How to Develop Adult Educators' Technological and Andragogical Knowledge: A Case Study in a Private Night High School

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Abstract

The purpose of this study was to make the teachers in a particular private night high school participate in a School Based Professional Development program for their needs in educational technologies and adult learning theory so that the effectiveness of teachers in Private Night High Schools could improve. This was a case study including quantitative and qualitative data collected through Principles of Adult Learning Scale, Questionnaire of Educational Technologies, classroom observations, group meetings, and interviews. It was unfolded that knowledge level of teachers in terms of educational technologies was very low, and classroom use level of them was even lower. It was also revealed that those teachers had problems in adult learning theory. The findings of classroom observations and group meetings were consistent with the above-mentioned results. After needs assessment process, professional development (PD) programs on social media in teaching and adult teaching practices were developed and implemented in the target school. The teachers were asked about their views related to the whole process, and they acknowledged that they found it both informative and beneficial.

Keywords: School based professional development program, andragogy, adult learning principles, educational technologies, private night high schools

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Introduction

Technology welcomes great number of changes from objectives to evaluation activities in the field of education. These changes require different applications such as new educational programs, content areas, teaching methods, evaluation techniques, and institutions with required equipment (Prensky, 2010). This implies that teachers should improve themselves throughout their teaching process if they want to keep up with these changes. Professional development (PD) programs are mostly designed for helping teachers to achieve this goal. In many countries, these programs are facilitated for schools to provide in-service teachers with the opportunities of improving their skills and knowledge for the purpose of making better curriculum and instructional decisions.

In Turkey, in-service trainings have been conducted by the Ministry of National Education's Department of In-Service Teacher Training since 1993. However, many of these activities in Turkey are mainly set up as individual activities and reach only a small number of teachers and appear to last only for a short time (Yolcu & Kartal, 2017). They are mostly regarded as obligations posed by administrations. As they are commonly isolated from teachers' needs and problems of their current school environments, they are mostly evaluated as ineffective. They lack some important features of an effective PD such as promotion of collegiality and collaborative exchange and providing educators at all levels of the opportunities to work together, reflect on their practices, exchange ideas, and share strategies (Guskey, 2003). Moreover, when teachers' learning in the workplace is not satisfactory, the lack of expansion and continuation of teacher PD in schools is an inevitable consequence (Little, 2012). That is why school-based professional development program (SBPD) is regarded as one of the important examples of effective PD models that enables teachers to work in a learning community in which they can learn collaboratively and develop themselves with the support of each person in the school (Mancera & Schmelkes, 2010). It has been supported by many studies that effective SBPD can help in attracting and retaining excellent teachers (Avalos, 2011; Gayton, & McEwen, 2010; Mahon, 2003).

Most of the PD activities are often characterized as ineffective based on their disappointing results. One of the reasons is that these activities fail to consider how learning is embedded in professional lives and working conditions, acknowledging the context and the situatedness of teacher learning (Cordingley, 2015; Desimone, 2009). Since the ultimate aim of PD programs is to create improvement in the classroom applications of teachers and in the achievement of their students, the actual content of them should change based on the individual needs and circumstances of a particular educational setting (Guskey, 2002). We cannot talk about teacher learning by considering PD programs in isolation from characteristics of the school context because a specific set of learning activities we use in one context, with one set of teachers, may be quite different from those that would necessary to achieve the same end in another context with a different set of teachers (Admiraal et al., 2016).

Private Night High Schools (PNHS) in Turkey are one of the unique educational settings that require special attention for PD of their teachers because these schools are the institutions where people who could not continue their regular high school education for some reasons can enroll and receive high school diploma (Official Gazette no: 25292, 2003). The schools start after working hours on weekdays or at any time on weekends,

but the other things like the curricula, classroom attendance, absenteeism and discipline applied at regular high schools are also applied at PNHSs. As there is no age restriction in these schools, almost all students are young adults or adults. In spite of the fact that most of the things are the same as the other high schools, they have very different profiles of students from regular high schools. However, teachers of PNHSs are not different from the teachers of regular high schools as all of them get the same pre-service teacher education which does not have any specific course regarding adult education.

Since PNHSs are different from regular high schools in terms of student profiles, the instruction in the former should also be different from the one in the latter. Teachers should know about adult learning theories (namely 'andragogy' for this study) which can help them in their teaching and about the issues hindering them from moving forward by incorporating those theories into their classrooms for their adult students' achievements.

Taking the definition of pedagogy as the starting point, Knowles defined andragogy as "art and science of helping adults to learn" (1990, p.54). There are six assumptions of andragogy defining an adult learner as someone who (1) wants to learn the things that they think they need to learn, (2) has an independent self-concept and who can direct his or her own learning, (3) has accumulated a reservoir of life experiences that is a rich resource for learning, (4) has learning needs closely related to changing social roles, (5) is problem-centered and interested in immediate application of knowledge, and (6) is motivated to learn by internal rather than external factors (Merriam, 2001). Between 1970 and 1980, Knowles revised his idea of andragogy for adults and proposed a continuum ranging from teacher-directed to student-directed learning.

He stated that both approaches are appropriate with children and adults depending on the situation. For example, if an adult knows very little about some certain topics, he will be more dependent on his teacher, but if a child who is naturally curious can be more self-directed (Knowles et al, 2005). This acknowledgment by Knowles resulted in andragogy being defined more by the learning situation than by the learner. Andragogy embraces adult specific instructional strategies that utilize an interactive and facilitative approach to learning, which is believed to be one of the most effective methods of adult learning (Blackwood & White, 1991).

In addition to PD contents unique to school settings, teachers' integrating technology into the curriculum has become an obligation in the 21st Century regardless of the type of institutions they work for (Pine-Thomas, 2017). Prensky (2008) asserts that technology suggests new techniques and methods. Teachers should acknowledge this and should not insist on old methods. Teachers should serve as a guide or a facilitator, not as a lecturer or a knowledge provider. Wenglinsky (1998) has lots of research studies in the field of technology and student achievement. In one of his studies, he finds out that students whose teachers used technological tools especially for the students' higher-order thinking skills performed better than students whose teachers did not use. Another interesting finding of this study is that students whose teachers received PD in technology outperformed those whose teachers did not.

At the end of his study, he suggests that one of the most crucial obstacles to influential usage of technology in educational institutions is the lack of PD. If the educators wanted to create a 21st Century workforce by using technology, this would require long-term

changes in educational purposes, educational policy, school curricula, and classroom practices for teachers and teaching, content and curricula, and assessments and accountability. For instance, in order to have high quality teachers and teaching, the purpose should be that teachers have adequate knowledge and skills in technology to improve student achievement. For programs, continued PD should be supported and it should be aligned with curricula and assessment. For policies, technology specialists should be hired, qualified technology teachers should be hired and differentiated pay for them should be provided. For practices, teachers should incorporate technology skills in their teaching. However, teachers confronted many challenges in this issue and the main reason behind is the lack of training in integrating technology into curriculum (Diaz, 1999).

Considering the unique context of PNHSs and the importance of the technology for adult learners of 21st century, SBPD model was chosen for the study to provide collaboration for the teachers in their own context and to provide PD for the teachers of PNHS in their own occupational space to bring about beneficial changes both in their skills and their schools (Lieberman, 1995). Therefore, as the major aim was to improve the effectiveness of teachers in PNHS, the main purpose of this study was to make the staff in a PNHS develop and implement a SBPD program for their needs and preferences in adult learning and teaching practices and educational technologies. In this study the following research questions were investigated and tried to be answered appropriately;

1. What are the needs of teachers in PNHSs in terms of educational technologies and adult teaching practices?

2. What are the preferences of teachers in SPNHS for content and delivery methods for the Professional Development (PD) related to educational technologies and adult teaching practices?

3. What are the views of teachers in SPNHS related to the changes and improvements in using educational technologies and adult teaching practices in their teaching after they completed a SBPD program?

Method

Research design

This is a case study including both quantitative and qualitative data collected through principles of adult learning scale (PALS), questionnaire for educational technologies (QEdTech), semi-structured interviews, observations of group meetings, and classroom observations. This study was conducted at a particular PNHS in İstanbul. This school was renamed as Spring Private Night High School (SPNHS) by the researcher for the clarity of reporting. İstanbul was chosen the main province as there are lots of PNHSs (40 in total) and it is possible to work with considerable number of students, teachers, administrators and other people in relation with PNHSs if necessary. Procedure of the study is in Figure 1 explaining all the steps and procedures of the study in detail. See the figure 1 below.

Step 1: Identifying needs on educational technologies and adult learning theory	Review of Literature on educational technologies and adult learning theory	
	Construction and piloting of data collection instruments (semi-structured interview schedule, group meetings observation forms, classroom observation form, PALS, and QEdTech)	
	Observation: Observation of four teachers' classrooms from different fields and Administering PALS, and QEdTech to other PNHSs	
	Observation of group meetings related to needs of SPNHS	**Meeting 1:** Presentation of SBPD model by the researcher
		Meeting 2: Discussing the results of PALS, and QEdTech
Step 2: Determining the features of professional development programs	Observation of group meetings related to features of desired program	**Meeting 3**-Educational Technologies
		Meeting 4-Adult Learning Theory (Andragogy)
Step 3: Designing a professional development program based on the teachers' needs and decisions.	Using Silberman's five stage active training design	
Step 4: Implementation of the developed program		
Step 5: Individual interviews with all teachers		

Figure 1. Procedure of the study

Participants

All participants were recruited from PNHSs in İstanbul (40 schools in total) and at SPNHS. There were three different groups of participants and different sampling strategies.

- 25 schools out of 40 were selected via cluster random sampling. 227 teachers from these 25 schools in total answered the scale and the questionnaire for the need assessment part.
- The main study (classroom observations, SBPD process and interviews) was conducted in this school with 17 teachers and 1 principal. This target school, SPNHS, was chosen via convenient sampling as the researcher had an access to this school and its teachers.
- For classroom observations 4 teachers out of 17 were selected based on determined criterion as the subject area of the teachers. In order to have diverse data and observe different classroom practices four teachers from different branches were observed. Two teachers from social sciences and two teachers from science courses were chosen and each of them was observed for three course hours with ninth graders.

Data collection instruments

Data collection instruments were PALS, QEdTech observation forms for group meetings, observation forms for classroom observations, and semi-structured interview schedule for teachers. Except PALS, all the data collection instruments were constructed by the researcher.

1. PALS is an instrument developed by Conti in 1978 and it is a 6 point scale thus 0 stands for 'never' and 5 stands for 'always'. It was adapted to Turkish and was used to rate the teachers' andragogical knowledge and their usage of it in their classrooms. Turkish adaption of the scale was done by the researcher. The pilot study was conducted by the researcher with 193 teachers working in PNHSs. EFA was conducted through principal axis factoring (PAF) with direct oblimin rotation. All the findings revealed a new Turkish scale with four factor-structure (Personalizing Instruction, Learner-Centered Instruction, Relating to Experience, and Participation in the Learning Process) and 33 items. To check the internal consistency of the scale Cronbach's alpha coefficients were calculated as .89 for whole instrument.

2. QEdTech was developed in order to depict the general picture of educational technologies usage. There are several questions for teachers to rate their knowledge and usage of some educational technologies (both hardware and software) in their classroom. This questionnaire has three separate parts. The first one is related to demographic information about the teachers and has several questions such as their branches and years in teaching. The second part has items concerning hardware and software and it asks teachers to rate them according to their level of knowledge and usage in their classroom. For knowledge level 0 stands for 'none' and 4 stands for 'very good' and for classroom use part 0 stands for 'never' and 4 stands for 'always'. The last part is related to the type of PD program that the teachers would like to attend.

3. Observation forms for group meetings were constructed by the researcher based on

the type of group meetings. First two group meetings were on determining the needs of the teachers, and the third and fourth meetings were related to features of desired program, thus there were several observation forms for each type of meeting.

4. Classroom observation form was developed by the researcher. It has several parts such as teaching methods used, students' responses, adult learning principles used, and problems encountered.

5. Semi-structured form for individual interviews with each of the teacher about their views related to the SBPD program process was used, and it was developed by the researcher. For validity and reliability of these instruments, expert opinions were taken after construction of the necessary items.

Data analysis

In this case study there were several data analysis procedures for each step. The qualitative data collected through classroom observation were analyzed by using content analysis. The observation forms that were filled by hand throughout the observations were carefully examined and the transcripts were coded by two researchers separately regarding the research questions. Later, emerging codes from two coding processes were determined and crosschecked; the majority of the codes were consistent. The inter-coder reliability, which was calculated by using MAXQDA 18.0.8, was reached with 82.93% agreement on all of the eight codes and according to Neuendorf (2002) .80 or greater would be acceptable in most situations. These categories are methods of teachers used, students' reactions, and adult learning principles usage. For classroom observation a checklist was also used. When the teachers practiced the specified action, a sign was put on that behavior each time and then the frequency of these behaviors was determined.

For the pilot study of PALS, the quantitative data collected were analyzed by using IBM SPSS 22.0 and exploratory factor analysis was conducted. In the main study, quantitative data were collected through PALS and QEdTech. The data collected through these instruments were analyzed descriptively. Means and standard deviations for each item were calculated thus descriptive analyses were conducted for analyzing the data collected through PALS and QEdTech.
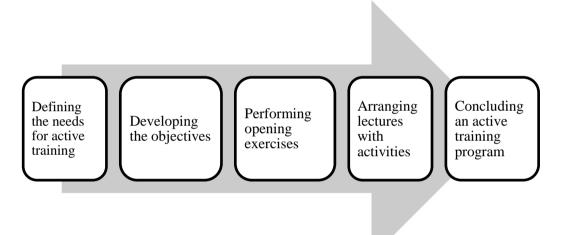
The other qualitative data sources were group meetings and they were analyzed by using content analysis. Different categories were determined and the notes taken throughout the observations of those meetings were examined based on those categories which are general attitudes of the teachers, general contributions of the teachers, and problems encountered. In the last step, all the recorded interviews were transcribed and categories were determined through content analysis. The transcripts were coded by two researchers and emerging codes from two coding processes were determined and crosschecked; the majority of the codes were consistent.

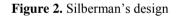The inter-coder reliability, which was calculated by using MAXQDA 18.0.8, was reached with 82.35% agreement on all of the eight codes and according to Neuendorf (2002) .80 or greater would be acceptable in most situations. In the end, four separate categories for three research questions emerged regarding the codes which are general views on SBPD process, PD on adult teaching practices, and points to improve and suggestions.

Designing PD programs

After needs assessment process done by classroom observations, application of PALS and QEdTech, and group meetings, development of PD programs started. Teachers of SPNHS are adult educators, but they are also adults. That is also why SBPD model was chosen and implemented in this study. Besides, it was very crucial to consider adult learning principles, while designing PD programs for adult teaching practices. The process suggested by Silberman (2006) in his popular book Active Training was followed with a little adjustment to context, because it was found suitable for this specific case of PD process of SPNHS's teachers. 4 day PD program (2 hours for each day) was developed based on this process. Same framework was used both for educational technologies and adult teaching practices and it is provided in Figure 2 below.

| Defining the needs for active training | Developing the objectives | Performing opening exercises | Arranging lectures with activities | Concluding an active training program |

Figure 2. Silberman's design

PD program on social media in teaching and adult teaching practices

4 day PD program was developed based on Silberman's design. First two steps of the programs were same for all days. Also, active training programs were ended with a final question-and-answer period for 4 days. The needs for active training were defined via Step 1 and 2 of the study which included classroom observations, application of QEdTech and PALS, and four different group meetings. 23 cognitive and affective objectives for social media in teaching and 26 cognitive and affective objectives for adult teaching practices were developed based on the need assessment process. The rest of the programs were explained regarding each day.

Day 1 of the program on social media on teaching

1. Performing opening exercises: Regarding the objectives, the method called active knowledge sharing was chosen for the first day of the program as an opening exercise. Teachers were asked to make meaningful guesses about the interesting statistics regarding social media tools (Twitter, Instagram, YouTube, Facebook, Blogs and Podcats) in order to make them realize the great impact of these technological tools and platforms especially on adults and young adults. For instance, how much of the Facebook

users check their account at least 5 times a day or which type of people are the most active on social media were asked to the teachers and they made several guesses and then the correct statistics were provided.

2. Arranging lectures with activities: In order to convey crucial information about social media in teaching, lecture format was used through PowerPoint presentation by integrating some participative techniques for the teachers. At the beginning of the presentation of Day 1, interesting and funny cartoons about social media addiction were used in order to gain the audience interest through showing the impact of the social media in our lives. In order to maximize understanding and retention of the participants, opening summary method was also used. After the presentation of each social media tool, teachers were asked to repeat the procedures on their own laptops or cell phones such as opening an account on Facebook or if they have an Instagram account, sharing a photo on Instagram, etc.

Day 2 of the program on social media on teaching

Performing opening exercises: As the teachers got already familiar with the topic in Day 2, opening a discussion method was used to make them think more about using the social media tools that they learned previous day in their teaching. Teachers tried to find different answers to the question of "What are the possible ways of integrating a particular social media tool in to your teaching regarding the content you teach?"

Arranging lectures with activities: At the beginning of the presentation, a short video clip showing how to use social media in teaching was showed. Then, the lecture's major points and conclusions were stated to help participants organize their listening in both days. Teachers were encouraged to be active listeners by being asked how they can adapt the presented activity to the content of their course.

Day 1 of the program on adult teaching practices

Performing opening exercises: The first day of the program was mainly on the characteristics of adult learners. As this group of teachers have taught adult learners at least for a year, it would be appropriate to start with their experiences considering the adult learners in their schools. Therefore, as an opening exercises active knowledge sharing was used as it may draw participants immediately into the subject matter in Day 1. They were requested to share the problems that they had encountered or to state the particular characteristics that they had spotted in their students.

Arranging lectures with activities: At the beginning of the presentation of Day 1, initial case problem was used in order to gain the participants interests. A teaching case which includes problems caused by the specific features of adult learners was distributed and teachers were invited to discuss the problems. Then, in order to maximize understanding and retention of the participants, opening summary method was used and the lecture's major points and conclusions were stated to help participants organize their listening. After the presentation of features of adult learners, teachers were asked to think about these features and to compare them with their students and give specific examples.

Day 2 of the program on adult teaching practices

Performing opening exercises: The second day of the program was mainly on the adult teaching practices and activities that can be used with adult learners. As the teachers got already familiar with the adult learners, opening a discussion method was used to make them think more about how they can teach considering the characteristics of this age group of students. Besides, they were also requested to share the techniques or methods that they had used and found suitable for their students.

Arranging lectures with activities: At the beginning of the presentation of Day 2, a short video clip showing how to use adult teaching practices was showed. Teachers were assigned active listeners mode and they were asked how they could adapt the presented activity to the content of their course. Then, in order to maximize understanding and retention of the participants, opening summary method was used and the lecture's major points and conclusions were stated to help participants organize their listening. After the presentation of several activities, teachers were asked to think about how they can integrate this activity considering the content of their course.

Results

Results related to needs of the teachers

The first problem investigated in this current study was related to needs of the teachers in PNHSs in terms of educational technologies and adult teaching practices. These questions were answered by the data collected from QEdTech, PALS, classroom observations, and group meetings.

Results obtained from questionnaire of educational technologies

In the first part of the questionnaire, teachers were asked to rate their level of knowledge and classroom use regarding stated 21 hardware and software in 5 different categories. These categories were hardware tools, learning management systems, social media tools, Google applications, and software tools. For knowledge level 0 stands for 'none' and 4 stands for 'very good' and for classroom use part 0 stands for 'never' and 4 stands for 'always'.

Table 1. Descriptive statistics for QEdTech

Knowledge				Classroom Use	
M	*SD*	**Hardware Tools**		*M*	*SD*
2.75	.85	Phone		1.14	.85
2.67	.82	Personal Computer		1.24	.97
2.14	1.03	Projection Machine		1.00	1.01
1.88	1.18	Smart Board		.97	1.38
1.81	1.25	Tablet		.69	.85
		Learning Management Systems			
.08	.43	Moodle		.04	.32
.06	.33	Edmodo		.02	.22
.13	.57	Kahoot		.02	.22
		Social Media Tools			
2.34	1.09	Facebook		.26	.76
2.08	1.17	Twitter		.18	.64

2.23	1.03	Instagram	.20	.69
2.47	1.18	YouTube	.85	1.96
.64	1.12	Blogs	.11	.50
.33	.77	Podcasts	.06	.37
		Google Applications		
.93	1.07	Google drive	.21	.63
.77	.96	Google docs	.15	.52
.68	.89	Google forms	.11	.47
.60	.79	Google scholar	.05	.29
		Software Tools		
2.57	.86	Microsoft Office	1.51	1.12
1.92	1.19	Mobile Applications	.80	.98
1.09	1.20	Computer Simulations	.43	.82

It can be observed from the table that knowledge and classroom use level of the teachers were really low especially for learning management systems and Google applications. Although their knowledge level was relatively higher for hardware and software tools, this was not applicable to classroom use level of these tools. This was also same for some social media tools like Facebook, Twitter, Instagram, and YouTube.

Results obtained from principles of adult learning scale

PALS had four factors and each item in these factors was descriptively analyzed and reported. In this scale, 0 stands for 'never' and 5 stands for 'always'. Generally, mean scores of the items were between 3.73 and 1.15. Of the 20 items which describe favorable practice for adult students, 15 items had mean scores below 3 that stands for 'often'. Of the 13 items which describe unfavorable practice for adult students, 8 items had mean scores above 3. Items with the highest and the lowest mean scores in each factor are presented in bold in Table 1.

Table 2. Descriptive Statistics for PALS

Items	*M*	*SD*
Personalizing Instruction		
3. I allow older students more time to complete assignments when they need it.	2.48	1.41
4. I help students diagnose the gaps between their goals and their present level of performance.	2.63	1.40
9. I determine the educational objectives for each of my students.	1.76	1.65
15. I use different techniques depending on the students being taught.	1.75	1.78
18. I let each student work at his/her own rate regardless of the amount of time it takes him/her to learn a new concept.	2.54	1.46
23. I gear my instructional objectives to match the individual abilities and needs of the students.	2.70	1.28
25. I allow a student's motives for participating in continuing education to be a major determinant in the planning of learning objectives.	3.15	1.28
27. I give all my students in my class the same assignment on a given topic.	**3.41**	**1.19**
30. I encourage competition among my students.	2.22	1.76
31. I use different materials with different students.	**1.54**	**1.61**
Learner-centered Instruction		
2. I use disciplinary action when it is needed.	**1.79**	**1.28**
5. I provide knowledge rather than serve as a resource person.	3.65	1.32

6. I stick to the instructional objectives that I write at the beginning of a program.	3.63	1.33
7. I use lecturing as the best method for presenting my subject material to adult students.	3.41	1.41
11. I get a student to motivate himself/herself by confronting him/her in the presence of classmates during group discussions.	2.36	1.67
14. I use one basic teaching method because I have found that most adults have a similar style of learning.	2.77	1.58
16. I use written tests to assess the degree of academic growth rather than to indicate new directions for learning.	3.51	1.23
20. I maintain a well-disciplined classroom to reduce interference to learning.	**3.73**	**1.04**
21. I use methods that foster quiet productive desk work.	3.51	1.22
22. I use tests as my chief method of evaluating students.	3.52	1.23
28. I use materials that were originally designed for students in elementary and secondary schools.	3.25	1.33
Relating to Experience		
10. I plan units which differ widely as possible from my students' socio-economic backgrounds.	**1.15**	**1.48**
12. I plan learning episodes to take into account my students' prior experiences.	2.86	1.46
24. I encourage my students to ask questions about the nature of their society.	**3.51**	**1.27**
29. I organize adult learning episodes according to the problems that my students encounter in everyday life.	2.99	1.37
32. I help students relate new learning to their prior experiences.	3.29	1.31
33. I teach units about problems of everyday living.	3.26	1.40
Participation into Learning Process		
1. I allow students to participate in developing the criteria for evaluating their performance in class	2.41	1.69
8. I arrange the classroom so that it is easy for students to interact.	**3.05**	**1.27**
13. I allow students to participate in making decisions about the topics that will be covered in class.	2.40	1.46
17. I have individual conferences to help students identify their educational needs.	**1.74**	**1.77**
19. I help my students develop short-range as well as long-range objectives.	2.56	1.48
26. I have my students identify their own problems that need to be solved.	2.53	1.32

In the personalizing instruction factor, four of the items had mean scores near 2.50 or slightly over 2.50, thus it can be inferred that teachers of PNHSs seldom use ways of personalizing instruction such as using instructional objectives that match with the individual abilities and needs of the students. Learner-centered instruction factor includes items that are related to arranging the classroom environment so that the learners can initiate action, help set their own learning objectives, and be in charge of their own learning. Being a resource person, sticking to instructional objectives, using lectures, using writing tests for assessing academic success, fostering quiet productive desk work, and using tests as a chief method of evaluating students are not favorable for making instruction learner-centered, However, as the items related to these issues had mean score over 3, this can be meant that teachers of PNHSs often or almost always use other practices rather than the techniques that sustain learner-centered instruction. Relating to experience factor is related to activities that are favorable in the adult education settings

especially for the importance of the background of the adult learners. Based on the findings, it can be observed that teachers of PNHSs were sensitive to their students' backgrounds as they were trying to touch their students' everyday living problems and prior experiences. For the participation into learning process factor, it is hard to say that teachers preferred giving students responsibility of their own learning or let them participate in decision making process.

Results obtained from classroom observations

Classroom observations were also done in order to determine the needs of teachers in terms of adult teaching practices and educational technology. To get diverse data four different subject fields were chosen; and two teachers from social sciences and two teachers from science courses were observed. The qualitative data gathered through observation were examined based on four different categories; teaching methods, students' reactions, educational technologies, and adult teaching practices.

Table 3. Summary of the Classroom Observation Results

Teaching Methods	-teacher-centered methods, dictation, question and answer, full control of the classroom, whole classroom instruction
Students' Reactions	-not interested, distracted, signs of boredom, some complains, willing to contribute
Educational Technologies	-did not use, not appropriate environment, only one teacher used laptop and projection machine
Adult Teaching Practices	-not any specific practices, not respectful to students, used some rude words, comfortable classroom atmosphere, giving feedback, referring previous learning

Results obtained from group meetings

In order to determine the needs of teachers in terms of educational technologies and adult teaching practices two group meetings were conducted. Later in the Step 2 of the study, two additional group meetings were done in order to determine the features of professional development program. First meeting was the presentation of SBPD. The second meeting was related to defining exact needs of the SPNS through the results of PALS and QEdTech. Third meeting was designed for discussing the needs of teachers for educational technologies in detail and the fourth meeting was for the deep analysis of adult teaching practices needs. For educational technologies the needs of the teachers determined through the meetings were listed as follows;

1. They need to know how to integrate the technology in their students' daily lives.
2. They need to learn how to apply the general knowledge they have on using social media in their classrooms.
3. They need to learn how to integrate social media in their own subject areas in order to take attention of the adult learners.

Fourth meeting was related to adult teaching practices only and before stating their needs adult teaching practices teachers stated some problems that they constantly encountered in their school. These problems can be listed as follows;

1. Students do not have necessary background knowledge about the courses
2. There is a problem of absenteeism as most of the students have to work
3. It is really hard to educate adult students
4. Adult students consider themselves as the rivals of their teachers because of the similarity in their ages
5. Teachers start teaching in these schools without any training
6. There are differences among students because of the variety in their ages
7. Teachers of this schools do not have any courses related to adult students in their undergraduate studies
8. Most of the teachers are new in teaching therefore they are not capable enough to handle the problems about adult students
9. Most of the students are older than their teachers

Based on those problems that the teachers mentioned their needs as follows;

1. They need to learn the qualities of adult students first because they need to know more about their students before learning how to treat and teach them.
2. They need to know adult teaching practices especially the activities that they can use in their teaching easily.
3. They need to learn the characteristics (physical, psychological, and learning) of adult learners as they wanted to get to know their students better.
4. They need to learn activities for adult learners that they can integrate into their busy curriculum.

Results related to preferences of the teachers

The second problem was about the preferences of teachers in SPNHS for content and delivery methods for the PD related to educational technologies and adult teaching practices. These questions were answered by the data collected from QEdTech and group meetings.

In the second part of the QEdtech, participants were asked about their preferences related to the delivery of the program. They had three options in this part; no interest at all, interested, very strongly interested. Having someone to teach had the highest mean score ($M = 1.51$, $SD = .83$), and 127 (%55.9) of the participants selected very strongly interested option. Learning on my own ($M = .75$, $SD = .83$) had lower mean score than having someone to teach, and 112 (%49.3) of the participants selected no interest at all option. Group work had the lowest mean score ($M = .68$, $SD = .85$), and 130 (%57.3) of the participants selected no interest at all option.

In the group meetings teachers clearly stated that they need someone professional in this field to teach them how to use technology for educational purposes. For adult teaching practices, as they do not have any experience about adult students they stated that they want someone to teach them how to teach adult learners.

Results related to general views on SBPD process

The last problem of the study was about the views of teachers in SPNHS related to the changes and improvements in using educational technologies and adult teaching practices in their teaching after they completed a SBPD program. As they participated in such a SBPD process for the first time, their opinions related to it were considered very important. In general, they were asked about their positive and negative opinions about the process and by and large, their answers were very positive about the process, but they also stated some negative issues that should be fixed for the other professional development programs which could be held in the future. Data gathered from interviews were summarized in below in each category.

General views on SBPD

1. Great opportunity to discuss serious problem of the school
2. It was the first time for five senior teachers to participate in such a professional development process
3. It was very beneficial for seven teachers as they became aware of their students' different profiles
4. They all mentioned that they realized their roles as learners
5. They realized the importance of self-improvement

Views on Andragogy

1. New teachers who are younger than their students became more comfortable in communicating with adult learners
2. Most of them heard the term 'andragogy' for the first time, and they decided to read more about it
3. It made them review their inappropriate teaching methods for adult learners
4. They all mentioned that they are going to incorporate the things they have learned into their teaching
5. They all mentioned they are going to switch from lectures to more student-centered methods

Views on Educational Technologies

1. Most of them talked about how they can integrate social media in their own subject field.
2. Some of them stated their hesitations about using social media in class as they even did not use it in their personal lives.
3. Teachers who use social media actively in their daily lives mentioned that they were so excited to start using it in their classes.

Points to improve
1. Several programs may be developed for different groups of teachers (new and senior teachers).
2. Lack of practicing part
3. Specific programs for the teachers who have different adult students' profiles
4. There should be similar programs for students as well.

Discussion

In the field of education, there are lots of professional development activities, but most of them did not get expected results (Rebora, 2011). However, if they are designed well, they can enhance the achievement of both the teachers and the learners (Desimone, 2009). That is why it is really crucial to define the exact needs of the teachers before starting a professional development in any kind of institution. In this case study, teachers from PNHSs presented their needs on adult learning and teaching principles and educational technologies. Also, teachers from a particular PNHS experienced a school based professional development process for those specific needs. First of all, using PALS and QEdTech provided considerable amount of information about the current practices of teachers in all PNHSs. Based on QEdTech results, it can be observed that teachers of PNHSs both do not have enough information regarding hardware and software tools stated and they do not use them for educational purposes in their classrooms.

Moreover, the results of the QEdTech unfolded that teachers of PNHSs had some sort of knowledge regarding some hardware and software tools but they did not consider using them in their classroom setting for educational purposes. Using PALS as another instrument provided opportunity to assess andragogical knowledge of PNHS teachers. Based on the mean scores obtained in the first factor, it can be stated that teachers of PNHS experience problems in personalizing instruction which is an important dimension in adult learning theory. Through the items in the learning centered instruction factor, it was revealed that teachers of PNHSs have the tendency of using teacher-centered method despite the fact that using learner-centered instruction is the core of adult learning theory.

Adult learners come into an educational setting with both a greater number of experiences from that of young learners and for adult learners their past and life experiences carry significant meanings to learning (Santos, 2012). However, both the teachers of PNHSs and SPNHS had problems in relating to the experience factor. Teachers of SPNHS stated that they did not consider the importance of past experiences of adult learners both in the group meetings and interviews. Lastly, it was observed that teachers were reluctant to include adult learners into learning process. However, adult learners are self-directed therefore they would like to take the responsibility of their learning and participate in the decision making process (Merriam, 2001). Classroom observations and group meetings also gave the opportunity of crosschecking that information obtained from PALS and QEdTech.

When the research studies based on adult teaching practices are examined, it can be seen that they are mostly on the (1) teacher orientation to education or (2) teachers' different teaching methods (Beder & Carrea, 1988). For instance, Wang (2002) also used the Principles of Adult Learning Scale (PALS) and surveyed six adult educators, and found out that adult educators served as a knowledge provider rather than a facilitator, they relied more on teacher-centered methods, they were aware of the importance of adult learners' past experiences, and they underestimated the significance of adult learners' ability to participate in the learning. It can be concluded that findings of the Wang's study are very consistent with this current study regarding teachers' adult teaching practices.

After SBPD process developed through specification of the needs, teachers who attended the program accepted that they are going to review their inappropriate teaching methods

for adult learners, incorporate the things about educational technology into their teaching, and switch from lectures to more student-centered methods. Guskey (1986) defines professional development as a systematic effort to satisfy change in the classroom practices of teachers, change in their beliefs and attitudes, and change in the achievement of students. Therefore, it would not be wrong to express that providing and effective professional development based on the relevant needs of the teachers would lead better results than the ones which are isolated from teachers' needs and preferences. Moreover, Geromel (1993) presented students' feedback on adult teaching practices, and stated that students found these types of activities more meaningful and beneficial, and they were more satisfied with their educators, if they used such kind of activities. Therefore, this SBPD process will probably have better outcomes on students of this school, if the teachers are willing to use the things they have learned.

Through interviews, it was pointed out that most of the teachers found this activity as a great opportunity to discuss their biggest problems in a more formal situation. This is one of the effective features of SBPD because the training is related to everyday teaching practices of teachers, as it is practiced in the school setting (Shohel & Banks, 2012). It is considered that SBPD encourages creating new knowledge and improving teachers' practice, also creating shared professional language that is understandable for all members of teaching community, vision and standards, having sustainable school culture (Mancera & Schmelkes, 2010). For instance, some of the teachers stated their hesitations about using social media in their teaching, and after this process they admitted that they were going to integrate these new practices into their teaching. This is also same for adult teaching practices. Four of the teachers accepted that they have heard the 'andragogy' term for the first time but after realizing its importance, they have decide to have more information about it and apply these strategies to their practices.

Implications for leadership and policy

Findings of this research have implications for the adult educators especially for the teachers who are working at PNHSs. The contents of the professional development programs had the potential of influencing the teaching practices of the teachers of SPNHS. However, as they were designed based on the needs analysis process which was conducted through collecting data from as many PNHSs as possible, they can also be implemented in other PNHSs. Other adult educators in various educational settings like public education centers may benefit from implementing such kind of programs as well.

Bredeson and Johansson (2000) studied the influence of school principles on teacher professional development from four different areas; the principal as an instructional leader and learner; the creation of a learning environment; direct involvement in the design, delivery and content of professional development; the assessment of professional development outcomes. Designing a SBPD program for the teachers creates all these four opportunities for the school leaders. School principals have direct roles in every step of SBPD and this unique positions of them influence healthy teaching and learning environments for everyone in the school. By using this model of PD in their schools, they can fulfill their responsibilities in teacher professional development, and they can maximize their impact on the growth and development of teachers, and impact on the school and its environment. Moreover, SBPD creates the environment in which school leaders pass the responsibility to the teachers because teachers both want to be asked and

to be involved in the PD process. For most of the teachers, ownership of their professional development process means being a genuine professional.

Leadership styles in schools greatly influence the professional development activities provided for the teachers. When there is instructional leadership style rather than administrative leadership, greater degree of collaboration among teachers, both for exchange and co-ordination for teaching and more sophisticated professional collaboration can be observed (OECD, 2009). Cooperation and collaboration are the key words for SBPD. Therefore, if school principals want to apply SBPD in their schools, they need to be careful about having instructional leadership style. Moreover, in many TALIS countries an instructional leadership style is associated with schools that make more frequent use of an appraisal process aimed at student learning outcomes and at teachers' use of professional development. It is also associated with adopting specific professional development plans tailored to help weaker teachers to improve their teaching practices (OECD, 2009).

Another advantage of SBPD for school leaders and policy makers includes budgetary decisions. Especially for most of the private schools, providing professional development opportunities for their teachers means making difficult budgetary decisions. This current study can be an example for those schools and policy makers, as this type of program could be a method of cutting costs while inviting more teachers to be a part of the professional learning that happens in their schools.

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