Perceptions of School Principals Working at Science and Social Sciences High Schools on the Characteristics of Innovative Teachers

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ABSTRACT
A school principal's perceptions of the definition of innovation in education, the teacher's role in providing innovation in the classroom, and the willingness to adapt to meet the needs of the modern student are important in the professional development of teachers. Teachers have a major role in educating future generations and principals are critical for it's implementation. As a result of scientific and technological advancements, society and students' needs differ. Teachers who will respond to these differences also need to have new approaches to teaching. In this context, research on the attitude of school principals toward the importance of teacher innovation is critical. The aim of this research is to determine the views of school principals working in the science and social sciences high schools towards innovation, innovative teachers, and practices of innovative teachers. School principals' views often vary on what is required to have a productive innovative classroom. A school principal's support and encouragement of teachers implementing innovative strategies in the classroom is essential. School principals have identified that teachers who follow the innovative approaches, are open to innovation, information technology, learning, development and collaboration. School principals expressed different views on the relationship between the teacher training at the university and the applications of innovative practices in the classroom.

KEYWORDS: Innovative, Innovative Teacher, Teacher Characteristics, School Principals, Qualitative Method.

INTRODUCTION
In the changing and developing world, rapid changes are taking place in the field of science and technology. These advancements effect educational processes. The effects of radical and rapid developments and changes on social and institutional structures in the field of technology in the 21st century, including education systems, appear in almost every field. (Uşun, 2000). In this context, the targets of the countries are: to educate citizens in the context of changes in science and technology, and to prepare them for the information society. Another responsibility of the countries is to create an environment open to changes in the information society that will allow teachers to better prepare their citizens for the future. In the changing world conditions, it is necessary to teach the ways of accessing information rather than mere knowledge. Additional responsibilities of the countries are to prepare individuals in problem solving, communication, cooperation, creativity, information and technology literacy. In other words, it is of great importance that the learners and thinkers adapt to change and make those changes sustainable. Innovation is defined as using concepts of creativity, originality, change and development. Innovation is the use of creativity to solve problems and inspire new technological developments. The relationship between innovation and technological developments has an important place in the development of societies, solving problems related to society, and increasing the quality of life of individuals. As a result of these developments and changes in science and technology, the expectations of societies and individuals are changing. In this context, education systems that can meet the changing expectations should be open to innovation, change, and transformation.

The importance of the concept of innovation in education has been emphasized by the European Union (EU) and the Organization for Economic Development and Cooperation (OECD) in the last decade. In addition, education and training, education reforms, excellence, innovation and competitiveness are determining factors in the studies on innovation in education (Shapiro et al, 2007). Within the scope of innovative education, EU countries aim to become information societies. Economic and technological changes in the 21st century have brought about educational changes for these countries. Because of these changes, it has become a necessity to reconstruct and redesign education (Catts, Falk and Wallace, 2011). This situational analysis necessitated the search and use of new teaching methods and techniques to develop the student skills required by the information society. Taking into

account the individual differences of the students in the educational processes has led to the creation of demands for innovative teaching and learning methods, and required more guidance for the students. (Baroncelli, Ioan Horga and Vanhoonacker, 2014). In traditional approaches, while the student takes on a passive role in acquiring knowledge, students acquire a more active and participatory role in the acquisition of knowledge in the sense of innovative education. The students who are actively involved in the acquisition of knowledge build knowledge in an activity-centered active process. The information age is changing not only the education systems but also the demands of the labor market. It is necessary to design innovative and knowledge-based learning-teaching processes to ensure the qualified and equipped manpower needed by the labor market. As can be seen, the meaning attached to the concept of innovative education varies according to the educational needs of the countries and their expectations for the future. Iceland, for example, began to implement innovative education in 1991 in the education system by teachers to develop children's creative skills as it sees innovation as important for its future and wealth. (Shavinina, 2013: p. 17). In the 21st century, the world is changing rapidly, depending on the rate of change, the countries' education, industry and sector expectations and qualified labor needs also change. In order to meet the changing workforce needs of the countries, individuals can be trained within the scope of innovative education. In the context of innovative education, the teacher has an important role in raising the generations that will meet the changing needs of the society.

It is now a necessity that teachers who serve as driving forces in the development of society and are highly qualified, lifelong learners, and innovative individuals, have a high stake in shaping the future generations (Kılıçer, 2011). In the last decade, the expectations of the society for teachers have differentiated and increased significantly. These high expectations necessitate additional training of teachers. Since the performance of the teacher is highly correlated with the academic success of the student, the quality of the teacher will have a profound effect on the academic success of the student. The teacher's mastery of new teaching methods encourages the student to take more responsibility in achieving academic success. In this context, it is necessary for teachers to enhance their own professional development and to integrate technology effectively in educational environments, and therefore, to be educated with a new understanding of teaching and learning (Cohan and Honigsfeld, 2011). At this point, a teacher need to be trained to be an innovative teacher.

The perception of the principal on the concept of innovation and the innovative teaching approaches is important for the development of the education system. Scientific and technological developments in the world require teachers to have innovative strategies. In this context, the school principals' perceptions and attitudes about innovation are seen as important for teachers to gain innovative teacher approaches In Turkey, science and social sciences high schools are perceived as high quality school education by society. When Science and Social Sciences High Schools are considered to be open to innovative learning, it is vital to explore the collaboration between the principals' perceptions and attitudes towards this approach to education and the degree teachers implement innovation in the classroom.

PURPOSE
The aim of this study is to determine the perspectives of the school administrators working in the high schools of science and social sciences. For this purpose, how do school administrators evaluate innovation and teachers' innovative teacher characteristics? The question has been sought.

METHOD
Research Design
The qualitative method was used in this study, which aims to determine the general situation of teachers working in the high schools of science and social sciences according to the opinions of the school principals. One of the qualitative research methods of the research is designed in the science (Phenomenology) pattern. The most basic feature of the phenomenology pattern is to reveal and interpret the individual's experience, perspective or perceptions related to a particular phenomenon. (Yıldırım and Şimşek, 2011). In other words, phenomenology is to make it clearer by understanding the meaning, structure and essence of the experience of the individual or group related to a case. (Patton, 2014). The aim in science is the meaning that the individual creates in the world. The life of the individual and the environment in which the experience passes are important. It is important to present in the depth of the literature both in the literature, in the literature, in terms of the subjects in the literature, in the cases and dimensions of the patients, in terms of the cases they live, feel and feel. (Aydın, 2014). In this study, semi-structured interview forms about the levels of teachers' innovative teacher traits were used according to the opinions of the school principals.

Study Group
Maximum diversity sampling which is one of the purposive sampling methods was used in obtaining qualitative data. The purposeful sampling method is used to examine a subject in more depth or detail. In order to discover

and explain the events and facts, a purposeful sampling method is used (Yıldırım and Şimşek, 2011; Akarsu, 2014). The purposeful sampling method is preferred when it is desired to work in one or more specific situations that meet certain criteria or have specific characteristics (Koç Başaran, 2017: pp.480-495). In this sampling method, the researcher selects the participants who can best respond to their goals until they reach a certain number of samples. The researcher's judgments and abilities are in the foreground in the election (Aziz, 2014; Creswell; 2016). In the maximum diversity sampling, which is one of the purposive sampling methods, the aim is to find out whether there are any common or shared phenomena between the different situations and to reveal the different dimensions of the problem according to this diversity. In order to obtain the data of the study, the preferred sample (a) seniority, (b) gender, (c) school type, such as the kind of school principals who show differences. As a result, it was decided to consist of 19 school principals in public / private science and social sciences high schools in Ankara.

Data Collection and Analysis Process
In order to collect the data of the research, a semi-structured interview form was developed to be applied to the school principals in the context of innovative teacher characteristics. The interview form developed was examined and the expert opinion was obtained from eight academicians working in Yıldız Technical University, Gazi University and Muğla Sıtkı Koçman University Curriculum and Instruction and Computer and Instructional Technologies Education departments. The opinions and suggestions of the experts about the interview form were evaluated and an arrangement was made. The developed executive form was shared with 5 school principals working in high schools of science and social sciences. In line with the opinions received from the school principals, the interviewer was re-shared with the academician who took the field and reconstructed and prepared for trial application. The interview form was applied to 14 school principals. After the preliminary experiment, the final form of the interview form consisting of 10 questions is given.

In order to collect the data of the research, the schools were visited on different dates and interviews were conducted with the school principals in the environments where school principals could feel comfortable. The interviews were conducted with the permission of the school principals on the basis of voluntariness. During the implementation of the interview form, 19 interviewers in the high schools of science and social sciences were interviewed. The answers of questions that did not allow an administrator voice recording were transferred to the text. After receiving permission from the school principals, the interview questions were asked in the same tone. Voice recorders and school principals' opinions have been recorded. The management interviews lasted 15 minutes on average. During the interviews, a total of 270 minutes of interviews were made with the voice recorder. The data was checked by an expert.

The data of the study were analyzed by thematic content analysis (Burnard, 1991). Content analysis is the search for some terms and expressions in the text by searching and analyzing them by categorizing within a system (Neuman, 2008, Böke, 2014). Thematic analysis involves conducting research to reveal the issues that are important in describing a phenomenon, identifying the patterns of relationship within the data and re-reading the data and identifying the themes (Fereday and Muir-Cochrane, 2006). Thematic analysis is a process for investigating and identifying common themes mentioned in the interviews (DeSantis and Noel Ugarriza, 2000).

In the research, both the codes were determined and the thematic analyzes of the data were made in detail and the frequencies of the codes and codes were described by determining the frequency of mentioning these themes by the participants. Y1, Y2, Y3, Y4, Y5, Y6, Y7, Y8, Y9, Y10, Y11, Y12, Y13, Y14, Y15, Y16, Y17, Y18, Y19 are given for the school principals. The main themes, themes and codes were created for each question in the interview forms. In the data analysis, inductive and deductive approach are used together. Inductive approach in questions 1 and 7 asked during the interview process, 2. 3. 4. 5.6. and 8, the inductive approach was used as the main approach. The themes determined as a result of qualitative data analysis are shown in Figure 1.
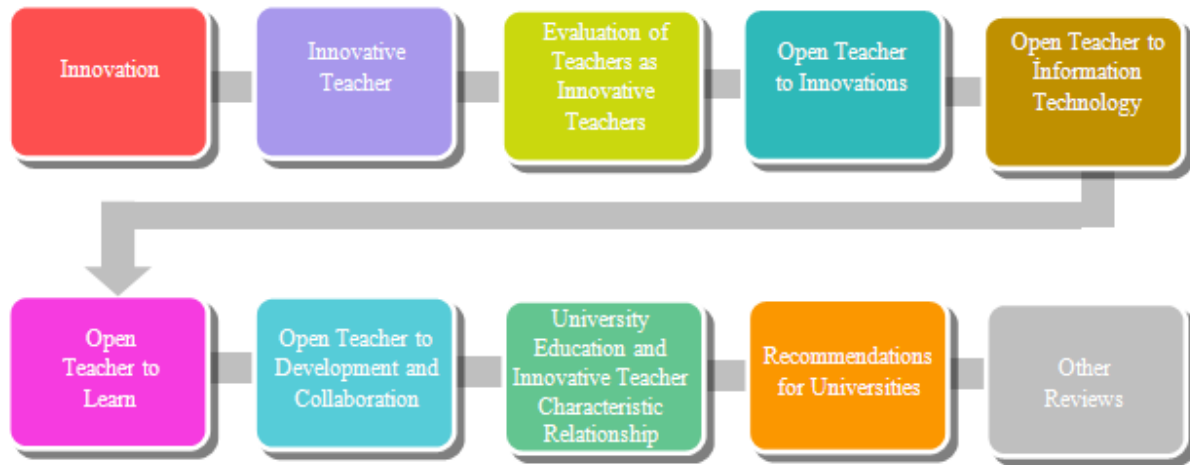
Figure 1. Themes Based on Data Analysis

The validity and reliability study of the interview form was conducted. Within the scope of the research, information about how data is collected and analyzed is explained in detail. The validity of the research was carried out in two stages (1): The data analysis process is explained in detail (2). Interviews of school principals were used as the main data source in the processing and interpretation of the findings. In order to ensure the reliability of the study, two different expert opinions were consulted in Educational Programs and Teaching Science in order to confirm whether the sub-themes determined in the research represent a theme under conceptual themes.

FINDINGS
1. Theme: Innovation
In this theme, it has been tried to determine how the concept of innovation is perceived by school principals. The meaning that school principals attach to the concept of innovation; It is important for the evaluation of teachers' innovativeness. The question of "What do you think innovation means?" As shown in Table 1, the opinions of the school principals about innovation are gathered around two sub-themes, individual innovation and innovation in education.

Table 1. School Principals' Opinions on Innovation

What do you mean by innovation?			*School*
Theme	Subthemes	Codes	*ƒ*
Innovation	Individual Innovation	To adapt to the requirements of the era / new	5
		Self-renewal	4
		Following developments in science and technology	2
		Open to innovation	3
		Self-development	1
		Being willing to learn	1
		Open to developments	1
		Total	17
	Innovation in Education	Improving system / existing	4
		Following the developments	4
		Guiding the student / developing the student	2
		Following and applying to daily	1
		Keeping up with the times / adapting to change	2
		Preparing students for the future / life	2
		Total	15
	Final Total		32

Individual innovation: According to Table 1, the frequency of talking about the main theme of individual innovation is f = 17. With the frequency of f = 9, the most common themes have become the most important

themes. Other themes mentioned by the school principals have been to follow developments in science and technology, to be open to innovations, to develop themselves, to be willing to learn and to be open to developments. One of the statements of the school principals regarding this theme is given below:

" Innovation means being open to new things ... willing to learn new knowledge and skills " **Y2**

On the other hand, it has been emphasized that every innovation should not be accepted, that innovation must be in accordance with our own conditions and culture, and that innovation should continue to develop the existing one. One of the participant school principals expressed this as follows:

" For me, innovation means to follow the age without losing our beliefs without losing our traditions and customs without losing some of our values. " **Y13**

Innovativeness in education: School principals have expressed the importance of innovation in education, preparing students for the future / life, guiding the student / developing the student, following the developments, following and applying to daily, keeping up with the times / adapting to change. One of the statements of the school principals regarding this theme is given below:

"Anything that can help children in adapting to the changing world, can guide, integrate them with the world and facilitate the learning of children can be evaluated within the scope of innovation. " **Y6**

2. Theme: Innovative Teacher

In this theme, it was tried to be determine how the concept of innovative teacher is perceived by school principals. The meaning of the school principals to the concept of innovative teachers is important for the evaluation of teachers' innovativeness. The question of "What do you think the definition of innovative teacher means?" school principals' views on the innovative teacher coincide with three of the four competencies (Learning, Educational, Technology, and Social) identified by Zhu, Wang, Cai and Engels (2013). Participants' views on the innovative teacher are grouped under three main themes: learning competence, educational competence, knowledge and technology competence. The opinions of school principals are presented in Table 2.

Table 2.Views of the School Principals on the Innovative Teacher

What do you think the innovative teacher means?			School
Theme	Subthemes	Codes	f
Innovative Teacher	Learning Competence	Self-renewal / development	7
		Keeping current with change	4
		Open to change / innovations	6
		Keeping up with developments / innovations	4
		Tracking developments / innovations	1
		Open to learning	1
		Total	23
	Educational Competence	Using methods and techniques according to student's characteristics	4
		Using new teaching methods and techniques	2
		Using different teaching methods	3
		Adapting innovations to the system	2
		Risk taking (in the process of education)	1
		Total	12
	Knowledge and Technology Competence	Using technology	7
		Following and applying current information	2
		Access and using information	2
		Total	11
	Final Total		46

Learning Competence: According to the school principals who participated in the research, self-renewal and development, keeping current with change, being open to change and innovations, adapting to developments and innovations, being open to learning, being open to research and having goals for the future, were covered by the learning ability of the innovative teacher. One of the statements of school principals about the theme of learning competence is given below:

"... constantly renewing them self..." Y1

Educational Competence: The educational competence for the school principals is explained under five subjects, by using the methods and techniques, using different teaching methods, using new teaching methods

and techniques, taking risks and adapting the innovations to the system by understanding student characteristics. One of the statements of the school principals on the theme of educational competence is given below:

"The innovative teacher is a teacher who can take risks, is not afraid of changes, and can use new teaching methods and techniques." **Y5**

Knowledge and Technology Competence: According to the school principals, the knowledge and technology competence of the innovative teacher includes using technology, accessing and using information, keeping up to date and practices and changes / behaving according to the requirements of the times. One of the statements of school principals about the theme of information and technology competence is given below:

" Innovative teachers are called teachers who are open to new knowledge in their field and who can use the technology. Independently from old." **Y2**

3. Theme: Evaluation of School Principals as Teachers' Innovative Teachers

The school principals were asked the question 'Can you evaluate your teachers as being an innovative teacher?' 17 of the school principals were able to evaluate whether the teachers were innovative or not, and the two school principals did not comment on this issue. The opinions of the school principals are presented in Table 3.

Table 3.Distribution of School Principals' Evaluation of Teachers as Innovative by Themes

Can you evaluate your teachers as an innovative teacher?			Yes All	Yes Some	Yes Diligent	No	Total
Theme	Subthemes	Codes	f	f	f	f	f
Evaluation of Teachers as Innovative Teachers	Discovering innovations and presenting innovations to students	General	6	8	2	1	17
		Open to innovation	1	1	-	-	2
		Using different teaching methods	1	1	-	-	2
		Developing professional knowledge and skills	1	1	-	-	2
		Preparing students for the future	1	0	-	-	1
		Following students to research	1	0	-	-	1
		Respecting other ideas	0	1	-	-	1
		Guiding students	1	0	-	-	1
		Total	6	4	-	-	10
	Access to information and monitoring of information technologies	Access to information	0	1	-	-	1
		Information technology monitoring and using in lessons	0	1	-	-	1
		Total	0	2	-	-	2
	Open to development and cooperation	Follow scientific developments	1	0	-	-	1
		Total	1	0	-	-	1
		Final Total	13	14	2	1	30

As seen in Table 3, the comments of the school principals are shaped under the theme of discovering innovations and introducing innovations to the students. It was seen that teachers who stated that some of the teachers were innovative also were referring to the themes of accessing information, using information technologies, and using them in lectures. From the statements made by the school principals on this subject, the first statement below is given for those who think that all are innovative, and the second one is for the second one is for those who think that they are innovative:

"I can evaluate our teachers as an innovative teacher. They want to use different teaching methods ... They are also trying to guide the children in preparing for the future and doing research. We are trying to follow the latest developments for him to say that my teachers" **Y14**

"I cannot evaluate the teachers we work with as an innovative teacher. Maybe half the innovative teacher. 50% of them are innovative teachers. He must respect other ideas to be an innovative teacher. He / she needs to

improve his / her professional knowledge and be open to different teaching methods and techniques. I can say that half of the teachers we work with are in accordance with the innovative understanding." **Y10**

4. Theme: Open Teacher to Innovations
Within the scope of this theme, "*How do you evaluate your teachers in terms of discovering innovations and providing innovations to students?*" question was asked. In Table 4, The answers of the school principals on this question are shown thematically.

Table 4. School Principals Teachers Discovering Innovations and Evaluating Students in terms of Presenting Innovations: Frequency of Thought by Themes

How do you evaluate your teachers in terms of discovering innovations and providing innovations to students?			Yes All	Yes Some	No	Total	Unanswered
Theme	Subthemes	Codes	*f*	*f*	*f*	*f*	*f*
Open Teacher to Innovations	Open to	General	10	4	1	15	3
	Using Different Teaching Methods	General	3	5	0	8	
		Smart board	3	0	0	3	
		Constructivist	3	0	0	3	
	Preparing Students for the Future	General	15	1	0	16	2
		Social and spiritual	5	0	0	5	
		Academically	3	0	0	3	
	Directing Students to Research	General	12	3	1	16	2
		Olympics, projects, homework	6	1	0	7	
	Respecting Other Ideas	General	13	1	0	14	4
		From teacher to	1	0	0	1	
		From teacher to	2	0	0	2	
	Using Teamwork in Lessons	General	13	1	0	14	4
		Among students	4	0	0	4	
		Among teachers	9	0	0	9	
	Developing Professional Knowledge and Skills	General	11	2	1	14	4
		Course, seminar in-service training participation	3	0	0	3	
		Final Total	74	17	3	97	19

Open to innovation: Of the 18 school principals participating in the study, 15 evaluated the teachers in terms of being open to innovation and three of them did not. Among the evaluators, 10 school principals stated that teachers are generally open to innovations, 4 school principals are open to some, and one school principal is not open to innovations.
"teachers open to innovations." **Y1, Y2, Y3**
The school principals who think that some of the teachers are open to innovations said:
"... we don't have a very old staff if we think of the staff we work for, so most of our staff are young or a little below middle age. of course, young teachers may be more open, but there can be extreme examples. There are also teachers who are over 40-45 years old and who can apply all kinds of innovations, new and beautiful, of course, who are able to implement them and who are aware of the developments that are related to them. In addition to him, we have teachers who are young and in the mood for learning his profession at the moment. We also have teachers who try to be aware of everything, trying to learn what they are aware of and trying to convey what they have learned to their students." **Y4**

Using different teaching methods: 10 of the school principals stated that teachers used different teaching methods, 5 teachers used some of them, and 4 school principals did not address this theme. Teachers who use different teaching methods to make a theme-based explanation of the school principals use smart boards and constructivist approach to homework, project, and laboratory activities.. Here are two examples of school principals who reported using different teaching methods:
" Our teachers use different teaching methods and techniques they used the chalkboard and question-answer methods. Now, with a constructivist approach, new textbooks were created with smart boards." **Y7**

Below is an example of how different teaching methods are used by many:
"Our teachers use different teaching methods and techniques in part." **Y17**

Preparing Students for the Future: 16 of the school principals stated that preparing students for the future was done by all the teachers and one of the teachers prepared some of the students. 2 school principals did not address this issue. The theme of preparing the student for the future was discussed by the school principals regards to two areas, academic and social.
"If we evaluate the students in terms of preparing for the future, they prepare their academic self-confidence as a social skill. In this sense, our teachers are in an effort to express themselves, to read the world, to follow developments and to make them realize how important they are in their lives." Y8
An administrator who believes that some of the teachers are working to prepare students for the future, said:
"Some people are aware of it, some are only responsible for teaching and transferring their subjects. Some of them both teach them and a little bit of colloquially trying to open the eyes of the future forward-looking business courses, whether his activities, whether or not his assignments always direct students towards this type of research, there are teachers directing." **Y4**

Directing Students to Research: Twelve of the school principals mentioned that teachers were directing the students to research, 3 of them were directing some of the students and 1 stated that the teachers had difficulty in using research so did not assist students in learning to use research. Teachers who direct students to research stated that they did this through projects and class assignments. A school principal said:
"They're directing our students to research. Science festivals are held every year in our school. Our children are learning to do projects at this age. They're learning to write a thesis. They are learning academic honesty. " **Y3**
One school principal believes that directing students to research is hardly possible, The reason for this is the burden of the curriculum.
"'This is unlikely because of the secondary education success point. Students do not have to give extensive research topics. Our teachers have a serious curriculum load. Our teachers need to finish this. Our teachers do not direct research because of their curricular burden." **Y9**

Respecting Other Ideas: 14 of the school principals who participated in the study showed that teachers respected other ideas, 1 of them respected some of ideas. Three school principals used more general expressions such as the importance of respect, but did not evaluate teachers about it. Only two of the school principals explained the importance of respecting other ideas, and one addressed both teachers respecting other teachers ideas and for the respect of ideas of their students.
"We have teachers from different perspectives, different values and different unions. Our teachers discuss in a free environment within the framework allowed by law. I had never had a discussion of the fight between my teachers. The development of democracy with tolerance and the friendship of teachers with each other empathic approach, people respect and love each other Human love is among our teachers." **Y7**

Making Teamwork in Lessons: There were a total of 13 school principals who stated that they had teamwork for all of the teachers, detailing the theme by mostly focusing on the teacher's teamwork with the teacher friends. One of the school principals mentioned that some of the teachers used team work and the other four school principals did not mention team work. Here is an example of an executive view:
"... especially in projects, our friends give great importance to team work. This is also happening in preparation for life, especially when the project should have done a few people did not have trouble until now obviously. " **Y14**

Developing Professional Knowledge and Skills: In terms of developing professional knowledge and skills, 11 school principals stated that teachers developed themselves. Only 3 school principals elaborated on the subject and stated that teachers developed their professional knowledge and skills through in-service training. Below is an example view:
"We release our teachers for in-service training. Here the teacher develops itself very well." **Y3**.
The opinion of one of the two school principals who pointed out that only some teachers developed their professional knowledge and skills is as follows:
"Some of them are open to all kinds of innovations in order to develop their professional knowledge and skills. But there are also teachers who are monotonous, who have assigned all of the subjects and works to the task and focused on finishing them somehow." **Y4**
One of the school principals explained that the teachers could not find the time or opportunity to develop themselves and explained the reasons for this.
"Our teachers do not find the opportunity to develop their own knowledge and skills. Teachers develop their professional knowledge and skills if there are improvements in the form of salary increase, either materially or

morally, that the teacher uses in his or her own knowledge and experience in an appropriate environment. This is not happening much.' **Y10**

5. Theme: Open Teacher to Information Technology
Within the scope of this theme, school principal asked the question "How do you evaluate your teachers in terms of accessing information and monitoring information technologies?" In Table 5, the answers of the school principal on this question are shown thematically.

Table 5.Evaluation of Teachers of School Principals in terms of Accessing Information and Monitoring Information Technologies

How do you evaluate teachers in terms of accessing information and monitoring Information technologies?			Doing	Doing But Not enough	Total	Unanswered
Theme	Subthemes	Codes	*f*	*f*	*f*	*f*
Open Teacher to Information Technology	Access to information	General	17	2	19	0
		Using Internet	6	0	6	
		Use of Technological Devices	2	0	2	
	Monitoring websites with educational content	General	16	0	16	3
		Education Information Network (EBA)	8	0	8	
		Other	4	0	4	
	Use technology to investigate and evaluate information	General	2	0	2	17
	Monitoring and using information technologies	General	15	4	19	0
		Smart board	8	0	8	
		Video	3	0	3	
		PowerPoint program	2	0	2	
	Guiding these issues	General	16	0	16	3
		Between teachers	16	0	16	
		Final Total	66	6	72	23

Access to information: *S*chool principals interpreted the concept of access to information as using technology to reach information. The following excerpt is an example:
"They use technology to reach information; they watch websites with educational content." **Y2**
The vast majority of school principals stated that teachers use technology to access information, only two of them stated that teachers use technology to access information but not enough. School principals expressed this idea as follows.
"I think that teachers are insufficient to reach information and use information technologies in lessons. The way teachers grow is preventing them from using information technologies. Today we live in the Internet age, even in small children have Internet. Children can enter everywhere; but my colleagues, including me, have met with the computer too late." **Y1**
Technological devices and internet usage emerged within the scope of the comments of the school principals detailing the use of technology to reach the information. Two of the school principals referred to both, and four only used Internet. For example, a school principal said:
"If we evaluate teachers in terms of accessing information and monitoring information technologies, we cannot say that they are all not following. The Internet is now accessible to everyone in the area. In terms of access to information, internet is used instead of books." Y13
Monitoring websites with educational content: school principals do not monitor educational websites; mentioned the use of web sites with educational content. Among the 19 school principals participating in the study, 16 of them stated that the teachers used educational web sites, three of them did not mention this issue. The school principals who gave details about this issue mentioned frequently on the web of Education

Informatics Network (EBA); four school principals also referred to other web sites (Vitamin, Morpa Campus, Academy, etc.) Here is an example of the statements of school principals on this issue:
*"They use EBA in the first place and they use other sites like the Academy." **Y14***

Use technology to investigate and evaluate information: Only two school principals mentioned this issue, the other 17 school principals did not mention. As can be seen in the quotations given directly below; the statements of these two school principals are quite superficial, just as they are asked. This theme is perceived as very similar with the theme of access to information; may have escaped the attention of the school principals:
"They use technology to investigate and evaluate information." **Y2**

Monitoring and using information Technologies*: Fifteen of the school principals who participated in the study reported positive opinions about their teachers. four found the teachers insufficient. The school principals detailing this theme mentioned the primary use of smart board and then the use of video and PowerPoint program.
"Teachers use smart boards information technologies tools and equipment in their lessons." **Y9**
"They use PowerPoint presentations and videos in lessons." **Y7**

Guiding these issues: The school principals who participated in the study perceived the guidance as being guidance in the use of information technologies. They approached the use of information technologies as guidance, help, or assistance, and discussed this in the context of the cooperation of teachers. Three of the school principals who participated in the study did not mention this theme, and 16 of them mentioned that teachers helped each other in using information technologies. Here is an example of an executive view on this topic:
"There is some help in using information Technologies.". **Y2**

6. Theme: Teacher open to Learning
Within the scope of this theme, school principals were asked to evaluate teachers in terms of being open to learning. Table 6 presents the evaluation of the school principals in terms of being open to learning of their teachers.

Table 6. Evaluation of School Principals in terms of Being Open to Learning Teachers

How do you evaluate your teachers in terms of being open to learning?		Yes General	Yes Some	Total	Unanswered
Theme	Codes	f	f	f	f
Being open to learning	Applying new developments in school	12	4	16	3
	Search for authenticity in their work	13	1	14	5
	Being open to learning	6	3	9	-
	Devotion to learning	4	3	7	-
	Being willing to learn	4	1	5	-
	Final Total	39	12	51	8

Applying new developments in school: 16 of the school principals participating in the study expressed their opinions on this issue while three left this unanswered. The majority of the school principals who stated their opinions said that teachers implemented new ideas and concepts in the school. Here is an example of a school principals 's statement that teachers are willing to implement innovations:
"If we evaluate the new developments in the school in terms of wishes and desires, it is very high." **Y8**
Some of the school principals' opinions about the willingness of some new teachers to implement new developments in the school are as follows:
"Our teachers are not very interested in new developments in the school. For example, let me give an example of a project that will be launched in our school, we had only 4 teachers applied to this article." **Y18**
A school principal who shared some details on this issue said:
"Our teachers cannot allocate time because of their high time in the application of new developments in the school. Or, he doesn't want to. There is reluctance in these respects. The teacher is interested if new developments are material. Sometimes we have to say forcefully do this." **Y10**

Originality Search: In this regard, five school principals did not share opinions; and the 15 school principals who expressed their opinions said they were looking for originality in the teachers work. Some of the school principals who thought that teachers were looking for originality in their works, stated:

"Our teachers are looking for originality in their work. Here are their egos as well. Our teachers contribute when they are honored or honored in their studies. " Y10

The school principal, who was of the opinion that some of teachers are looking for originality in their work and that some of them do not care to seek, stated:

"If we evaluate the originality search status in their work; we can say that half of you have the status of making some. Some of them are trying to contribute to new self-produced things." Y5

Being open to learning: Seven of the school principals participated in the study stated that the teachers were open to learning, and 3 of them were not very open to learning. One of the school principals who stated that following:

"Our teachers are open to learning if they have a need for serious learning, they are doing the necessary work to meet these needs " Y9

Two of the three school principals expressed that some of the teachers were open to learning and others of them were not as open to learning new things. The younger teachers appeared to be are more open to learning.

"Being open to learning, our advanced age teachers are also low. Our middle-aged and young teachers explain more to learning." Y19

Devotion to learning: The opinion of the school principal who believes that teachers are determined to learn is presented below:

"Our teachers are determined to learn. ''Y 7

Some of the teachers are determined to learn, some of them are not determined, said the school principals:

"Some of the financial situations of our teacher's is good economic opportunities to get information from the subjects you are talking about whether you get wonder whether you get ambition whether you can see them. But even in such a feeling that some of them cannot do it." Y4

Being willing to learn: Here are two examples of statements from school principals who consider teachers as being willing to learn.

"Our teachers are eager to learn." Y6

Some of the teachers are willing to learn, some of them are unwilling an administrator said:

"The desire to learn is changing personally. We also have teachers who are open to innovations, and we have teachers who are stationary." Y10

7. Theme: Open Teacher to Development and Collaboration

Within the scope of this theme, in Table 7, school principals are given the opportunity to evaluate teachers in terms of being open to development and cooperation. As shown in Table 7, in the evaluation of teachers in terms of being open to development and open to cooperation, in addition to the three previously given categories, two more categories have added. These categories are being open to development and cooperation, and to find meaningful participation in international projects. Only the pre-determined issues have frequencies of the school principal who mentioned them in their comments

Table 7. Evaluation of Teachers in Terms of Being Open to Development and Cooperation of School Principals

How do you evaluate your teachers in terms of being open to		Yes	No	Some	Total	Unanswered
Theme	Codes	f	f	f	f	f
Open Teacher to Development and Collaboration	Attending in-service trainings	12	2	3	17	2
	Collaborating with other teachers in international projects	3	7	3	13	5
	Follow scientific developments	14	1		15	4
	Finding participation in international projects	11	-	-	11	-
	Open to change and cooperation	3	-	2	5	-
	Final Total	43	10	8	61	11

In-service training: All but one of the school principals evaluated their teachers to participate in in-service training. More than half of the school principals who expressed their opinions stated that the teachers participated in the in-service training, two of them did not participate, three of them participated, some of them did not participate.

A subject emerging in the participation in in-service training has been voluntary or obliged to participate in the training beyond whether or not the teachers participate.

"Our teachers are trying to participate in in-service training within the scope of the possibility of my own will to go there is a conference, there is obviously such a thing does not participate. If the Ministry organizes it as a school management, we do not see much resistance to it. " **Y14**

An school principal who expressed that teachers do not want to participate in in-service training, said::

" They have reservations at the point of attending in-service training. They do not think that in-service training they participate will benefit them. They sometimes consider in-service training as a loss of time. The same things are statically repeated in in-service training courses. Sometimes they think theoretical approach is not practical. They participate in in-service training when they have to." **Y10**

Cooperation with other teachers in international projects: School principals have interpreted cooperation with other teachers in international projects as participation in international projects. Only three of the school principals stated that teachers participated in international projects, seven were not involved, and three were involved in some of them. The other five school principals did not evaluate the teachers. The following are two examples of Executive views that indicate that most or some of their teachers participate in international projects:

"Our teachers participate in international projects and continue their participation. Our teachers provide good sharing within international projects. Our teachers need to be good in English. I think that foreign language education should be increased especially for teachers." **Y11**

Two school principals said that teachers did not participate in international projects.:

"We don't have a teacher who looks very hot at international projects, we don't have a teacher who participates in international projects and develops himself." **Y12**

Another school principal stated that they supported participation in international projects, but there was no interest in participation:

"We support the teachers of different countries to make projects, but the environment and opportunities have not developed." **Y4**

Follow scientific developments: 15 of the 19 school principals, who participated in the study, evaluated whether their teachers followed scientific developments closely; all but one of them expressed that their teachers followed scientific developments. School principals did not elaborate on this issue, they only stated whether, or not,r they followed it. Samples expressions in this topic are listed below:

"They follow scientific developments." **Y3, Y6, Y7**
"They don't follow scientific developments very closely." **Y18**

Finding opportunities for participation in international projects: However, 11 school principals, including those who did not evaluate, expressed that international projects contributed to the development of teachers as innovative teachers.

"Our teachers have not participated in any international project. The fact that a teacher has a professional share with teachers of foreign countries within the scope of international projects adds different perspectives to the teacher. Teacher must learn something." **Y9**

Open to development and cooperation: He stated that all or most of the three school principals. Teachers were generally open to development and cooperation and that two school principals were not open.

"They are open to development and cooperation." **Y2, Y5, Y14**

The following is an example of school principal statements that indicate that some of the teachers are open to development and cooperation.

"We have successful teachers in these areas individually. But in general, this remains in the minority." **Y1**

8. Theme: University Education and Innovative Teacher Characteristic

Within the context of this theme, school principals were asked to evaluate the university education of teachers in terms of whether there is a relationship between the education of teachers at the University and the characteristics of innovation to become an innovative teacher. The views of the school principals are presented in Table 8.

Table 8. Innovative Teacher Characteristics with University Education Evaluation of School Principals in Relation to the Relationship

Is there a relationship between the teachers ' education at the University and the characteristics of innovation?	Yes	No	Changing
Theme	f	f	f
Relationship between innovative teacher and University	7	3	9

Seven of the school principals participating in the study stated that there is a relationship between universities and innovative teacher characteristics, 3 of them said there was no relation, and 9 of them said it can differ from university to university and from person to person.

School principals who think that there is a relationship between universities and innovative teacher characteristics, stated the following.

"I think there's a relationship. Teachers' training in universities as individuals with innovative features allows them to achieve success in their professional lives. When we look at our teachers who graduated from different universities, there are differences." **Y7**

According to 2 school principals, there is no relationship between the innovative teacher characteristics and the education received at the university. The statements of these school principals are as follows:

"I don't think he has a relationship with innovative teacher traits. Universities do not train teachers with innovative teachers." **Y1**

"There was no relationship for me. I'm an English teacher. With the training given me at the university, I couldn't teach anything in the classroom. Teaching is not just a profession to do with what you learn from the books.'" **Y16**

Some of the school principals who participated in the study stated that the relationship between the education received at the university and the teacher's innovative teacher characteristics depend on the university and its characteristics. Some of the statements of the school principals who think that the relationship between the teachers' education in the university and their innovativeness has changed according to the university is as follows:

"You look at some universities, for example, when you train a university student in a department, in line with their needs, you can provide them with courses in terms of business opportunities that they will encounter after they graduate at work or good in the market, while you look at some universities, for example, I graduated from the Department of mathematics. At the same time, a friend of mine was a graduate of Mathematics at METU. When I look at them, for example, when I learned computer programs that are currently being used in the market, the programs we learned were the programs 20 years ago, for example, the computer language I learned was the program 20 years ago. I took a Job Exam. The programs they asked me were the programs I never even saw in my life. You learn some similar programs, but people like them can be open to innovation with the kind of education they see at the University and the positive situation that the university has given them. They can internalize this situation themselves. They gain perspective in their daily lives. But when you learn old things, you're in a state of personal skill and awareness, but when you graduate from college without learning something to improve you, it turns into a state of personal skill and awareness." **Y4**

A few school principals mentioned that the teacher's own personal personality and teaching style, will also be a factor in being an innovative teacher.

"The personality is as important as the important university here. I mean, there are people who come from a bad University and raise themselves too much." **Y2**

9. Theme: Recommendations for Universities

In the context of this theme, the recommendations of the school principals for universities were presented under two sub-themes: proposals for preparing teachers for the teaching profession, and for the universities themselves to be innovative. These recommendations are presented in Table 9.

Table 9.Recommendations of School Principals to Universities

Theme	Subthemes	Codes	School f
Recommendations for Universities	Recommendations for Preparing for Teaching	Sufficient amount of applications	7
		Universities are integrated with educational	7
		Practice courses at the University are more	2
	Recommendations for Universities to be Innovative	Towards the direction of Science and innovation	6
		more information and technology courses	4
		more faculty members	0
		Recruit more qualified students to college	2
		To educate individuals for future needs	2
		Total	30

Suggestions for preparing for teaching: As can be seen in Table 9; It has been organized under three sub-subjects: the suggestions that the universities better prepare teachers for the teaching profession, the sufficiency of the practices, and the courses at the university apply more directly to real world life and issues

Sufficient amount of applications: The school principals believe that the university education should not be limited to just theoretical or transfer of knowledge transfer, rather to practical application to the real world.
"*Unfortunately, university education is not a sign of education, but university education is not practical. With the theoretical education at the university, the teachers who are attending the school are experiencing confusion. In particular, universities need to increase practical applications while training teachers. I would very much like to see my students go to practice during my university education."* **Y11**
One school principal stated that the application at the university could be carried out within the framework of a master-apprentice relationship:
"In my opinion, rather than giving information to teacher candidates at university for 4 years, there should be a master-apprentice relationship. One year, the basic information given the next year, a senior teacher, and this profession should be sent to observe how." **Y9**

Universities are integrated with educational institutions and real life: The school principals, who emphasized the need to overcome the gap between universities and practice schools and to be intertwined with educational institutions, stated that these disconnections are both in terms of curriculum and life conditions and should be eliminated. Some of the school principal statements referring to the curriculum are:
"My advice to universities in terms of developing innovative teachers is that universities should be integrated with educational institutions such as primary, secondary and pre-school education institutions, to identify the needs of schools and to educate teachers in line with the needs of schools." **Y12**
Some teachers stated that the education given at the university should relate to every aspect of life. They should help develop skills and prepare the student for the real world.
" Going to an elite school doesn't add anything. Suburban schools need to go. Village schools need to go. Teaching; To be able to burn stoves in the east, to make bread. We need to show the hard part of the job." **Y16**
Implementation of university courses more effectively: Several school principals mentioned that the practice or internship should more controlled and healthier.
"I do not think that the internship choices that are sent to schools by universities are very adequate. Because there's a problem with inspection. It is not clear whether prospective teachers are teachers or students in the classroom. Many of the university students attend the internship in the schools that do not even value their future colleagues. There are even those who don't take the teachers room. This breaks the dignity of a man. Teacher candidates create negativities about teaching. Therefore, I believe that this qualification should be ensured by giving the required value to the teacher candidate before graduating from university. Both information and hardware " **Y9**
For universities to be more initiative: As shown in Table 9, school principals emphasized that universities and academicians should be innovative, focus on science and educate individuals for future needs. Some statements from school principals who emphasize that universities should be more innovative are as follows:
"Universities need to renew themselves. Quotation quoted in the same way every time, it is necessary to produce science in the real sense, not just in projects, but in advertising. I think our university is far from this situation. Our teacher training institutions should produce projects on the ground. They have to go beyond the theoretical knowledge." **Y10**
"Academics are not traditional; have broad vision and use technology in their courses." **Y5**
Two school principals emphasized that universities should also focus on innovation and science, avoiding politics, said:
"I think universities should stay away from politics. I think universities should be science centers". **Y4**
There should be courses in information and technology: Two school principals mentioned the importance of informatics and technology courses at the university level; so, to build skills and innovative characteristics in the students. The school principals stated:
"My advice to universities in terms of innovative teacher training is to take courses of technology classes in informatics. We did not have such classes in our period. Obviously, I saw the smart board after teaching it for the first time. New developments should be explained. Unfortunately, there are teachers who cannot use computers. We have teachers who can't even use a normal Office program ... The teacher who can't use the smart board shouldn't have graduated from the university." **Y13**

Receiving qualified students in education faculties: Two school principals who participated in the study emphasized that faculties of education should be more preferable and students with higher scores should read the teaching branches:

"Higher-rated students should choose faculties of education. In other words, intelligent students need to enter these faculties. This year, a success ranking was brought to the faculties of education. This is not enough. 240 thousand to 250 thousand students will take this is not enough. These need to be corrected. The most successful students from each region should go to the faculty of education, the teacher should be trained very well. He took the best student to the faculty of education and he doesn't give the result if you don't make the necessary investment." **Y3**

Educating individuals for future needs: Emphasizing that the education given in the university should be aligned with the current and future needs of the students. The school principals stated that teachers should be trained to deal with the needs of the future:
"Teachers should be trained according to the needs of the future." **Y6**

10: Theme: Other Reviews
At the end of the interview, the school principals were asked if they wanted to add something. Other opinions of school principals are presented in Table 10.

Table 10. *Other Opinions That School Principals Want to Add*

Theme	Subthemes	*ƒ*
Other Reviews	Improving the quality of education of teachers	5
	Support teachers	3
	Need to be an innovative and open teacher to innovation	2
	The scope of research questions	1
	Total	11

School principals added their opinions: At the end of the interview, 12 school principals gave a thank you, while 6 school principals expressed additional opinions on the following table. Regarding improving the quality of education and teachers, the school principals said:
"Our universities, ministries, relevant levels, the Council of Ministers of all competent institutions and organizations should work in collaboration with each other in interaction. I think production should be more objective, based on the beautiful things produced. I believe that in our country, these beautiful changes can increase." **Y10**
The statements of the school principals who believe that support should be given to the teachers are as follows:
"Every teacher is not one, but teachers who are open to innovations in science high school, but not in a vocational high school, for example. Teachers do not renew themselves too much. In this context, teachers may be obliged to have in-service trainings or qualifications examinations can be done in branches every three years. I think they should be used." **Y15**
School principals who are open to innovation and need to be an innovative teacher have said:
"We have to be innovative teachers. We teachers have no other choice. Every teacher has to make an effort to become an innovative teacher. Although the conditions are not available, they need to act in a way to raise awareness and not think short-term. The money I buy is what the teacher, I'll spend on time with the approach that only if the teacher saves the day. I think such a teacher cannot be permanent in his profession." **Y10**
One school principal commented on the scope and depth of the research questions.
"Your questions are very comprehensive. There is a long time. But we tried to answer in general." **Y4**

CONCLUSION AND DISCUSSION
School principals' views on the use of innovative concepts in education vary. School principals perceive the concept of innovation as being both individual innovation of the teacher and academic innovation present in the classroom. School principals are a parameter in the success and development of 21st century schools (Fernet, 2011). In this respect, their view on innovation is very important. School principals set the tone for establishing individual innovation along with innovation in education. Among school principals, it is viewed that both individual and educational innovation are of equal importance in the classroom. When examined, innovation, application of new ideas, change, adoption of the new idea, new product and new application are defined as the reaction to innovation (Glor, 2001; Rogers, 2003; Goldsmith and Foxall, 2003; Demirel and Seçkin 2008). Goldsmith and Foxall (2003) are innovative; it is defined as the changing differences between individuals and individuals about the new things (ideas, products and practices) and their reactions to their own success and failures. Innovation in the literature is expressed in different definitions and meanings. The difference in the meanings of "innovation" attribute to the school principals' concept of the term, innovation. It can be said that this differentiation originates from different perceptions, experiences and biases.

The opinions of the school principals about the concepts in innovative teaching are grouped around three sub themes, they are: competency and desire to learn, competency to possess knowledge, and competency in use of technology. These sub-themes coincide with three of the four competencies (Learning, Educational, Technology and Social) identified by Zhu, Wang, Cai and Engels (2013). The school principals recognized the innovative teacher's learning competence as being self-renewal and continuous personal development, following change in innovations, and adapting those changes. The school principals measure instructional competency of the innovative teacher by their use of instructional methodologies and teaching techniques in accordance to the characteristics of the student learner. Teachers are expected to use a variety of teaching methods, incorporating new teaching styles and techniques, taking risks and embedding the innovations into the educational system. School principals perceive the knowledge and technology competency as using technology, accessing new information, applying that information, following-up, and practicing contemporary requirements. School principals describe the innovative teacher as an individual with competencies in learning, education, knowledge, and technology. The innovative teacher is identified as a self-improving individual who is focused on developing the students' life and career skills, and helping the students learn. (MEB, 2010). The innovative teacher has a desire to reinvent himself/herself in his/her profession (Bitnn-Fnedlander, Dreyfus & Milgrong, 2004; Cumming & Owen, 2001). When the literature, as it relates to the definition of an innovative teacher, is examined, there appears to be similar indicators between the different perspectives.

Only one school principal concluded that their teachers were not innovative. The other school principals describe their teachers as being innovative teachers. In this context, it can be thought that the qualifications of the school principals change according to their perspectives.

In the evaluation by the principals of the teachers who are open to innovation working in their institutions, 10 school principals expressed that their teachers were generally open to innovations, 4 principals expressed views that some of their teachers were open to innovation, while a few of their teachers were not open to innovations. As a result, the school principals recognize that teachers generally are open to innovations, however some are less open. Another result of the research is that school principals have varied reactions to the level of teachers being open to innovations.

It has been concluded that the majority of teachers use technology to access information and monitor informational technologies in some manner. In terms of tracing web sites with educational content, it was concluded that teachers used web sites such as EBA, Vitamin, Morpa Campus. In terms of using technology to investigate and evaluate information, teachers' implementations have remained limited and superficial. It was concluded that school principals consider teachers to be sufficient in terms of monitoring and using information technologies. It was also concluded that the majority of teachers collaborate with one another in terms of assisting and guiding the use of information technologies.

According to the findings of the school principals' evaluations in terms of being open to learning; the majority of the school principals described teachers as being open to learning and developing new skills in technology. In addition, according to the principals' evaluation reporting, the majority of the teachers were applying new teaching strategies and approaches into their educational settings. School principals stated that a large number of teachers were looking for originality in their professional work. However, some teachers were not clear about how to implement new ideas into their classrooms. According to the evaluation by the school principals, the status of teachers' being open to learning is not related to the age of the teacher. Several school principals stated that teachers are determined and willing to learn, but not all of them.

The school principals also evaluated teachers in terms of being open to professional growth and development. In general, teachers stated that they participated in some form of teacher in-service training. It was determined that participation by many teachers in in-service trainings was voluntary, while other teachers only attended because it was mandatory. Another result was that teachers were concerned about whether these trainings would benefit them to be stronger teachers. Participation in international projects was identified as another opportunity for professional development. School principals stated that the participation of teachers in international projects contributed to the developing traits of innovative teachers. In conclusion, school principals believed most teachers are open to professional development and educational cooperation.

Seven of the school principals stated there was a relationship between teacher preparation by universities and teachers possessing traits of innovative teachings. Three of them thought there was no relationship, while nine thought it varied from university to university, and from person to person. Based on the evaluations of the school principals, it was concluded that the training of teachers who had innovative teachers at the university level benefit from the experience in their professional lives. School principals also stated that universities do not do a

good job of producing teachers who are skilled in innovative teaching strategies or attitudes. It was the opinion of the principals that innovative teachers would be enriched by practical training at universities in the concept of innovation applications in the classroom. They also noted cooperation of National Education with universities would be beneficial. Revising the teacher training policy to address increasing needs in preparing students for the future in a world of technology and change is essential.

Suggestions by the school principals for the universities are: the sufficient number of applicants to prepare for teaching, the involvement of the universities in educational institutions and real life, and a more affective application of the courses at the university. The other suggestions were to educate individuals who are oriented towards the needs of the future, and provide qualified teachers to the faculties of education, in order to be innovative and to have knowledge and technology courses.

Additional opinions that school principals wanted to suggest are: increase the quality of education and teachers, provide support to teachers, be open to innovations, model innovative teaching, and expand research questions to include those sub-themes used in this research. The results of the school principals' opinions are to improve the quality of education and teaching, to support teachers, to employ innovative teachers who are open to innovation, and to promote comprehensive research.

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