carried out by Federici and Skaalvik (2011) and Tschannen-Moran and Gareis (2005), a positive and significant relationship between school administrators' self-efficacy and integration with the business emerged. In the study carried out by Federici and Skaalvik (2011), it was stated that self-efficacy is an important factor affecting a school administrator's continuity to work, efforts, resistance against obstacles and professional performance. In another study carried out by Federici and Skaalvik (2012), it was revealed that there is a positive relationship between the self-efficacy beliefs of a school administrator and his motivation and job satisfaction, and there is a negative relationship between burnout and desire to leave the job. In another study of Federici (2013), it was also seen that school administrators' self-efficacy and perceived professional autonomy have a positive relationship with the job satisfaction of administrators.

Aktürk (2012) states that people exhibit a better performance about learning when they have a positive attitude, and people's attitudes toward learning a subject affect learning products. The self-efficacy beliefs affecting the job performance has a positive relationship with the attitude towards profession. It can be said that PBL approach, the effect of which on the development of self-efficacy beliefs was revealed in various studies, make significant contributions to the change of participants' attitude towards profession in the positive direction. Because self-efficacy can be defined as the individual assessment of the capacity which is perceived by the person in himself to perform a job. According to Bandura (1997), people with high self-efficacy beliefs do not run away from the experiences that they have newly encountered and with which they have to struggle and behave quite determinedly to complete their action successfully, and individuals with low self-efficacy beliefs have the feelings of tension, stress and discontent in fulfilling certain duties. Virga (2012) emphasized that school administrators with high self-efficacy set high targets both for themselves and their employees. Therefore, self-efficacy is the belief that allows to understand how general personality traits affect the job performance (Alessandri et al., 2014) and is closely associated with professional commitment (Bakker, 2011) and exhibiting better job performance (Bandura, 1997).

Although PBL helps learners to gain the knowledge and skills required by their profession, an adequate-qualified- job performance requires self-efficacy belief (Dunlap, 2005). In other words, the acquisition of skills may lead to the realization of performance but cannot transform into an initiative without self-efficacy (Mager, 1992). In the study of Dunlap (2005), it was concluded that a problem-based learning environment helps learners to prepare for their profession by improving their specialized knowledge, problem solving competencies, lifelong learning skills and group participation

skills because it requires to work on problems. In the study, it was revealed that PBL can enable participants to develop positive attitudes to feel themselves ready to actively work in their profession by motivating the learners through the learning and problem-solving activities reflecting the real environment and workplace requirements. This also supports the results of the study.

Consequently, it was seen in this study that the web-based PBL may lead to positive development of school administrators' self-efficacy beliefs and attitudes towards their profession. This situation shows that the administrator training model used has the potential to make significant contributions in the professional development of school administrators. There is a need for approaches that integrate theory and practice in the educational administrator training programs in universities. Web-based PBL can respond to this need. Therefore, it is necessary to take into account the problem-based approaches containing web-based learning opportunities in administrator training programs in universities and the real problems at schools.

The following suggestions have been made to the researchers for further studies:

1. The impact of participants' web-based learning analytics (analysis of academic achievement and performance evaluations and future predictions) on the school administrators' professional development can be examined.
2. The relations between participants' academic achievement, self-efficacy beliefs and attitudes towards the profession can be examined.
3. Qualitative studies can be conducted (at least a year later) on the extent to which those who participate such training programs encounter problems presented in the case studies in the future and what kind of reactions they give against the problems.



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