

Examining the Willingness of Turkish Teachers for Vocational Development in Educational Assessment in Terms of Different Variables

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Abstract

The aim of this study is to reveal how many different groups Turkish teachers constitute according to their vocational development needs in educational assessment, willingness for development in this area, gender, age, experiences, and subject areas. In addition, it is aimed to examine how teachers' willingness for vocational development vary for different teacher profiles that were defined based on their gender, age, experience, and subject areas. The subject pool included 1407 teachers teaching different subjects. The data was obtained from the answers given by the teachers to the Teacher Questionnaire of Teaching and Learning International Survey (TALIS). The latent class analysis was performed with the Mplus 7.4 program to reveal how many groups teachers constitute according to their professional development need, willingness for the development, gender, age, experience, and subject areas. Results of the latent class analysis showed that teachers constitute two different classes. The probability of belonging to the first latent class is high for the male teachers older than 40 years old, having experience more than 20 years, not needing professional development, and not willing to attend in-service training in this area. Female teachers, younger than 40 years old, having experience less than 11 years need professional development in assessment, and they are also willing to attend more training in this area. Based on the results of the study, it was recommended to increase the number of in-service trainings especially for this teacher profile. The study revealed that Turkish teachers are not motivated and willing to develop their assessment skills. Researcher suggested examining possible reasons of low motivations among teachers to develop their assessment skills.

Keywords: TALIS, Latent class analysis, Professional development in educational assessment

1. Introduction

The indisputable effects of educational systems on the development of the countries have enabled individuals to compromise on the quality of education. It is necessary to make improvements on all components of the education system in order to increase student achievement. Teachers who are the most important components of the system play a very essential role in developing quality in education. It is widely accepted that professional competency of teachers directly affects the quality of education. Therefore, it is an important responsibility to train and employ qualified and accomplished teachers. Teachers are the main component of education, and it is very important to train teachers to successfully accomplish the process of innovation in education.

Researchers have emphasized the effect of teachers' professional competencies on the achievement of students, since teachers are crucial in providing an effective learning environment for the students (Muijis & Reynolds, 2005). Previous research on the characteristics of teachers affecting achievement of students reveal that having adequate and up-to-date content knowledge, planning and preparing for class, utilizing various learning and teaching strategies, using technology effectively, having good communication with students, being willing to teach, being respectful to students, having adequate language competencies and world knowledge, personal characteristics of teachers, as well as classroom management and teaching styles, affect the quality of teaching (Kumral, 2009; Özyaydınlık, Kabaran, Göçen, & Altıntaş, 2014; Özdemir & Üzel, 2010; Şahin, Zoraloğlu, & Fırat, 2010; Şen & Erişen, 2002). According to Daniel and King (1998), one of the important characteristics of teachers affecting the quality of teaching is having adequate knowledge in measuring and assessing student development and success.

Assessment provides necessary information to teachers to plan and lead teaching activities. However, assessment should be done effectively during the whole learning process—not only at the end of the teaching process—in order to obtain the necessary information regarding the development of students. Therefore, in addition to having adequate knowledge in assessing students, teachers should also know how to obtain necessary evidences revealing the development of students and how to evaluate assessment results (Matsenjwa & Thwala, 2013). According to the standards developed by the American Federation of Teachers National Council on Measurement in Education regarding teacher competence in educational assessment of students, teachers should be able to choose, develop, administer, score, and interpret appropriate assessment methods for instructional decisions (Brookhart, 2011).

Researches examining knowledge level and competency perception of teachers in assessing their students found that teachers have limited information regarding various assessment methods, and they do not find themselves competent enough to administer assessment activities (Anıl & Acar, 2008; Benzer & Eldem, 2012; Çakan, 2004; Daniel & King, 1998; Erdoğan & Kurt, 2012; Matsenjwa & Thwala, 2013; Özenç, 2013; Tuncer & Yılmaz, 2012). Zhang and Stock (2003) revealed that perceived competencies of teachers in assessing their

students vary according to their teaching subject areas and whether they took a prior assessment course. Mertler (2003) found that the assessment skills of in-service teachers are better than pre-service teachers. The result of Alkharusi's (2011) study showed that teachers who have more than 10 years working experience, and have taken a prior assessment course, have higher perceived competences in educational assessment. In addition, the study evidenced that perceived competencies of teachers do not vary according to their gender. Similar to the results of Mertler's (2003) study, Alkharusi (2012) found that in-service teachers perceive themselves as more competent in assessment relative to the pre-service teachers. Özenç (2013) revealed that knowledge levels of teachers in alternative assessment significantly vary according to the teachers' gender and experience, whether they earned a master's degree, and whether they attended in-service training. A study conducted on primary school teachers by Anıl and Acar (2008) showed that teachers have negative views regarding the effectiveness of in-service training in educational assessment. Özçelik (2011) found that science teachers need more in-service training to develop their assessment skills. Related studies (*e.g.*, Anıl & Acar, 2008; Benzer & Eldem, 2012; Erdoğan & Kurt, 2012; Matsenjwa & Thwala, 2013; Özenç, 2013; Tuncer & Yılmaz, 2012) showed that teachers do not find themselves competent enough in assessing their students, and they need in-service training to improve themselves in assessment and evaluation.

Ideally, it is very important to monitor teacher quality and specify areas needing to be developed. National and international evaluation studies are necessary to learn whether teachers have targeted qualities, to identify the areas needing to be improved, and to conduct appropriate development activities (Çobanoğlu & Kasapoğlu, 2010). Comparatively examining teachers' training needs and their attendance levels to the trainings in various countries contributes to improvement of the education policies and system among countries (Özmuş, 2013). The first large-scale international study that was conducted to evaluate teachers in terms of various factors was TALIS (Teaching and Learning International Survey).

TALIS was conducted by the Organization for Economic Cooperation and Development (OECD) and is the first international study examining working conditions and teaching environments of teachers (OECD, 2009). The general aim of this study is to reveal up-to-date and appropriate international indicators for teachers and teaching to help countries to create necessary conditions for a more effective school environment (OECD, 2010). Ultimately, having teachers who will be able to successfully apply the adjustments made in the components of the educational system is essential to improve the whole system. Therefore, vocational development of teachers was heralded as the main theme in TALIS. The study, examined the vocational development activities of teachers, their views regarding the effectiveness of those activities, supports they utilized while attending the trainings, the willingness of teachers to attend more in-service training, factors hindering teachers from attending the training, and the areas that teachers need to develop themselves.

TALIS 2008 revealed that Turkey has the youngest and most inexperienced teachers among the participant countries (Republic of Turkey Ministry of National Education, 2010). This finding increases the importance of planning and applying effective and need-based

vocational development activities for Turkey, in particular. There are very limited studies examining TALIS results in terms of the vocational development needs of teachers. For example, Özmusul (2013) showed that the vocational development need index of Turkish teachers is below the TALIS 2008 mean index value. Enriched and varied development activities to encourage teachers to attend the activities were recommended (Özmusul, 2013).

The in-service trainings are generally conducted for all teachers without taking into consideration teachers' subject areas. Although each subject area and each teacher might have different development needs, every teacher attends the same trainings that mostly do not meet teachers' needs (Özkan & Anıl, 2014). According to Altun and Cengiz (2011), instead of training teachers at different environments than their own school without considering their working environments, they could be trained by taking into consideration the main needs of teachers and their schools. Özkan and Anıl (2014) stated that basing vocational development activities on teachers' needs overlap with the fact that individuals are more likely to accomplish the actions when they are intrinsically motivated for doing those actions.

Researches on perceived competency levels of teachers in assessment revealed that their perceived competencies vary according to their subjects, experiences, whether they have earned a master's degree, or whether they have taken a prior assessment course (Alkharusi, 2011; Mertler, 2003; Özenç, 2013; Zhang & Stock, 2003). Perceived self-efficacy has an important role in the social cognitive theory (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001). It influences the choices and actions of individuals (Pajares, 1996). Efficacy beliefs determine what difficulties individuals will choose to overcome, how much effort they will put into their actions, how long they will persevere in the face of failures, and whether failures will be motivating or demoralizing for them (Bandura, 2001). Obstacles may easily discourage those who have low self-efficacy, whereas those who have high self-efficacy may increase their efforts when they fail and persist until they succeed (Bandura & Cervone, 1983). Furthermore, it affects individuals' behaviors not only in their own right, but through their impact on other mediating factors (Bandura et al., 2001). Therefore, the variables, such as teaching subjects, working experiences, that affect teachers' perceived competencies might also affect their willingness and needs for vocational development in assessing their students.

Ultimately, it is necessary to reveal whether teachers need to develop their assessment skills, whether they are willing to improve themselves in assessment, and what characteristics of teachers affect their needs and willingness to be able to plan more individualized and need-based vocational development activities. Therefore, it is important to examine vocational development needs and willingness for development among Turkish teachers who participated in TALIS 2008 according to the various teacher profiles. The current study aims to specify how many different groups teachers constitute according to their vocational development needs in educational assessment, willingness for development in this area, gender, age, experiences, and teaching subjects. In addition, the current study aims to reveal how teachers' needs and willingness to participate in vocational development vary for different teacher profiles that were defined based on teachers' gender, age, experience, and teaching subject areas.

2. Method

2.1 Research Model

Survey studies aim to define and reveal characteristics of specific groups based on the research data (Büyüköztürk, Çakmak, Akgün, Kardeniz, & Demirel, 2010). Therefore, the current study utilized the survey method to reveal teachers' needs and willingness to participate in vocational development in assessing their students based on various variables.

2.2 Study Group

TALIS 2008 was conducted among teachers and school leaders working at lower secondary schools corresponding to the second education level of the 1997 International Standard Classification of Education (ISCED). Since the Turkish National Education System did not include a lower secondary education level at the time of the study, teachers teaching the 6th, 7th and 8th graders and school leaders of primary schools constituted the Turkish sample of TALIS 2008 (The Republic of Turkey Ministry of National Education, 2010). The Turkish sample included 3,224 teachers. Some of the teachers were excluded from the study group since they had missing information on the variables examined in this study. In addition, only teachers of Math, Turkish language, Science and Social Sciences were included in the study group. The distribution of the teachers according to the gender and age variables is presented in Table 1.

Table 1. Distribution of the teachers according to the gender and age variables

Gender	Frequency	%
<i>Woman</i>	747	53.1
<i>Man</i>	660	46.9
Age		
<i>29 years old or younger</i>	490	34.8
<i>Between 30 and 39 years old</i>	491	34.0
<i>Between 40 and 49 years old</i>	227	16.1
<i>50 years old or older</i>	199	14.1
Total	1407	100

2.3 Data Collection

The research data was obtained from answers provided by teachers to the Teacher Questionnaire of TALIS 2008. The Teacher Questionnaire included 43 questions prepared to obtain information regarding these main themes: personal information of teachers, professional development of teachers, teaching practices, teachers' beliefs and attitudes, and teacher appraisal and feedback. The professional development part of the questionnaire included personal activities, such as reading academic journals, in addition to the planned

activities, such as attending workshops (OECD, 2010). Both an online and a paper-pencil form the Teacher Questionnaire were prepared, but all Turkish teachers preferred to take online version of the questionnaire. It was conducted on teachers during the end of March and beginning of April of 2008, and it took approximately 45 minutes of teachers to answer the questionnaire. Teachers answered the online questionnaire by entering the special user name and the password given to them (Republic of Turkey Ministry of National Education, 2010).

2.4 Data Analysis

The latent class analysis was conducted on the Mplus 7.4 program to reveal how many groups teachers constitute according to their professional development needs, willingness to participate in in-service trainings, gender, age, experience, and teaching subject variables. Latent class analysis locates individuals under specific latent classes based on the similarity of their response patterns (Geiser, Lehmann, & Eid, 2006). The analysis allows for obtaining a few categorical latent variables from a great number of categorical observed variables (Green, 1952). The analysis provides two different parameters: latent class probability and conditioned probability. Latent class probability reflects the probability of membership in each latent class. Conditioned probabilities form the basis for interpretation and labeling of the latent classes. Estimated probabilities are utilized to obtain the expected cell proportions. If the model fits the data well, the expected cell proportions closely match the observed cell proportions (Collins & Lanza, 2010).

The index values that should be examined to decide on the most appropriate model include χ^2 and G^2 fit statistics, Akaike (AIC), and Bayesian (BIC) information criteria (Nylund, Asparouhov, & Muthén, 2007). Both χ^2 and G^2 statistics are calculated based on the differences between observed and expected frequencies obtained in the cross-table. High differences between the observed and expected frequencies mean that the model does not fit the data (Flaherty, 2002). AIC and BIC are calculated based on the parameter numbers estimated by the model. Lower values of AIC and BIC indicate a better model data fit. It is necessary to have at least two latent classes to conduct latent class analysis (Collins & Lanza, 2010). Therefore, the significance value of the G^2 statistic obtained for one latent class structure was examined. It revealed that there are relations among the study variables and latent class analysis could be conducted on these variables. The most appropriate model was selected based on the goodness of fit and parsimony (Çulha & Korkmaz, 2011). Therefore, the fit statistics provided in Table 2, model parsimony and interpretability of the latent structure were taken into account while selecting the model.

3. Results

The fit statistics obtained for two, three, and four classes-structure are provided in Table 2.

Table 2. Model data fit statistics

Number of the Latent Classes	χ^2	G ²	AIC	BIC	Classification Accuracy
<i>One</i>	3249.194*	2552.239*	17238.227	17301.218	-
<i>Two</i>	1288.984*	1218.999*	15930.987	16062.218	0.976
<i>Three</i>	575.870*	527.264*	15265.253	15464.723	0.925
<i>Four</i>	421.313	393.124	15157.112	15424.822	0.927
*: p < .01, **: p < .05					

Table 2 shows that χ^2 and G² values estimated for the models, except for the four latent classes model, are significant. In addition, the two latent classes model provided better AIC and BIC values than the three latent classes model. The classification accuracy also supported that the two latent classes model is the most appropriate model in terms of the goodness of fit. Since the two classes model that was more parsimonious than the three latent classes model provided better fit statistics and higher classification accuracy, it was selected as the most appropriate model. Parameter estimations obtained for the two latent classes model are provided in Table 3.

Table 3. Conditioned probabilities

Variables	Categories of the Variables	Latent Class 1	Latent Class 2
<i>Gender</i>	Woman	0.457	0.562
	Man	0.543	0.438
<i>Willingness for the professional development</i>	Willing	0.276	0.521
	Unwilling	0.724	0.479
<i>Subject</i>	Turkish	0.283	0.321
	Math	0.277	0.237
	Science	0.286	0.222
	Social Sciences	0.172	0.220
<i>Age</i>	29 years old or younger	0.000	0.496
	Between 30 and 39 years old	0.004	0.495
	Between 40 and 49 years old	0.520	0.009
	50 years old or older	0.476	0.000
<i>Experience</i>	5 years or less	0.002	0.373
	Between 6 and 10 years	0.000	0.411
	Between 11 and 20 years	0.255	0.215
	20 years or more	0.743	0.001
<i>The need for professional development in assessment</i>	No	0.667	0.555
	Yes	0.3330	0.445
The Latent Class Probabilities		0.29993	0.700007

Table 3 reveals that teachers constitute two different groups according to the gender, willingness to participate in the development activities, teaching subject area, age, experience, and the need for the development variables. According to the latent class probabilities, the probability of teachers to be members of the first latent class is 30%, while it is 70% for the second latent class. Collins and Lanza (2010) stated that latent class probabilities reflect the size of the class in the data. Therefore, it could be stated that 30 percent of teachers belong to the first latent class, while 70 percent of teachers belong to the second latent class.

Conditioned probabilities provided in Table 3 were examined to reveal the features of the latent classes. According to conditioned probabilities of the gender variable, the probability of being a member of the first class is higher for male teachers than female teachers. The probability of being willing to attend more professional development activities in assessment is low for teachers belonging to the first class. Science, Math, and Turkish language teachers have similar probabilities of belonging to the first class, while Social Sciences teachers have the lowest probability of belonging to the first class. According to the age and experience variables, teachers who are older than 40 years old and have more than 20 years experience have the highest probability of belonging to the first class. As stated by Geiser et al. (2006), conditioned probabilities represent the size of the relationship between the latent class and the specific category of the observed variable. Therefore, it is clear regarding the teacher profile that male gender, older than 40, having more than 20 years experience, and not being willing to attend more professional development activities in assessment are the indicators of the first latent class.

The probability of belonging to the second latent class of female teachers is higher than the male teachers. In addition, these teachers have a lower probability of being unwilling to participate in more professional development activities in assessment than the teachers belonging to the first latent class. Science, Math, and Social Sciences teachers have similar probabilities of belonging to the second latent class, while Turkish language teachers have the highest probability of belonging to this class among the teachers. Teachers younger than 40 with less than 10 years experience have a high probability of being a member of the second latent class. The teacher profile that female gender, younger than 40, having less than 10 years of experience, and more willing to attend professional development activities in assessment are the indicators of the second latent class.

Teachers belonging to the both latent classes have a low probability of being willing to attend more professional development activities in assessment, which reveals that Turkish teachers are not motivated to take in-service training to develop their assessment skills. Furthermore, teachers belonging to the first latent class are less willing to participate in the professional development in assessment. Therefore, it could be stated that the gender, age, and experience variables are related to teachers' willingness to participate in professional development in assessment. In addition, both teacher profiles have a low probability of needing training to develop their assessment skills. Nevertheless, related studies revealed that knowledge levels and perceived competences of teachers in assessing their students are low (Anıl & Acar, 2008; Benzer & Eldem, 2012; Çakan, 2004; Daniel & King, 1998; Erdoğan & Kurt, 2012; Matsenjwa & Thwala, 2013; Özenç, 2013; Tuncer & Yılmaz, 2012). Based on the results of

the related studies, teachers were expected to need in-service training to develop their assessment skills. However, the current study showed that most of Turkish teachers are not willing to develop their assessment skills, and they think that they do not need any training in educational assessment. Interestingly, teachers perceived that they do not need professional development in assessment despite the fact that they do not find themselves competent in assessing their students. Another finding of the current study revealed that teachers are not willing to participate in professional development in assessment. The reason for this conflicting situation might be the low motivation levels of teachers for attending trainings. Although teachers belonging to the both latent classes have a low probability of needing professional development in assessment, teachers who are members of the first latent class have an even lower probability. Male teachers who are older than 40 and experienced more than 20 years are less likely to need training to develop their assessment skills. Essentially, the current study revealed that the gender, experience, and age variables are related to teachers' need for and willingness to participate in professional development in assessment.

4. Conclusion

Based on the current study's results, it was concluded that the need for and willingness of Turkish teachers to participate in professional development in assessing their students are low. When the results were examined according to the two different teacher profiles defined by the gender, age, and experience variables, it was concluded that female teachers younger than 40 and having less than 10 years experience had a little higher probability of needing professional development in assessment, as well as a higher probability of being willing to attend more training to develop their assessment skills. Therefore, it is recommended to increase the number of the in-service trainings to develop assessment skills of those teachers who are more willing for the development and need to develop their assessment skills. In addition, it is concluded that Turkish teachers' motivation for attending professional development activities specifically for developing assessment skills of teachers are not high. Based on this result, researchers are suggested to examine the possible reasons for low motivation among teachers to develop their assessment skills. Related studies revealed that Turkish teachers do not perceive themselves as competent in assessing their students. However, in this study, it is concluded that teachers do not need in-service training in this area. Therefore, researchers are recommended to examine these conflicting results of the studies by testing a model in which willingness to participate in development activities in assessment is the mediating variable between the variables of perceived competence and the need for the development in assessment.

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