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FROM THE EDITOR

Dear Distinguished Researchers and Readers,

JTES-KEG has been publishing articles in English since July 2019, and this will be our fourth issue fully in English. The change in the medium of publication as English, as we expected, has shortened the publication process up to nine months. This nine-month process is even shorter due to our OnlineFirst system in which we publish articles earlier than its normal issue.

In this issue, we decided to publish 9 distinguished research articles. We hope that these articles published in the third issue of 2020 will contribute to the literature. Also, we will continue to show accepted manuscripts in OnlineFirst soon.

Finally, we should also express our sincere thanks to the Editorial Board, reviewers and authors for their invaluable contributions. We also look forward to receiving submissions of sufficient rigor and quality. See you at the 2020 October issue!

Fatih GÜNGÖR, PhD
Afyon Kocatepe University
Faculty of Education

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Parental Participation in Children's Education: Experiences of Parents and Teachers in Ghana

Çocukların Eğitiminde Aile Katılımı: Gana'daki Ebeveynlerin ve Öğretmenlerin Deneyimleri

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ABSTRACT: The engenderment of children's education requires the interplay of several factors with parental involvement as a key ingredient in the educational experience. However, some parents' participation in their children's education has been found to be low in both rural and urban communities alike. This has led to the loss of the positive effects attributed to parent's participation in their children's education. A qualitative research was therefore conducted with parents of pupils in the University of Ghana Basic School as well as the teachers of primary classes four, five and six, to interrogate factors that motivate and inhibit parents' participation in children's education. Participants were purposively sampled due to their experience and knowledge in issues related to parents' participation and non-participation in their children's education. Findings revealed that parents' belief that their participation in their children's education is part of the training they are supposed to give them has motivated them to participate. Barriers to parental participation in their children's education include the high cost of living which keeps parents preoccupied with economic ventures, and low self-esteem due to some parents' illiteracy which makes them feel they cannot offer much besides paying their children's school fees.

Keywords: Parents' motivation, parental participation, school, supervision, teachers.

ÖZ: Çocukların eğitiminin sağlanması, eğitimsel deneyimde temel içeriklerden birisi olarak aile katılımıyla bazı etmenlerin birbiriyle etkileşimini gerektirmektedir. Öte yandan bazı ebeveynlerin çocuklarının eğitimine katılımları hem kırsal hem kentsel topluluklarda benzer olarak düşük bulunmuştur. Bu, ebeveynlerin çocuklarının eğitimine katılına atfedilen olumlu etkilerin katılımına yol açmaktadır. Bu yüzden Gana Üniversitesi Temel Okulu'ndaki çocukların ebeveynleri ve ilkokul dört, beş ve altıncı sınıf öğretmenleriyle çocukların eğitiminde aile katılımını motive eden ve kısıtlayan etmenler üzerinde tahkik etmek için nitel araştırma yürütülmüştür. Katılımcılar çocukların eğitiminde katılım sağlama ya da katılım sağlamama durumlarıyla alakalı bilgi ve deneyimlerine göre amaca göre seçilmiştir. Bulgular velilerin çocuklarının eğitimlerine katılımlarını onlara vermeleri beklenen bir eğitimin parçası olarak görme düşüncesi onların katılımını motive ettiğini gösterdi. Ebeveynlerin çocuklarının eğitimine katılımının önündeki engeller, ekonomik sebepler dolayısıyla onları meşgul eden yüksek yaşam maliyetleri ve bazı ebeveynlerin onları sadece çocuklarının eğitim masraflarından fazlasını yapamayacağını düşündüren bilgisizlik dolayısıyla yaşanan düşük öz güvendir.

Anahtar Kelimeler: Velilerin motivasyonu, aile katılımı, okul, denetim, öğretmenler.

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Pupils in the same class usually exhibit differing levels of academic performance even when they are being taught the same subjects by the same teachers. The disparities in the academic performance among pupils are attributed to several factors. Ali, Haider, Munir, Khan, and Ahmed (2013) cite a child's age, socioeconomic status of parent/guardian and hours committed to studies whiles Ong, Chandran, Lim, Chen, and Poh (2010) cite individual intelligence of pupils, behavioural problems, delinquency, health of pupils and pupils' attitude towards their education as determinants of children's academic performance. However, an issue that has proven to be very important in the education of children and yet not much talked about in some parts of the world is parental participation in their wards' education. Dempsey (1987) (cited in Watson, Sanders-Lawson, & McNeal, 2012) explain that parental participation can be best put in two forms: the activities or chores that are performed by parents at home but concerns their children's education such as helping a child solve homework and supervising a child to read a book; and activities that parents undertake in their children's school such as attending Parent-Teacher Association (PTA) programmes and volunteering in schools. Makgopa and Mokhele (2013) also define parental participation as roles played by parents to facilitate their children's academic performance and their involvement in activities in their children's schools.

Increasingly, the involvement of parents and significant others in children's education has been touted as a prerequisite for high academic performance, without which children's performance in school could be compromised (Castro, Exposito-Casas, Lopez-Martin, Lizasoain, Navarro-Asencio, & Gaviria, 2015). Wang and Sheikh-Khalil (2013) add that parental participation in children's education has had as much important impact on their education as socioeconomic and family factors. According to LaRocque, Kleiman, and Darling (2011), parents' involvement in their children's education creates the platform for both parents and teachers to work together, breaches the gap between the home and school, and affords teachers the opportunity to better understand the cultural background of their pupils. It is noteworthy that the positive result attributed to the involvement of parents in the education of their children is not specific to children of particular ages and races, but to all children (Andrews, 2013; Chowa, Ansong, & Osei-Akoto, 2012; Makgopa & Mokhele, 2013).

Whiles parental participation in children's education has taken many forms in Ghana, just as in other countries, the main form beside financial support is attendance to PTA meetings (Chowa, Ansong, & Osei-Akoto). Nyarko (2011) also opines that many parents in Ghana assist their children in doing their homework. The above-stated reports show that parental participation in Ghana is not different from what is done in other countries, as parents assume roles in their children's education both at home and in school. Regardless of the enormous importance of parents' participation, the issue has not been paid much attention in Ghana especially in academia, creating a gap in literature on the subject. This study therefore focuses on interrogating factors that motivate and inhibit parental participation in children's education in the Ghanaian context. It is based on the experience of the University of Ghana basic school, an educational institution that has children from both high and low socioeconomic backgrounds. The relevance of this study is situated in the fact that it will provide information to the various stakeholders of children's education in Ghana, on ways to engender parental participation in education. This is because upon reading this paper,

both teachers and parents will understand how both parties can collaborate in establishing relationships and interactions that can motivate parents to play more active diverse roles in their children's education.

Literature Review

The increased attention that has been paid to parental participation in children's education has culminated in some studies being conducted on the matter. According to Grolnick (2009), one of the key reasons behind parents' participation in their children's education is to motivate the children to work hard towards achieving good grades and other goals of their education. This is a psychological aspect of children's growth and development which is crucial to various aspects of their lives including their education. Another study that has revealed children's psychological and emotional growth as a motivation to parental participation in children's education was conducted by Pomerantz, Moorman, and Litwack (2007). Some parents in striving to boost the confidence of their children, make frantic effort to actively involve themselves in their children's education (Pomerantz, Moorman, & Litwack, 2007). In such instance, the parents engage themselves in various activities and programmes in their children's schools such as sports, drama, trips and others (Mo & Singh, 2008; Turney & Kao, 2009).

Beside the aforementioned motivators, some parents' perception of the invaluable role they can play in their children's education has motivated them to participate in their education. According to Green, Walker, Hoover-Dempsey, and Sandler (2007), some parents' active involvement in their children's education is motivated by their view that it is part of their responsibilities in nurturing their children into responsible adulthood. Such parents accept the role as partners of their children's teachers in the educational endeavours of their children. Yamamoto, Holloway, and Suzuki (2016) elucidated the crucial role assumed by some teachers in motivating parents to participate in their children's education. Some parents are able to assume the responsibility of playing more active roles in their children's school both at home and in school premises when their participation is sought by the teachers of their children (Yamamoto, Holloway, & Suzuki, 2016). This gives parents the impression that their involvement in school activities is not viewed as distractions but is welcomed and appreciated by the teachers and school authorities.

In their study which involved focus group discussions with urban black American families, Huang and Mason (2008) viewed parents' source of motivation to actively participate in their children's education from three sources. These are parents need to establish relation with their children's school environment, their need for the power to be able to influence their children's lives, and their belief that education is a vital tool with which their children can be successful in life (Huang & Mason, 2008). This shows that some parents need to have relationship with the elements in their children's school environment such as teachers, parents of their children's classmates and schools' administrators, has motivated them to be actively involved in the activities and programmes executed in the school. Such activities include parents-teachers association (PTA) meetings, educational trips and sporting activities. With regard to parents' need to influence their children's lives, considering that children spend many

hours of their childhood engaging in activities related to their education, it is a key aspect of their lives through which their decisions can be influenced.

Regardless of the crucial impact of parents' involvement on their children's education as shown by studies, some parents have been passive in involving themselves in their children's education especially in ways beside the payment of school fees. In their study which was based on a review of literature on parental participation, LaRocque, Kleiman, and Darling (2011) and Sheng (2012) found that busy schedules and stressful life situations of some parents encumber their ability to actively participate in their children's education. Brock and Edmunds (2010) also added that whiles parents with busy schedules can send emails to their children's schools if they have access to computer and internet, their ability to visit the schools in person is constricted. Gordon and Cui (2014) in their study on community poverty's effect on parental participation also added that this situation is usually faced by poor parents or people in poor communities who have to engage in multiple jobs during both day and night, in order to be able to provide the needs of the children.

Parents' perception about schools and teachers as the primary responsibility bearers in their children's education has also been found as a source of barrier to some parents' active participation in their children's education. According to Levine-Rasky (2009), some parents' limited participation in their children's education stems from their views held concerning their roles in the education of their children. Some parents assume minimal roles in their children's education which are mostly played at home, due to their perception of not having much to do in their children's schools (Sheng, 2012). Such parents therefore assume the primary responsibility of paying fees, while they shove most of the other activities to the schools and teachers. This view is also shared by Reed, Jones, Walker, and Hoover-Dempsey (2000) who asserted that as parents begin to view their children's education as the responsibility to be shouldered mostly by school and teachers, their participation in children's education reduces.

Some parents' limited participation in their children's education has also been attributed to their perception of not being wanted in their children's school environment. This is especially associated with parents of low socioeconomic status. In their study with immigrant households in in US, Turney and Kao (2009) observed that some low-income parents were not able to play active roles in the activities of their children's schools because they were marginalized. This marginalization was experienced in the teachers' hesitation to engage them as parents and limited communication about issues related to their children's performance and activities in school. This observation was also found by Jasso (2007) and Hornby and Lafaele (2011), who asserted that some parents play limited role in their children's education especially in the schools' premises due to their perception that they are not needed in the schools.

Some immigrant parents have also experienced certain structural barriers in their involvement in their children's education especially at the initial stages of their settlement in their new host environments. In some studies (Altschul, 2011; Smith, Stern, & Shatrova, 2008) which engaged Spanish-speaking immigrants whose children attended English-instructed schools, it was found that such parents experienced language and cultural impediments in their efforts to participate in the activities of their children's schools. These are key barriers because they inhibit or distort communication between the parents and their children's teachers especially in situations where there are

no language translation facilities available (Altschul, 2011). Beside the language and cultural barriers, Altschul (2011) added that some parents are encumbered by social and economic factors in their efforts to participate in the education of their children. On the economic issues, Jasso (2007) cited poverty as a key impediment in parents' ability to participate in their children's education.

It is worthy of note, however, that some barriers of parental participation have emanated from the actions and inactions of the schools. As reported by Okeke (2014), although parental participation is overtly talked about and encouraged by schools, there have been structures and practices in some schools that have impeded parent's participation. This coincides with Watson, Sanders-Lawson, and McNeal's (2012) observation that some schools involve parents in issues of the school in an untimely manner such that parents do not have much say and role to play in school activities. Some schools instead of engaging parents as partners in the education of their children in timely fashion, only engage parents when there is a problem involving their children in the school, limiting the roles such parents can play in their children's education (Watson et al., 2012).

The importance of parental participation has manifested in literature on its role in the improved academic performance of children from various geographical backgrounds. Additionally, both motivating factors and barriers of parental participation in children's education have been scrutinized from the viewpoints of upper and lower socioeconomic classes of society. However, the issue has been seldom researched into in Ghana. This study therefore sought to contribute in filling the literature gap identified.

Method

This study was conducted with the qualitative research design which afforded the researchers the opportunity to gather detailed data regarding parents' and teachers' perception about parental participation in children's education. The qualitative research design was also crucial in helping the researchers build trustworthy relationship with participants based on which detailed information would be obtained from participants (Creswell, 2013). Specifically, the phenomenological approach was used as my primary goal was to gain understanding of which factors motivate and impede parents' active involvement in their children's education.

It was conducted at University of Ghana Basic School, which is located within the University of Ghana campus in Legon, a suburb of Accra. This is a mixed day school which comprises of kindergarten, primary and junior high schools. Specifically, two classes – primary five and six- were the target of the study. These two classes were selected for the study because there was an easy identification of pupils whose parents actively participated in the activities in the school and those whose parents rarely involved themselves in such activities. This was a crucial characteristic of these classes which distinguished them from the other classes. However, this is not to say that the other classes did not have pupils whose parents did not participate in the school activities. Having such characteristic enabled the teachers of those classes to extensively express their views on parental participation in school activities. There are four classrooms for each of the two classes, with two teachers in each of the classrooms. This means there are 16 teachers in the target population. This school was selected for

the study because upon initial visits and communications with the management of the school it was realized that there are children of parents with high and low levels in both economic and educational statuses. It therefore suited the study as the researchers were interested in understanding how parents' economic and educational statuses influence their participation in their children's education.

Purposive sampling was adopted because it offered the researcher the opportunity to select participants who were knowledgeable about the roles parents can play to support their children's education and how such participation affects children's academic performance. It also enabled the recruitment of parents who rarely participated in their children's education in order to understand the reasons behind their low involvement. The sample for this study consisted of 16 people comprising of eight parents and eight teachers. With the selection of teachers, one was selected from each of the eight classrooms of primary classes five and six, with the help of the school's administrator to whom the researchers were introduced. The school administrator and teachers then assisted in recruiting eight parents of some of the pupils in the target classes.

Primary data which were used for the study were obtained through semi-structured interviews with participants in English and Twi depending on participants' proficiency in any of the two languages. These interviews were conducted at places convenient and comfortable for participants and data collection such as the homes, classrooms and offices of participants. The convenience of venues and comfortability of the participants were important because it aided them to freely express their views on issues discussed, so that detailed data could be gathered. The interviews aided the researchers to obtain detailed information through further probing into issues that were raised by participants. Also, in order to ensure that data were collected on the same issues, the interviews were aided by an interview guide which consisted of specific questions which all participants were asked. Furthermore, the interview guide assisted the researchers to avoid the digression of the interviews into issues that were not important to the study.

Data were collected through note taking and voice recording after permission had been sought from participants. Generated data were analysed using Creswell's (2013) data analysis spiral which comprises of five steps, namely, organizing data, reading and reporting, describing and classifying data into codes and themes, interpreting data and presenting data. Data was organised by converting the collected audio recordings into word format through a process called transcription. Generated transcripts were read thoroughly for familiarization, through which codes and themes were generated, described and classified based on the goal of the study. Through this process, information that were similar were grouped under distinct themes so that the findings could be differentiated from each other. This means that themes that have been presented as findings represent amalgamations of similar information on the issues researched into, as provided by the various participants. Consequently, findings have been presented and interpreted. In order to create a vivid picture of the situation found by the study, quotes from participants have been presented. Ethical issues observed include informed consent, voluntary participation, anonymity and confidentiality and avoidance of plagiarism.

Demographic Characteristics of Participants

In order to understand the dynamics among the participants of the study, to facilitate the clear depiction of the nature of parental participation in the study population, demographic characteristics have been presented below. Also, in order to clearly show the difference between the dynamics of parent and teacher, their characteristics are presented separately.

Regarding the age of the parents, four out of the eight were aged between 31 – 40 years, three were between 41 – 50 years and one was between 51 – 60 years range. This shows that all parents were in the productive years and as such have commitments in the jobs, which could inhibit their ability to devote more time to their children's education. There were five male parents and three female parents. Considering that these males have been traditionally considered as the primary breadwinners of their families, their commitment to activities in their children's school beside paying fees and providing school materials could be compromised. Also, five of the parents are university graduates, two of them only had secondary education whiles the remaining one parent had no formal education. With many of the parents having had appreciable levels of formal education, they have a clear understanding of what is entailed in their children's education and the essence of their involvement. Another factor that could impact the time parents devote to their children's school is the number of children they have in the school. In this study, three of the parents interviewed had a child each in the University of Ghana Basic School, four of them had two children and one had three children. Regarding the job of the parents, three of them worked in the University of Ghana as lecturers, three were in the corporate or business sector, one was a petty trader and one engaged in menial jobs.

The characteristics of teachers whose conduct also influence parental participation have been presented in this section. Regarding their ages, three of them were between 21 – 30 years range, two of them were between 31 – 40 years range, two of them were 41 – 50 and one was between 51 – 60 years range. As teachers in the University of Ghana Basic School, all of them are university graduates. Furthermore, some teachers had children in the school and as such had knowledge and experience as parents and their roles in the school. Two of them had a child each while one had two children in the school. However, they were not recruited as parents but as teachers, although they expressed their views on their experiences as parents.

Findings

It was revealed that parental participation in activities in the University of Ghana Basic School is high. Their participation was found in ways such as paying school fees, supervising children to do their homework, supporting children during sporting activities, attending meetings meant to discuss the welfare of their children and the school as whole, responding to invitations by teachers, and also making random visits to the school. However, it was also revealed that the participation of some parents is discouraging. Factors cited for their active participation and low participation are subsequently explained.

Factors That Enhance Parental Participation in Children's Education

The most cited source of motivation is parents' internal conviction about their role in their children's education. As revealed by the data, many parents actively participate in their children's education as a result of their intrinsic motivation to give their children quality education. According to some parents, it is very important that they participate as actively as possible in their children's education as a sign of their seriousness about their children's education. As it can be seen in the demographic characteristics of the parents, many of them by virtue of their enlightenment, appreciate the role they can play in their children's education. Such parents consider education as a lucrative investment in their children:

> "My parents were not rich, but they managed to educate me… I firmly believe that it is my responsibility to educate my children. I must do more than just paying their fees and buying books. I must attend meetings, try to support them in the various school activities. This is an investment that parents make in their children for both their present and future" (Parent, university lecturer).

With their investment in their children's education beyond paying fees and providing requisite materials, they can communicate their seriousness to the teachers. With such communication, many teachers have become more committed to their job of teaching the children. The children upon seeing the commitment from both their parents and teachers, have also become serious with their studies, thereby developing themselves.

Some parents also participate in their children's education because they want to keep positive image. With such parents, they want the wider society to see them as 'good' parents who are well invested in their children's education. Such parents would play roles that do not require much resource, such as attending PTA meeting and honouring teachers' invitation concerning their wards. This reason was mostly cited by some participant teachers who felt some parents are not very enthused about their children's education but try to create false impressions. They added that such parents are reluctant to pay monies such as school fees and buying the requisite materials such as books for their children. This observation was mainly associated with parents whose educational background is low, and have low appreciation for their role in their children's education:

> "Some parents are not really doing much to help their children in their education. They show up sometimes when you call them and then make promises just to look good. But you can tell they are not much committed to being active in their children's education. They are reluctant to pay fees on time and buy the needed materials that would help their children in their academic work" (Teacher).

Although this finding is seldom captured in existing findings, it was revealed to be a key motivating factor. In such instances, as explained by two teachers, both the school and children do not get the true involvement of these parents in the roles that other parents are participating.

Another factor is that some parents consider their active participation in their children's education as part of the training being given to children. Thus, some parents consider the education of their children as an integral part of their responsibilities as parents and hope to inculcate such attitude into their children. Some parents were adamant about the fact that without education, whatever a parent gives to his/her child is not enough because the child misses out on school experiences which are valuable in

their lifetime. This therefore motivates them to educate their children and play diverse roles to help the children to get the best out of their education. Many parents also expressed the need for parents to be active in their children's activities in the school, since that is an important part of children's lives considering the hours they spend in school. A parent who was a businessman expressed how his presence in his children's lives in school helps his family in raising the children:

> "... If our goal is to help them build positive characters, we cannot do that only at home. They spend many hours in their school doing various activities so we try to be as present as we can… We try to attend meetings, support them in their sporting events and all that. My son was so happy that I was there for his poem recital about a month ago and this a special moment in his life."

Findings also indicate that some parents are motivated by their intention to keep an eye on the conduct of the teachers and also protect their children from unfair treatment from the teachers. Parents with such intention randomly visit the school to check on how their children are faring in class. This they said sends the message that such parents are closely monitoring what is going on in the school. Although some teachers expressed their discontent about such random visits, others explained that it keeps both teachers and the children upright. A teacher who expressed his mixed feelings about such random visits had this to say:

> "Few parents come to this school uninvited to see their children and sometimes talk to me about their children. I think some do it in a way which seems like they are sniffing around to catch a teacher not treating their children well… However, I think the children of such parents usually comport themselves both in class and on the playground."

A parent who has randomly visited his child's school thinks such unexpected calls to the school helps his child to be upright and take school activities seriously. He therefore thinks it is a technique that should be employed by other parents, although he also mentioned that while such visits should be unexpected by the children, the teachers and school's administration should be notified in advance:

> "Sometimes my daughter's teachers invite me through a phone call, so I go to the school to see what the call is about. However, I do not tell her about such calls as I want to see how she acts in school when she does not know I am around. And after doing this for about three times, I hear she tries to be active in all school activities."

Although this is not a common motivation for many parents' participation in their children's education, it has been adopted by some parents who believe it helps to mold their children in an upright manner in their school. This then has served as a motivating factor for some parents to go beyond paying fees and providing items needed for their children's education, to making their physical presence felt in the schools.

Barriers to Parental Participation in Children's Education

A common barrier cited is the high cost of living and its effect on many parents. Some parents expressed that due to economic hardship, they are unconsciously separated from their children especially in their education, in their quest to make enough money to improve their economic situation. They stressed on the need to work hard in order to raise funds so that they can cater for their children's education needs among others. Such parents' participation is therefore seen to be limited to ways such as paying school fees and providing education materials. They added that they find it hard to visit

the school of their children and engage in activities. Based on the demographic characteristics of the parents presented earlier, it can be deduced that some parents struggle to earn enough income to provide for their children's needs including those required for their education. Two participants explained that their busy schedule and erratic in-flow of income have compelled them to spend long periods of time working to raise enough finances. Consequently, they are unable to make time to assist their children with their homework and actively engage in activities in their children's school. A parent who was a petty trader at the time of data collection had this to say:

> "I would have liked to attend PTA meetings in her school, but it is not easy. I am always moving from one market to the other just to be able to make money to take care of her and her younger brother. I only get to spend some time with them on Sundays, so I try to make the best out of it."

This shows that although some parents genuinely want to participate in their children's education in diverse ways, their quest to provide the needs of the children has limited their ability to do so. Some parents also attribute their inability to play more active roles in their children's schools to poor coordination from some teachers and changes in the school programmes. According to them, some teachers look down on some parents especially the illiterate ones. That deters some parents from seeing the teachers who they perceive are disrespectful, especially when the teachers have not invited them. Other parents also explained that sometimes the notices and invitations from their children's school are sent too late that it becomes difficult to respond to them. Additionally, some participants explained that changes in the schedules for programmes in the school such as PTA meeting and Speech and Prize-giving days also pose a challenge to them. This is because they sometimes find it difficult to factor such changes into their itineraries:

> "I think parents cannot be blamed entirely for missing some programmes in our children's schools... Sometimes notices are sent too late, and this makes it difficult to factor them into my plans. I cannot say I am busy and so I will not be there to make decisions that concern my children's education… the teachers and administrators need to let us know in advance so that we can also plan" (Parent, businessman).

Inferring from the above quote, it can be understood that structural changes and lapses in the schools programme forecast has inhibited some parents' ability to honour some invitations from the school although they would have wanted to be there.

Another factor that impedes parental participation is their attachment to other things other than education. Some teachers indicated that some parents spend time and resources on other things rather than their children's education. They cited that some parents eagerly sew clothes for funerals and other social functions at the expense of providing for their children's educational needs. This, they attribute this to the fact that some parents are not serious about their children's education and hence accord importance to other things. This shows that some parents leave the education of their children to the teachers and the schools who they believe are responsible for playing such roles. It was revealed that some parents find it difficult to make sacrifices to attend programmes like PTA meeting and others, although decisions made during such meetings affect their children's upbringing and welfare in general in the school:

> "I find it difficult to understand some parents, who can never make time to attend our calls and meetings. Some of these parents are always busy looking for money, travelling all over the country and abroad, but they always have excuse why they cannot attend meetings... You write notes and they do not write back or even call to discuss the issue at hand… and some of these

> parents are educated themselves and you would expect them to help us to train their children" (Teacher).

As intimated by some teachers, some parents equate their participation in their children's education to paying school fees and providing materials needed by the children. Such parents, upon paying the fees and providing material needs, leave the remaining responsibilities to the school.

Low self-esteem on the part of some parents was also found to be a factor that has inhibited some parents' participation in their children's education. It was found that some parents as a result of their illiterate statuses feel they do not have much to offer in their children's education. Some parents explained that they cannot help their children do their homework because they do not have the knowledge and expertise required to do so. This feeling of low self-esteem has also discouraged some parents from attending PTA meetings because over the years, they have not been able to share their views on issues discussed especially when the English language dominates discussions. They therefore limit themselves to paying school fees and providing the needs of their children, while they encourage their older children to assist their younger siblings in ways such as doing homework. A parent participant who did not have any form of formal education explained that she has limited her role in her children's education to paying fees and encouraging her child to work hard. Although she attends few meetings, especially those that involve only her and a teacher, she is averse to attending PTA meetings:

> "English language is mostly used in these meetings, so I did not understand many issues discussed… So, I stopped attending PTA meeting... I go to see the teachers to discuss some issues, but that is between us so I can freely speak about my concern… I think I could have done more if I had formal education myself."

The educational background of many parents has been a determinant of their participation in their children's education. Besides helping them understand the essence of playing active role in their children's education, it boosts their confidence and ability to do so. Illiterate parents in some instances, as captured above, are incapacitated to fully engage in certain activities. However, the appreciable level of education attained by many parents of children in the University of Ghana Basic School has limited the instance parental non-participation as a result of their illiteracy.

Discussion of Findings

This study sought to identify factors that motivate parents' decision to actively participate in their children's education and factors encumbering their participation. A key factor that has motivated parental participation has been some parents' admission of their participation being part of their responsibilities in raising their children. Such parents who are mostly enlightened enough to understand that school is one of the main agencies of socialization, go beyond paying fees and providing requisite materials for their children's education. They make their presence felt in their children's schools in ways such as attending meetings, supporting their children's sporting activities and helping school administration organize educational trips for children. This role played by parents in their children's education has also been found in other parts of the world beyond Ghana, as reported by other studies. For instance, this finding corroborates Green, Walker, Hoover-Dempsey, and Sandler's (2007) argument that some parents' motivation to actively participate in their children's education stems from their innate

view that they have a crucial role to play in their children's education. It also lends credence to Grolnick's (2009) argument that some parents use their participation to inspire their children to work hard in school and safeguard their future through their education.

Surprisingly, it was also found that some parents only make the impression of participation in various facets of their children's education without eventually doing much. This has been done by parents who are interested in gaining a positive image from their children's teachers and schools' administration. Whiles such parents readily promise to their children and the teachers to provide their children's needs and attend meetings and other programmes, they end up giving excuses to refrain from fulfilling their promises. Although this is not a very prominent problem, it has been identified with multiple parents regardless of their economic situation.

Parents' conviction that their presence in their children's education is a major way of training them has also inspired some parents to participate in their children's education. Acknowledging that children spend many years of their lives in school, parents try to influence their school environment. As unequivocally explained by both parents and teachers, children tend to be more interested and focused on their academic and extra-curricular activities when their parents are actively involved. Hence, their general attitude to education improves with their parents' increased participation. This confirms Turney and Kao's (2009) observation that children's attitude to education has a positive relationship with parental participation, seen in ways such as limited absenteeism and high scores in examination. Although many parents have busy schedule as portrayed in the demographic characteristics of participants, some parents' intrinsic motivation to train their children through their education find time to collaborate with the school in training their children. This supports Pomerantz et al.'s (2007) observation that some parents consider their involvement in their children's education as one of the ways of training and instilling confidence in them.

It is also worth mentioning that some parents' participation has stemmed from their intention to keep an eye on the conduct of their children and the teachers during school hours. These parents have the proclivity to visit their children's schools uninvited or unannounced. In their view, such surprise visits to discuss their children's conduct with the teachers encourages both the children and teachers to exhibit their best selves. Such comportment they believe, leads to the development of positive attitudes which are crucial for their children's academic progress and overall development. While this is not a common finding in existing studies and has been explained by some teachers as problematic, some teachers and parents seem to have no discontentment with it. According to them, for as long as the integrity of the teachers, schools' activities and children's progress are not compromised, it is not a problematic motivating factor.

While parental participation has been encouraged by the above-stated factors, it has not been absolute. This is because some impediments have led to limited participation by some parents, especially in activities undertaken in the school. The financial burden on some parents and its accompanying high cost of living has prevented some parents from spending much time on their children's education. This is as a result of some parents' preoccupation with their jobs in order to raise money which is needed to pay for children's school fees and other needs. This challenge has usually been faced by parents who are not in stable jobs and as such have limited funds. Parents

who engage in menial jobs and small-scale sectors which are not very lucrative have been compelled to work for extra hours, which limits their ability to help their children with their homework and also participate in school activities in which parents involvement is needed. This observation supports Sheng's (2012) assertion that parents' busy schedules impede their ability to support their children's education beyond the payment of fees. Beside the high cost of living, some parents' heightened compulsion to work extra hours has been necessitated by the high school expenses and the various materials required by children for effective learning coupled with their erratic income-earning capacities This finding is also in line with Gordon and Cui (2014) observation that the working poor parents usually have less time within which they can participate in children's education.

Additionally, some parents are unable to actively participate in their children's education due to some factors being existent in the schools' environment. These factors are the negative attitudes shown by some teachers to parents and late notification of parents about changes in school programmes. Some teachers' negative attitudes have discouraged some parents from having direct communication with them, although the welfare of their children is of interest to them. This observation supports LaRocque, Kleiman, and Darling's (2011) position that the attitudes shown by some teachers towards their students' parents influence their level of involvement in school activities. Furthermore, in instances where changes in the planned programmes in schools are not communicated to parents in a timely manner, some parents are unable to attend such programmes due to their inability to factor such changes in their itineraries. This problem is exacerbated by the busy schedules which some parents are compelled to endure due to the high cost of living. Structural barriers to parental participation in schools have also been found in other countries (Okeke, 2014; Watson et al., 2012)

Some parents have been found to play limited role in their children's education as a result of their relegation of this responsibility to other activities that are of high priority to them. As explained mainly by teachers, parents who play limited role blame their passiveness on various excuses such as travels and ill-health. This attitude has not been shown by only poverty-stricken parents but wealthy ones as well. Such attitudes have usually been shown by parents who believe the responsibility of training children in the school rests on the shoulders of teachers who have been paid for that role. Consequently, upon paying their children's fees and providing materials needed, their physical appearance is rarely felt in their children's school. This belief held by such parents is not an isolated issue as it has also been reported by Levine-Rasky (2009) that ideological differences between parents and teachers concerning parents' role in children's education limit some parents' participation in activities undertaken in their children's schools.

Finally, although some parents have keen interest in their children's academic performance and welfare in their school, their participation is inhibited by their low self-esteem as far as dealing with issues related to formal education. Some parents are reluctant to involve themselves in their children's education due to a feeling of inadequacy in helping as a result of their illiteracy. Such parents have usually been hesitant to participate in activities undertaken in the school, such as PTA meetings, social group events with parents and direct individual meetings with teachers. This supports Okeke's (2014) view that the fear of being victimized on academic issues

compromises some parents' willingness and ability to participate in their children's education. Furthermore, parents with low or no formal educational background feel they have limited role to play in helping their children in doing homework at home. This shows that parents' educational attainment is a crucial determinant of their participation in their children's education, confirming observations by Dor (2012) and Mncube (2010) that some parents feel they have limited role to play in their children's education. However, it contradicts Chowa, Ansong, and Osei-Akoto's (2012) position that parents who have low educational qualification play more roles on their children's school compound than those with high educational background. This contradiction could be explained by the population of this study. Considering that University of Ghana Basic School is in the premises of the university, educated parents who work in the university are able to spend some time in their children's school, compared to the wide range of sparsely located schools chosen for Chowa, Ansong, and Osei-Akoto's (2012) study.

Conclusion

Parental participation refers to the extent to which parents or guardians devote their resources such as time, finances and knowledge to help their children in their educational endeavours. It comprises all activities that are undertaken by parents regarding the education of children such as supervising children to do their homework and attending P.T.A programmes in their schools. Several factors are responsible for the level of parents' participation. This includes busy schedules of parents, poor cooperation from some teachers and the feeling of low self-esteem on the part of some parents.

An issue that comes to the fore in the discourse of parental participation in children's education is inequality of various forms of opportunities. As extensively explained, a key barrier to parental participation emanates from poverty and low standard of living by some parents. As a result, they are unable to devote much time to their children's education due to the long hours of work. This shows that income inequality among its numerous consequences, to an extent translate into inequality in parental participation. Considering that income inequality is high in Ghana as a developing country, the persistence of such developmental anomaly will continue to inhibit some parents' ability to play active roles in their children's education.

Considering that studies have shown that parental participation contributes to improved academic performance by children, it is crucial that efforts are made by parents, teachers and schools' authorities to overcome the barriers that impede parents' involvement. The achievement of this will promote communication and resultant healthy collaboration among parents and teachers as partners in children's education. Such heathy communication and relationship would encourage high parental participation.

Implications

In order to promote parental participation, the following recommendations have been made. It is, however, noteworthy that promoting parental participation is not the sole responsibility of parents but teachers and school administrators as well. On the part of teachers and school administrators, they should encourage parents to actively participate in children's education during PTA meetings. This is because although some parents may be interested in getting more involved in their children's education, they

may not know how best to do that. This is especially on the part of illiterate parents who did not experience the education process for themselves and as such have limited information on it. By encouraging them, they get to understand the various ways through which they can be actively involved in children's education.

School administrators should also try to include some parents in the planning of programmes and activities in which parents' attendance is expected. This will motivate parents to show more commitment and interest in such activities. Teachers and school administrators should also send invitations of school programmes and activities to parents in advance. When this is done, parents will be able to include such programmes into their schedules. Hence, more parents will be able to attend these programmes. It will also make parents feel that they are considered important participants in school activities.

Teachers should do their best to report the conduct of their pupils to their parents. This will keep parents informed about issues and be able to assist their children to desist from bad conduct and motivate them to repeat the good ones. Additionally, it communicates to the parents that their inputs are needed not only at home but also in school. It is also incumbent that teachers and school administrators accord all parents respect irrespective of their educational background and economic status. This will help some parents especially those with low educational qualification overcome their inferiority complex, thereby being motivated to actively participate in their children's education, both at home and in the school.

On the part of parents, they should endeavor to pay their children's school fees on time and provide the basic items they need for school. When children's fees have not been paid, they become uncomfortable in class because they are at times called to the front of the class and asked the reason for their failure to bring the fees, although it is not their responsibility. They should also find time to supervise children to do their homework and ensure that they study at home. Parents should also show interest in children's education by visiting the school to talk to their teachers and attending P.T.A meetings and other programmes. Additionally, they should support children not only in their academic work but also in extracurricular activities.

Parent should also take notices sent to them from their children's school seriously and respond to them accordingly. These notices could be meant for reporting a child's conduct to parents or inviting parents to school. Parents should therefore respond to such notices accordingly so that the purpose for which they were sent can be achieved. Parents should also consider their children's teachers as their partners in their children's education and respect them irrespective of their age and sex. Every school-going child spends a lot of time with his/ her teacher. This means that the teachers have immense influence on the child. Furthermore, parents can only demand respect from teachers if they respect them.

The problem of income inequality and its associated economic hardship faced by some families should also be paid attention by the government through economic and educational policies. It is important for the government to create more opportunities through which people can improve upon their financial situation. Ways through which this can be achieved include raising the minimum wage, creating more jobs and providing subsidies on basic goods. Through such means, families' economic situation

can be improved, and parents will not be compelled to work for extremely long hours, and thereby miss out on participating in their children's education. It is also incumbent on the government to regulate the fees charged by the various educational institutions especially in the private sector, through educational policy. This would relieve some parents of the pressures associated with high school fees.

Statement of Responsibility

Jamal Appiah-Kubi; conceptualization, methodology, validation, investigation, resources, data curation, writing- reviewing & editing, visualization, supervision, and project administration. Emmanuel Owusu Amoako; methodology, validation, investigation, resources, writing – original draft, and visualization.

References

Ali, S., Haider, Z., Munir, F., Khan, H., & Ahmed, A. (2013). Factors contributing to the students academic performance: A case study of Islamia University Sub-Campus. *American Journal of Educational Research, 1*(8), 283-289.

Altschul, I. (2011). Parental involvement and the academic achievement of Mexican American youths: What kinds of involvement in youths' education matter most? *Social Work Research, 35*(3), 159-170.

Andrews, M. (2013). Capitalizing on Mexican parents' cultural models of parental involvement from their children's perspectives. *Linguistics and Education, 24*(4), 497-510.

Brock, S., & Edmunds, A. L. (2010). Parental involvement: Barriers and opportunities. *EAF Journal, 21*(1), 48.

Castro, M., Exposito-Casas, E., Lopez-Martin, E., Lizasoain, L., Navarro-Asencio, E., & Gaviria, J., L. (2015). Parental involvement on student academic achievement: A meta-analysis. *Educational Research Review, 14*, 33–46.

Chowa, G. A. N., Ansong, D., & Osei-Akoto, I. (2012). *Parental involvement and academic performance in Ghana (YouthSave Research Brief 12-42)*. St. Louis, MO: Washington University, Center for Social Development.

Creswell J.W. (2013). *Qualitative inquiry and research design. Choosing among five approaches (third edition)*. Los Angeles: Sage Publication.

Dor, A. (2012). Parents' involvement in school: Attitudes of teachers and school counselors. *US-China Education Review, B*(11), 921-935.

Gordon, M., & Cui, M. (2014). School-related parental involvement and adolescent academic achievement: The role of community poverty. *Family Relations, 63*(5), 616-626.

Green, C. L., Walker, J. M. T., Hoover-Dempsey, K. V., & Sandler, H. M. (2007). Parents' motivation for involvement in children's education: An empirical test of a theoretical model of parental involvement. *Journal of Educational Psychology, 99*, 532–544.

Grolnick, W. S. (2009). The role of parents in facilitating autonomous self-regulation for education. *Theory and Research in Education, 7*(2), 164-173.

Hornby, G., & Lafaele, R. (2011). Barriers to parental involvement in education: An explanatory model. *Educational Review, 63*(1), 37-52.

Huang, G. H. C., & Mason, K. L. (2008). Motivations of parental involvement in children's learning: Voices from urban African American families of preschoolers. *Multicultural Education, 15*(3), 20-27.

Jasso, J. (2007). *African American and non-Hispanic White parental involvement in the education of elementary school-aged children*. Syracuse: Syracuse University.

LaRocque, M., Kleiman, I., & Darling, S. M. (2011). Parental involvement: The missing link in school achievement. *Preventing School Failure, 55*(3), 115-122.

Levine-Rasky, C. (2009). Dynamics of parent involvement at a multicultural school. *British Journal of Sociology of Education, 30*(3), 331-344.

Makgopa, M., & Mokhele M. (2013). Teachers' perceptions on parental involvement: A case study of two South African schools. *Journal of Educational and Social Research, 3*(3), 219-225.

Mncube, V. (2010). Parental involvement in school activities in South Africa to the mutual benefit of the school and the community. *Education as Change, 14*(2), 233-246.

Mo, Y., & Singh, K. (2008). Parents' relationships and involvement: Effects on students' school engagement and performance. *RMLE Online, 31*(10), 1-11.

Nyarko, K. (2011). Parental school involvement: The case of Ghana. *Journal of Emerging Trends in Educational Research and Policy Studies, 2*(5), 378-381.

Okeke, C. I. (2014). Effective home-school partnership: Some strategies to help strengthen parental involvement. *South African Journal of Education, 34*(3), 1-9.

Ong, L., C., Chandran, V., Lim, Y., Y., Chen, A., H., & Poh, B., K. (2010). Factors associated with poor academic achievement among urban primary school children in Malaysia. *Singapore Medical Journal, 51*(3), 247-252.

Pomerantz, E. M., Moorman, E. A., & Litwack, S. D. (2007). The how, whom, and why of parents' involvement in children's academic lives: More is not always better. *Review of Educational Research, 77,* 373–410.

Reed, R. P., Jones, K. P., Walker, J. M., & Hoover-Dempsey, K. V. (2000). *Parents' motivations for involvement in children's education: Testing a theoretical model*. Retrieved on 1st May, 2019 from https://files.eric.ed.gov/fulltext/ED444109.pdf

Sheng, X. (2012). Cultural capital and gender differences in parental involvement in children's schooling and higher education choice in China. *Gender and Education, 24*(2), 131-146.

Smith, J., Stern, K., & Shatrova, Z. (2008). Factors inhibiting Hispanic parents' school involvement. *Rural Educator, 29*(2), 8-13.

Turney, K., & Kao, G. (2009). Barriers to school involvement: Are immigrant parents disadvantaged?. *The Journal of Educational Research*, *102*(4), 257-271.

Wang, M., & Sheikh-Khalil, S. (2013). Does parental involvement matter for student achievement and mental health in high school? *Child Development, 85*, 610-625.

Watson. G., L., Sanders-Lawson, E., R., & McNeal, L. (2012). Understanding Parental Involvement in American Public Education. *International Journal of Humanities and Social Science, 2*(19), 41-50.

Yamamoto, Y., Holloway, S. D., & Suzuki, S. (2016). Parental engagement in children's education: Motivating factors in Japan and the US. *School Community Journal, 26*(1), 45-66.

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Improving Pre-Service Teachers' Science Process Skills and Views about Scientific Inquiry*

Sınıf Öğretmen Adaylarının Bilimsel Süreç Becerilerinin ve Bilimsel Araştırma Hakkındaki Görüşlerinin Geliştirilmesi

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ABSTRACT: Despite the importance of scientific inquiry in science education, research has shown that pre-service teachers have deficiencies in terms of knowledge and skills. This study aimed to improve pre-service teachers' science process skills and views about scientific inquiry through inquiry-based activities. This study was carried out with one group pretest-posttest experimental design. A total of 41 (30 females, 11 males) pre-service teachers attending a classroom teaching program of a university in Turkey participated in this study. Within the scope of a science and technology laboratory course, scientific inquiry activities were carried out. As the data collection instruments, the Views about Scientific Inquiry (VASI) and the Scientific Process Skills Test (SPSt) were administered to the pre-service teachers before and after the implementation. In conclusion the pre-service teachers' views and skills about doing scientific inquiry developed. The findings were discussed in terms of the scientific process skills involved in scientific inquiry and the development of practical and theoretical aspects of scientific inquiry.

Keywords: Pre-service classroom teachers, the views about scientific inquiry (VASI), science process skills (SPS).

ÖZ: Fen eğitiminde bilimsel araştırmanın oldukça önemli bir yeri vardır. Bu öneme rağmen araştırma sonuçları öğretmen adaylarının bilimsel araştırma ile ilgili bilgi ve becerilerinde eksikliklerin olduğunu göstermiştir. Bu araştırmanın amacı sınıf öğretmen adaylarının bilimsel süreç becerilerinin ve bilimsel araştırmaya yönelik görüşlerinin bilimsel araştırmalar yardımı ile geliştirilmesidir. Tek grup öntest-sontest deneysel desende yürütülen bu araştırmaya Türkiye'de yer alan bir üniversitenin sınıf eğitimi anabilim dalında öğrenim gören toplam 41 (30 kadın, 11 erkek) öğretmen adayı katılmıştır. Fen ve teknoloji laboratuvarı dersi kapsamında bilimsel araştırma etkinlikleri gerçekleştirilmiştir. Veri toplama aracı olarak Bilimsel Araştırmaya Yönelik Görüş Anketi ve Bilimsel Süreç Becerileri Testi kullanılmıştır. Veri toplama araçları sürecin başında ve sonunda sınıf öğretmen adaylarına uygulanmıştır. Sonuç olarak öğretmen adaylarının bilimsel araştırmaya yönelik görüş ve bilimsel süreç becerilerinin bilimsel araştırmalar ile geliştiği görülmüştür. Sonuçlar bilimsel araştırma yapmanın beceri ve görüşü geliştirmesi konusunda teorik ve uygulamalı olarak tartışılmıştır.

Anahtar kelimeler: Sınıf öğretmen adayları, bilimsel araştırmaya yönelik görüş, bilimsel süreç becerileri (BSB).

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With the increasing emphasis on the constructive approach, reform movements have been undertaken in education programs in Turkey, leading to the adoption of inquiry-based learning in the science curriculum. In this sense, raising all students as scientific literacy regardless of their individual differences has become the main vision of science education programs. Scientific Process Skills (SPS) are considered to be one of the sub-dimensions of scientific literacy (Ministry of National Education [MoNE], 2006]. At the international level, one of the competences defined for scientific literacy is the design and evaluation of science inquiry methods [Organization for Economic Co-operation and Development [OECD], 2016]. Individuals need to have certain knowledge (Lederman et al., 2014) and skills (National Research Council [NRC], 2012) to engage in scientific inquiry. In a recent study conducted at the international level, it was reported that in Turkey, there were shortcomings in the teaching of scientific inquiry components (Lederman, Lederman, Bartels, & Jimenez, 2019).

Inquiry Based Learning and Scientific Inquiry

With the scientific and technological developments of the 1960s, student-centered approaches were abandoned and inquiry-based learning has taken its place in teaching programs (NRC, 1990). The basis of inquiry-based learning is constructivism, involving many cognitive and psychomotor processes, such as asking questions, developing hypotheses, collecting data, and conducting research (NRC, 2000). It can be applied in an open/full, guided, coupled, or structured manner according to the students' cognitive and grade levels (Martin-Hansen, 2002). The science curriculum of elementary education institutions, founded on inquiry-based learning, recommends structured inquiry activities in primary school, guided inquiry activities in the first year of the middle school, and open-ended inquiry activities in the last grade of the middle school (MoNE, 2013). Regardless of age and grade level, much practice should be undertaken to help students acquire the skills required for inquiry and to develop an aware of the stages in this process (Banchi & Bell, 2008, p. 26).

Inquiry-based learning enables students to actively develop their knowledge and skills and is based on constructivist theories (Piaget, 1971; Vygotsky, 1978). Although there are various inquiry-based learning cycles in the literature, the steps of this process can be generalized based on the results of previous research conducted. In this sense, the inquiry process starts with the introduction of an exploratory subject. In the conceptualization stage, the research question and hypothesis are determined. In addition, this stage involves the collection of the necessary information for the solution of the predefined problem. The research phase consists of preparing and implementing a plan to answer the research question, making observation, and collecting and interpreting data. In the final stage, theory is developed, solution suggestions are proposed, and a model is created. The last part, discussion, consists of communication and reflection that refer to the presentation and sharing of the research results and the factual explanation of the cases with evidence, respectively (Pedaste et al., 2015).

There is no consensus in the literature concerning what inquiry really means (Barrow, 2006; Lustick, 2009). It is used to refer to scientific inquiry, inquiry-based science teaching, discovery learning, learning as scientific inquiry, and learning science by inquiry (Dojman, 2003). From this point of view, if inquiry-based learning is a cluster, it can be claimed that scientific inquiry is a member of this cluster. Scientific

inquiry is the whole of systematic research activities conducted by scientists to understand and explain the world (NRC, 2000). In the science curriculum last updated in Turkey in 2018, one of the main purposes of the program is given as adoption of a scientific inquiry approach in the process of discovering the natural world and understanding the relationship between human and environment in order to educate all individuals as science literates (MoNE, 2018). The scientific inquiry process involves asking questions regarding the subject to be researched, planning and implementing research, thinking mathematically, analyzing and interpreting data, and using communication skills (NRC, 2012).

Views about Scientific Inquiry

Scientific inquiry is the most fundamental part of science courses providing permanent learning and concretizing abstract concepts. In order to raise scientifically literate individuals, from preschool to postgraduate education, students' views of scientific inquiry are important to determine their knowledge and skills, understand the current situation, and eliminate any incompetence (Strippel & Sommer, 2015). In this sense, there is a need for valid and reliable measurement tools related to scientific inquiry skills and the nature of scientific inquiry. However, for this purpose, in the literature is the views of scientific inquiry (VOSI) and the views about scientific inquiry (VASI) questionnaire developed (Lederman, et al., 2014; Schwartz, Lederman, & Leerman, 2008).

Using VASI, it is possible to evaluate the eight components of the nature of scientific inquiry. The first component is related to the fact that all scientific inquiry begins with a question but does not require a hypothesis. The second component refers to there being more than one method to conduct scientific inquiry, the third is related to research questions guiding the research process, the fourth specifies that scientists using the same process may not reach the same results, the fifth is associated with the research process having an effect on the results, the sixth concerns data and evidence not being the same phenomena, the seventh refers to the requirement of consistency between the collected research findings, and the last component is about arriving at scientific explanations by combining the data collected and what is previously known (Lederman et al., 2014). The VOSI and VASI have been used to investigate levels of middle school (Senler, 2015; Yang, Park, Shin, & Lim, 2017), high school (Anggraeni, Adisendjaja, & Amprasto, 2017; Leblebicioğlu, Çapkınoğlu, Metin, & Schwartz, 2017), university (Gaigher, Lederman, & Lederman, 2014), and of the teachers (Adisendjaja, Rustaman, Redjeki, & Satori, 2017; Bartos & Lederman, 2014). One common conclusion of these studies is that in-service and pre-service teachers and students do not have an adequate level of views concerning the nature of science and scientific inquiry.

Science Process Skills (SPS)

SPS has existed in the education literature for a long time (Padilla, Okey, & Garrard, 1984). The emphasis of SPS in current education programs indicates that it remains equally important (Australian Curriculum, Assessment, and Reporting Authority (ACARA), 2012; MoNE, 2018; NRC, 2012). Some sources refer to SPS as scientific reasoning competencies, scientific inquiry skills, and science skills (Kruit, Oostdam, Berg, & Schuitema, 2018). SPS can also be defined as the skills used by

scientists to conduct scientific research. Although there are different classifications in the literature, these skills are generally related to observation, classification, communication, measuring, using space/time relations, using numbers, making inferences, estimating, changing and controlling variables, hypothesizing, interpreting data, operational definition, and experimentation (Ayas, Çepni, Johnson, & Turgut, 1997; Padilla, Okey, & Garrard, 1984). Among these, observation, classification, communication, and measurement are basic skills, while controlling variables, constructing hypotheses, interpreting data, operational identification and experimentation are high-level. When the cognitive development levels of the students are taken into consideration, it is necessary to help them acquire basic skills during preschool and primary school and higher-level skills from the secondary school onwards. This research covered the integrated process skills of defining variables, operational definition, hypothesizing, interpreting charts and data, and experimentation. It is very important to determine the variables to be investigated in research. A variable may have qualitative or quantitative values, but it also represents the changing properties of an object of event. An independent variable is a type of variable that can be changed according to the researcher's request while a dependent variable is affected by an independent variable or variables. The control variable is kept constant throughout the research process to prevent any effect on the dependent variable. Operational definition means that students create their own definitions in accordance with the information obtained from their own experience and observations instead of memorizing the formal definitions of concepts. A hypothesis is a proposition that has not been tested for accuracy or inaccuracy. Hypotheses guide scientists about what additional data are needed to interpret the data obtained during the research process and what data they should focus on. In the interpretation of the data, first, the information to be accessed should be determined. The decision-making process depends on the predefined hypotheses. Converting the data collected in line with hypotheses into visual forms (graphics, tables) using tools, such as computers and calculators makes it easier to interpret the data. Designing and conducting experiments that require students to apply all scientific process skills constitute the broadest part of the research process (Çepni, 2005).

The best place to develop SPS is a laboratory (Hofstein & Mamlok-Naaman, 2007), and the most effective approach for the development of SPS is inquiry-based learning (Yıldırım, Çalık, & Özmen, 2016). In this regard, research conducted with middle school students showed that guided inquiry-based learning had positive contributions to their cognitive and affective domains and improved their attitudes, achievements and SPS (Köksal & Berberoğlu, 2014). The training of teacher candidates and teachers in relation to SPS is another important issue. In recent years, however, a study undertaken with science teachers revealed that their conceptual understanding of SPS was poorer compared to practice. Researchers attributed this to the teaching characteristics and conditions of teachers (Shahali, Halim, Treagust, Won, & Chandrasegaran, 2017). In another study conducted with university students, a significant relationship was observed between SPS and success (Feyzioglu, 2009).

Aim of This Study

Developing the science process skills and views about pre-service teachers about scientific inquiry is important for their future students. Due to the literature lacking research concerning the effect of scientific inquiry activities on the students' SPS and views about scientific inquiry, the results of the current study are expected to act as a guide for further research and offer ideas about possible implementations. The aim of this research was to improve the SPS of pre-service teachers through scientific inquiry activities. For this purpose, the research problems are as follows:

(1) What is the effect of science inquiry activities on pre-service teachers' SPS?

(2) What is the effect of science inquiry activities on pre-service teachers' views about scientific inquiry?

Method

This research was carried out with a single sample group to examine the effect of scientific inquiry undertaken within the scope of the Science and Technology I Laboratory course on pre-service science teachers' SPS and views about scientific inquiry. In the one-group experimental design, the effect of the experimental procedure on a single group is tested through research. The measurements of the dependent variable are obtained using the same instrument administered to the same subjects before and after the implementation as pre-test and post-test, respectively. Random assignment and group matching are not used (Fraenkel & Wallen, 2003). This study was conducted on a single group without experimental and control groups because the development of scientific process skills and views of all pre-service teachers participating in the research were considered important. Raising knowledgeable prospective teachers is very important for the development of their own pedagogical and field knowledge, as well as that of their future students. On the other hand ethical rules were followed in this research.

Study Group

This study was conducted with pre-service teacher attending the second grade of a classroom teaching program in the Education Faculty of a university located in the Central Anatolia Region of Turkey. A total of 41 pre-service teachers (30 females, 11 males) participated in the study. The mean age of the pre-service teachers was 20 years. In Turkey, student placement in universities is based on the scores from a central test. For the enrollment in classroom teaching programs, Turkish and mathematics scores are taken into consideration. In these programs, students take physics, chemistry and biology courses, but their academic level is generally poor regarding these subjects. In this study, the researcher chose a situation that is close to her and easy to access. In this sense convenience sampling technique was used. This research was carried out on pre-service teachers studying in the second grade because the Science and Technology I Laboratory course is taught in the second grade. Since this course is practical, it is thought that it will enable the development of scientific process skills and the views about scientific inquiry.

Data Collection Tools

SPS test. SPS test was developed by Burns, Okey, and Wise (1985). Geban, Aşkar, and Özkan (1992) adapted SPS test to Turkish. In this study it was used as a pre- and post-test to determine the level of SPS of the participant pre-service teachers. This test consists of 34 multiple choice questions that evaluate the respondents' skills related to defining variables (12 question), operational definition (six questions), hypothesizing (nine questions), interpreting charts and data (six questions), and experimentation (three questions). Since this test was designed to evaluate the development of high-level cognitive process skills, it was considered appropriate to use it to measure the level of integrated process skills of pre-service teachers. The measurement reliability of the test was calculated as 0.79. The participants' correct and incorrect responses in the SPS test were coded as '1' and '0', respectively.

VASI. In order to determine the changes in the pre-service teachers' views about scientific inquiry through the implementation of the program, this questionnaire, developed by Lederman et al. (2014) and adapted to Turkish by Karısan, Bilican, and Senler (2017), was administered to the participants. This tool consisted of seven items related to eight components of scientific inquiry. These components are (Lederman, et al., 2014):

(F1) Scientific investigations all begin with a question, but do not necessarily test a hypothesis

(F2) There is no single set or sequence of steps followed in all investigations

(F3) Inquiry procedures are guided by the question posed

(F4) All scientists performing the same procedures may not obtain the same results

(F5) Inquiry procedures can influence results

(F6) Scientific data are not the same as scientific evidence

(F7) Research conclusions must be consistent with the data collected

(F8) Explanations are developed from a combination of collected data and what is already known

Data Collection Procedures

The research data were collected within the scope of the Science and Technology Laboratory I course in the fall semester of 2018-2019 academic year. In this research, researcher and lecturer are the same person. The implementation process took a total of 14 hours over seven weeks. Table 1 presents the details of this process.

Table 1

Implementation Process

Week	Scientific inquiry activities and other procedures
1	Administration of VASI and SPS test as pre-test, PowerPoint presentation on SPS and scientific inquiry
2	Performing measurements with a dynamometer

3	State of materials with different masses in water
4	Heat conduction
5	Effect of resistance on the brightness of bulbs
6	Expansion using Gravesande's ball and ring experiment
7	Administration of VASI and SPS test as post-test

The SPS test and VASI were administered to the pre-service teachers as pre-tests in week one, and the participants were asked to respond to the questions honestly. After the application of the data collection tools, the lecturer gave a PowerPoint presentation about the basic and unified process skills and the features of scientific inquiry by providing relevant examples. In the second week, the pre-service teachers performed measurements using dynamometry and slotted weights. The third week concerned the measurement of the density of different objects with the same volume but varying masses. In the fourth week, the pre-service teachers observed the conduction of heat in different metals using a heat conductor. The fifth week was related to the determination of the effect of resistance on the brightness of ampoule using a rheostat. In the sixth week, the pre-service teachers investigated the effect of heat on expansion using Gravesande's ball and ring experiment, and in the last week, they completed the SPS test and VASI as post-tests. The pre-service teachers performed all the activities in groups of five or six, but prepared an individual report for each scientific inquiry activity performed. The scientific inquiry reports were related to basic concepts (theoretical framework), research problems, variables (dependent, independent, fixed), implementation of research, results and interpretation, and SPS used in the scientific inquiry process. The activities in the second week were structured, and all activities undertaken in the following weeks were guided.

During the research process, the pre-service teachers were asked to prepare reports for each scientific inquiry activity undertaken during the science and technology laboratory I course in order to improve their scientific process skills. In this process, the pre-service teacher's collected theoretical information before attending each scientific inquiry activity presented in Table 1 and included this in their reports. During the class hour, they determined the problems and variables of each scientific inquiry, carried out scientific inquiry, recorded the results of the research by creating graphs and tables, and interpreted the results. Finally, they explained the scientific process skills used in each scientific inquiry in their reports. This aimed to increase the awareness of the pre-service teachers about the scientific process skills they used and the way they used them. In the process of conducting scientific inquiry, the pre-service teachers were free to choose the paths to follow. In addition, each group was asked to compare the results of their research and interpret the reasons for the differences, if any. Table 2 presents the list of activities undertaken before and during the science and technology laboratory I course.

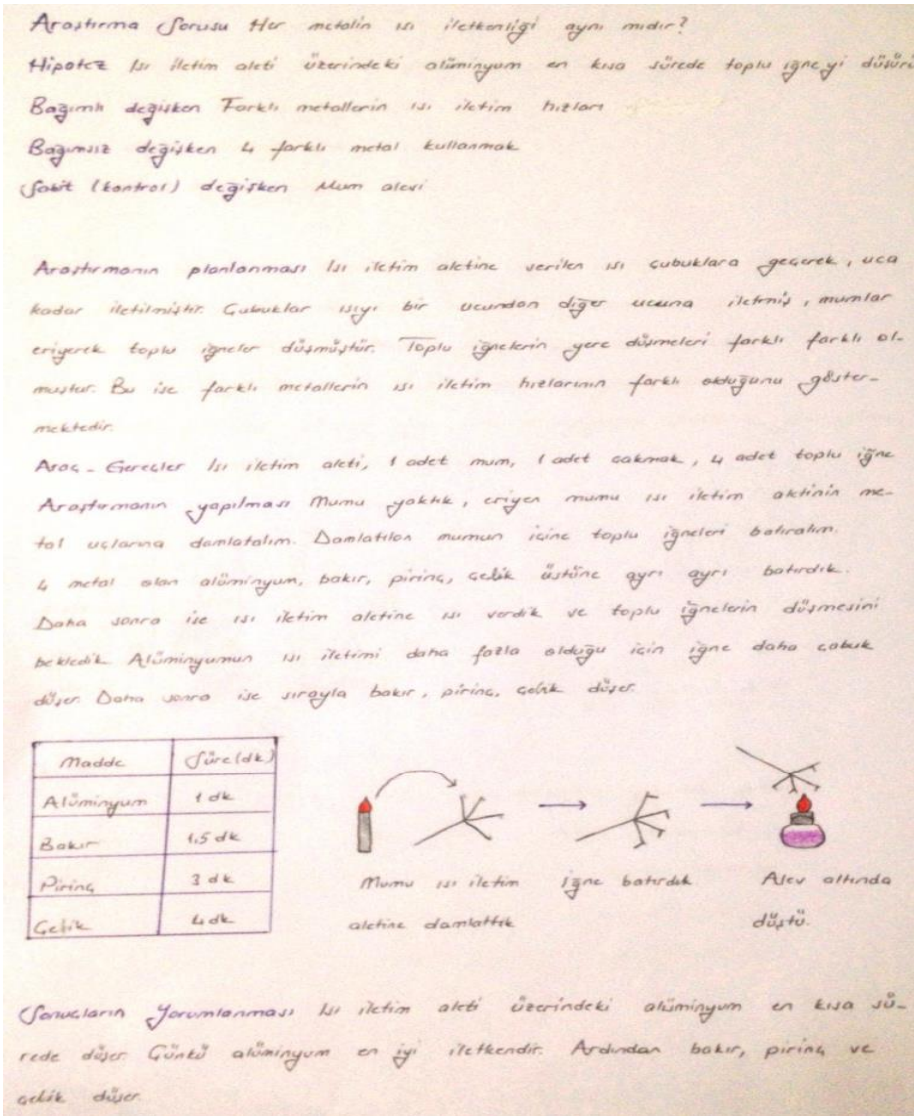
Table 2

Activities Undertaken before and during the Science and Technology Laboratory I Course

Before coming science and technology laboratory I course	Collecting and reporting theoretical information about the scientific inquiry to be conducted
During science and technology laboratory I course	Scientific inquiry cycle - Defining the problem - Hypothesizing - Defining the variables (dependent, independent, fixed) - Choosing the research method to test the hypothesis - Conducting the scientific inquiry - Reporting the results of scientific inquiry - Interpreting the results - Comparing the results of different groups

The scientific inquiry report of a preservice teacher is shown in Figure 1 below.

Figure 1. Example of a Preservice Teachers' Scientific İnquiry Report (Heat Conduction)


Araştırma Sorusu Her metalin ısı iletkenliği aynı mıdır?

Hipotez Isı iletim aleti üzerindeki alüminyum en kısa sürede toplu iğneyi düşürü

Bağımlı değişken Farklı metallerin ısı iletim hızları

Bağımsız değişken 4 farklı metal kullanmak

Sabit (kontrol) değişken Mum alevi

Araştırmanın planlanması Isı iletim aletine verilen ısı çubuklara geçerek, uca kadar iletilmiştir. Çubuklar ısıyı bir ucundan diğer ucuna iletmiş, mumlar eriyerek toplu iğneler düşmüştür. Toplu iğnelerin yere düşmeleri farklı farklı olmuştur. Bu ise farklı metallerin ısı iletim hızlarının farklı olduğunu göstermektedir.

Araç - Gereçler Isı iletim aleti, 1 adet mum, 1 adet çakmak, 4 adet toplu iğne

Araştırmanın yapılması Mumu yaktık, eriyen mumu ısı iletim aletinin metal uçlarına damlatalım. Damlatılan mumun içine toplu iğneleri batıralım. 4 metal olan alüminyum, bakır, pirinç, çelik üstüne ayrı ayrı batırdık. Daha sonra ise ısı iletim aletine ısı verdik ve toplu iğnelerin düşmesini bekledik. Alüminyumun ısı iletimi daha fazla olduğu için iğne daha çabuk düşer. Daha sonra ise sırayla bakır, pirinç, çelik düşer.

Madde	Süre (dk)
Alüminyum	1 dk
Bakır	1,5 dk
Pirinç	3 dk
Çelik	4 dk

Mumu ısı iletim aletine damlattık

İğne batırdık

Alev altında düştü.

Sonuçların Yorumlanması Isı iletim aleti üzerindeki alüminyum en kısa sürede düşer. Çünkü alüminyum en iyi iletkendir. Ardından bakır, pirinç ve çelik düşer.

This scientific inquiry is about the effect of different metals on thermal conductivity.

In the report of the preservice teacher, there are parts of the research question, variables, research plan, necessary tools and equipment, the conduct of the research, the related table and the interpretation of the figures and results.

Data Analysis

SPSS software v. 21 was used to analyze the data. Statistical analysis was carried out on the data collected from 41 pre-service teachers. The normality of quantitative data was examined based on skewness and kurtosis values using the Kolmogorov-Smirnov test. Since the data were found to have normal distribution, the paired samples t-test was used for the whole SPS test and its sub-dimensions administered as pre- and post-tests.

The qualitative data (VASI) was evaluated by content analysis. In this process, two researchers conducted analysis and reached an agreement by discussing where there were differences of opinion. Using VASI, the views of pre-service teachers were categorized as "unclear/no response", "naive", "complex", and "informed". These categories are numbered as 1, 2, 3 and 4 respectively. Since the pre-service teachers' VASI scores were not normally distributed, the Wilcoxon signed-ranks test was used.

Results

Findings about the First Research Question

Table 3 presents the comparative results of the participants' SPS pre- and post-test mean scores.

Table 3

Paired Samples T-Test Results of Pre-Service Teachers' SPS Scores

SPS factors	Pre-test		Post-test				
	M	SD	M	SD	*t*	*p*	η^2
Defining variables	4.95	2.09	6.25	1.9	3.04	.00	.18
Operational definition	3.63	1.44	4.02	1.66	1.94	.05	.08
Hypothesizing	6.17	1.13	6.53	1.02	2.1	.04	.09
Interpreting chart and data	4.68	.81	4.97	.75	2.08	.04	.09
Experimentation	2.33	.66	2.53	.59	1.31	.19	.04
Total SPS test scores	21.82	3.38	24.32	3.06	5.2	.00	.4

According to the paired-samples t-test, the pre-service teachers' showed a development in their positive scores for three factors: defining variables $t(40)=3.04$, $p<.05$, $\eta^2=.18$, hypothesizing $t(40)=2.1$, $p<.05$, $\eta^2=.09$, and interpreting charts and data $t(40)=2.08$, $p<.05$, $\eta^2=.09$, as well as the total SPS test scores $t(40)=5.2$, $p<.05$, $\eta^2=.4$. There was no significant difference between the pre-service teachers' scores related to operational definition $t(40)=1.94$, $p>.05$, $\eta^2=.08$ and experimentation $t(40)=.3$, $p>.05$, $\eta^2=.04$ after the implementation of the program. Despite the absence of a significant difference between the SPS pre-test and post-test results, there was an increase in the participants' mean scores related to "operational definition" and "experimentation" sub-dimensions of the test.

Findings about the Second Research Question

A comparison of the pre-test and post-test VASI scores of the pre-service teachers' is shown in Table 4.

Table 4
Wilcoxon Signed-Ranks Test Results of the Pre-Service Teachers' VASI-N Scores

Test statistics	F1	F2	F3	F4	F5	F6	F7	F8
z	2.64	2.41	.41	2.65	.36	.06	2.77	1.00
p	.00	.01	.68	.00	.71	.95	.00	.31
Negative rank (mean rank)	.00	5.75	3	7	8.42	5.5	16.5	.00
Negative rank (sum of ranks)	.00	11.5	6	28	50.5	22	33	.00
Positive rank (mean rank)	4.5	7.23	3	10.21	5.79	4.6	9.83	1
Positive rank (sum of ranks)	36	79.5	9	143	40.5	23	177	1
Mean of pre-test	3.24	2.44	3.66	2.95	2.68	2.59	2.98	3.63
Mean of post-test	3.49	2.85	3.71	3.44	2.69	2.61	3.46	3.71

The analysis of the data obtained from the pre-test and post-test VASI revealed a positive change in the pre-service teachers' views about the components of scientific inquiry, namely "(F1) Scientific investigations all begin with a question, but do not necessarily test a hypothesis (z=2.64, p<.05)", "(F2) There is no single set or sequence of steps followed in all investigations (z=2.41, p<.05)", "(F4) All scientists performing the same procedures may not obtain the same results (z=2.65, p<.05)", and, "(F7) Research conclusions must be consistent with the data collected (z=2.77, p<.05)" components of scientific inquiry, while no significant difference was observed concerning the "(F3) Inquiry procedures are guided by the question posed (z=.41, p>.05)", "(F5) Inquiry procedures can influence results (z=.36, p>.05)", "(F6) Scientific data are not the same as scientific evidence (z=.06, p<.05)" and, "(F8) Explanations are developed from a combination of collected data and what is already known (z=1, p>.05)".

There was an increase in the participants' mean scores in the scientific inquiry components of "(F3) Inquiry procedures are guided by the question posed", "(F5) Inquiry procedures can influence results", "(F6) Scientific data are not the same as scientific evidence" and, "(F8) Explanations are developed from a combination of collected data and what is already known", but no significant difference was observed between the pre-test and post-test results.

Discussion and Conclusion

The current study, which aimed to develop pre-service teachers' scientific process skills and views science inquiry, revealed that the pre-service teachers' knowledge and skills concerning undertaken scientific inquiry developed. In this regard, scientific inquiry inquiry conducted with classroom teaching students in the science and technology laboratory course made positive contributions to the targeted student outputs.

The results of the research revealed a significant relationship between the total SPS test scores and defining the variables, hypothesizing, and interpreting charts and data. There was no significant difference between the pre-service teachers' scores related to operational definition and experimentation after the implementation of the program. This finding is considered to be due to students being familiar with experimentation and operational definition from their learning history. On the other hand, there was an increase in the mean scores in the "operational definition" and "experimentation" components of the SPS test, despite the absence of a significant difference before and after the implementation. Based on these results, it can be argued that scientific inquiry carried out within the scope of this research had a positive effect on the SPS of the pre-service teachers. In the literature, it is suggested that student-centered inquiry-based learning is the most effective approach for the development of SPS (Köksal & Berberoğlu, 2014; Yıldırım, Çalık, & Özmen, 2016). Thus, the SPS findings of the current study are consistent with the literature. In addition, the reason why the pre-service teachers' operational definition skills did not show any significant difference during the research; i.e., why it was not developed through engaging in scientific inquiry, may be related to the theoretical background of this dimension. Furthermore, the lack of a statistical difference in the experimentation skills can be attributed to the pre-service teachers' familiarity with and previous experience of conducting experiments.

There are some points that should be taken into consideration by practitioners in the development of SPS through scientific inquiry. At this point, it should be noted that among teacher-centered practices, guided inquiry is a transitional process (Köksal & Berberoğlu, 2014). Another important issue is the training of in-service and pre-service teachers about SPS, ensuring that they correctly understand SPS in both conceptual and practical terms (Shahali, Halim, Treagust, Won, & Chandrasegaran, 2017). Theoretical and practical activities to be carried out for this purpose will initiate a positive change in the SPS of teachers (Dailey & Robinson, 2017).

According to the results, a significant difference was found in the pre-service teachers' views related to four components of scientific inquiry in favor of post-test scores (F1, F2, F4, F7). Furthermore, compared to the pre-test results, there was an increase in the post-test mean scores of the components, "inquiry procedures are guided by the question posed", "inquiry procedures can influence results", "scientific data are not the same as scientific evidence" and, "explanations are developed from a combination of collected data and what is already known albeit without significance. As a result of the research, it is considered that the sub-dimensions that differed in the pre-service teachers' views about scientific inquiry are more concerned with conducting scientific inquiry, whereas those with no significant difference are more related to the theoretical sub-structure of scientific inquiry. On the other hand, as explained in the data collection process, it was observed that the pre-service teachers developed aspects emphasized in the science and technology laboratory I course.

According to the results, it can be suggested that scientific inquiry carried out within the scope of the research had a positive effect on the pre-service teachers' views about scientific inquiry. This is consistent with the relevant literature concerning the improvement of scientific inquiry views through scientific research or related activities. For example, Adisendjaja, Rustaman, Redjeki, and Satori (2017) concluded that the

teachers' views on scientific inquiry improved after implementing a program on the nature of science and scientific inquiry. Some of the recent research results also revealed that open-ended inquiry-based learning developed views of scientific inquiry (Testa, Zappia, & Galano, 2017). In another study, it was observed that the students had enhanced views on scientific inquiry following two-week hands-on experiences in a summer camp (Antink-Meyer, Bartos, Lederman, & Lederman, 2016).

There are some points to be considered when conducting scientific inquiry in educational environments. For instance, to develop knowledge and skills related to scientific inquiry, it is necessary to understand related basic concepts, such as data and evidence (Yang, Park, Shin, & Lim, 2017). These basic concepts and components of scientific research should be integrated into the activities performed. Integration of targeted concepts with clear and reflective scientific inquiry can improve students' view of scientific inquiry (Tirre, Kampschulte, Thoma, Höffler, & Parchmann, 2019).

Limitations and Suggestions for Future Research

The results of the study showed that the pre-service teachers' skills and views related to scientific inquiry had positively improved. However, this study had certain limitations, such as the one-group experimental design and the absence of a control group. Although standardized data collection tools were used that had previously been proven valid and reliable, the research was limited to these tools and the sample size used. Furthermore, when evaluating the findings of the research, it should be taken into consideration that the study group consisted of pre-service classroom teachers for whom science is generally not a strong suit.

In future studies, student reports on scientific inquiry activities conducted in classroom or laboratory environments can be qualitatively evaluated, and development of students' scientific inquiry skills and views on scientific inquiry can be examined during this process. In addition, the development of participants' conceptualization can be examined. Different methods and techniques can be used to improve the views and skills of teachers and prospective teachers. Additional activities can be developed for the knowledge and skills that do not show improvement within the scope of the research.

References

Adisendjaja, Y. H., Rustaman, N. Y., Redjeki, S., & Satori, D. (2017). Science teachers' understanding of scientific inquiry in teacher professional development. *Journal of Physics: Conference Series, 812:* 012054.

Anggraeni, N., Adisendjaja, Y. H., & Amprasto, A. (2017). Profile of high school students' understanding of scientific inquiry. *Journal of Physics: Conference Series, 895,* 1-5.

Antink-Meyer, A., Bartos, S., Lederman, J. S., & Lederman, N. G. (2016). Using science camps to develop understandings about scientific inquiry-Taiwanese students in U.S. summer science camp. *International Journal of Science and Mathematics Education, 14*(1), 29-53.

Australian Curriculum, Assessment, and Reporting Authority (ACARA). (2012). *Australian curriculum: science. Sydney: Australian Curriculum, Assessment, and Reporting Authority*.

Ayas, A., Çepni, S., Johnson, D., & Turgut, M. F. (1997). *Kimya öğretimi, öğretmen eğitimi dizisi [Chemistry teaching, teacher training series].* YÖK Dünya Bankası Milli Eğitimi Geliştirme Projesi Yayınları, Bilkent, Ankara.

Banchi, H., & Bell, R. (2008). The many levels of inquiry. *Science and Children, 46*(2), 26-29.

Barrow, L. H. (2006). A brief history of inquiry: From Dewey to standards. *Journal of Science Teacher Education, 17,* 265-278.

Bartos, S. A., & Lederman, N. G. (2014). Teachers' knowledge structures for nature of science and scientific inquiry: Conceptions and classroom practice. *Journal of Research in Science Teaching, 51*(9), 1150-1184.

Burns, J. C., Okey J. R., & Wise, K. C. (1985). Development of an integrated process skill test: TIPS II. *Journal of Research in Science Teaching, 22*(2), 169-177.

Çepni, S. (2005). *Kuramdan uygulamaya fen ve teknoloji öğretimi [Science and technology teaching from theory to practice].* Ankara: Pegem A.

Dailey, D., & Robinson, A. (2017). Improving and sustaining elementary teachers' science teaching perceptions and process skills: A postintervention study. *Journal of Science Teacher Education, 28*(2), 169-185.

Dojman, H. N. (2003). *An analysis of elementary teachers' perceptions of teaching science as inquiry* (Doctoral Dissertation). The Faculty of the College of Education University of Houston, Texas.

Feyzioglu, B. (2009). An investigation of the relationship between science process skills with efficient laboratory use and science achievement in chemistry education. *Journal of Turkish Science Education, 6,* 114-132.

Fraenkel, J. R., & Wallen, N. E. (2003). *How to design and evaluate in education.* New York: McGraw-Hill Higher Education.

Gaigher, E., Lederman, N., & Lederman, J. (2014). Knowledge about inquiry: a study in South African high schools. *International Journal of Science Education, 36*(18), 3125-3147.

Geban, Ö., Aşkar, P., & Özkan, D. (1992). Effects of computer simulations and problem-solving approaches on high school students. *Journal of Educational Research, 86*(1), 5-10.

Hofstein, A., & Mamlok-Naaman, R. (2007). The laboratory in science education: the state of the art. *Chemistry Education: Research and Practice in Europe, 8*(2), 105-108.

Karısan, D., Bilican, K., & Senler, B. (2017). The adaptation of the views about scientific inquiry questionnaire: a validity and reliability study. *Inonu University Journal of the Faculty of Education, 18*(1), 326-343.

Kruit, P. M., Oostdam, R. J., Berg, E., & Schuitema, J. A. (2018) Assessing students' ability in performing scientific inquiry: instruments for measuring science skills in primary education. *Research in Science & Technological Education, 36(*4), 413-439.

Köksal, A. E., & Berberoğlu, G. (2014). The effect of guided- inquiry instruction on 6th grade Turkish students' achievement, science process skills, and attitudes toward science. *International Journal of Science Education, 36*(1), 66-78.

Leblebicioğlu, G., Çapkınoğlu, E., Metin, D., & Schwartz, R. (2017). *Views of nature of scientific inquiry of the students in a science high school in Turkey: a vasi application.* Paper presented at European Science Education Research Association, ESERA.

Lederman, J., Lederman, N., Bartels, S., & Jimenez, J. (2019). An international collaborative investigation of beginning seventh grade students' understandings of scientific inquiry: Establishing a baseline. *Journal of Research in Science Teaching, 56*(4), 1-30.

Lederman, J. S., Lederman, N. G., Bartos, S. A., Bartels, S. L., Meyer, A. A., & Schwartz, R. S. (2014). Meaningful assessment of learners' understandings about scientific inquiry-The views about scientific inquiry (VASI) questionnaire. *Journal of Research in Science Teaching, 51*(1), 65-83.

Lustick, D. (2009). The failure of inquiry: preparing science teachers with an authentic investigation. *Journal of Science Teacher Education, 20,* 583-604.

Martin-Hansen, L. (2002). Defining inquiry. *The Science Teacher, 69*(2), 34-37.

Ministry of National Education (MoNE). (2006). İlköğretim kurumları (ilkokullar ve ortaokullar) fen bilimleri dersi (3, 4, 5, 6, 7 ve 8. sınıflar) öğretim programı *[Foundational education institutions (3, 4, 5, 6, 7, and 8th grades) science curriculum]*. Ankara: MEB.

Ministry of National Education (MoNE). (2013). *İlköğretim kurumları (ilkokullar ve ortaokullar) fen bilimleri dersi (3, 4, 5, 6, 7 ve 8. sınıflar) öğretim programı [Foundational education institutions (3, 4, 5, 6, 7, and 8th grades) science curriculum]*. Ankara: Talim ve Terbiye Kurulu Başkanlığı.

Ministry of National Education (MoNE). (2018). *İlköğretim kurumları (ilkokullar ve ortaokullar) fen bilimleri dersi (3, 4, 5, 6, 7 ve 8. sınıflar) öğretim programı [Foundational education institutions (3, 4, 5, 6, 7, and 8th grades) science curriculum]. Ankara: Talim ve Terbiye Kurulu Başkanlığı*.

National Research Council (NRC). (1990). *Reports of the committee on vision: 1947-1990.* Washington, DC: The National Academies Press.

National Research Council (NRC). (2000). *Inquiry and the national science education standards.* Washington, DC: National Academy Press.

National Research Council (NRC). (2012*). A framework for K-12 science education: Practices, crosscutting concepts and core ideas.* Washington, DC: National Academy Press.

Organisation for Economic Co-operation and Development (OECD). (2016). *PISA 2015 assessment and analytical framework: science, reading, mathematic and financial literacy.* Paris: PISA, OECD Publishing.

Padilla, M. J., Okey, J. R., & Garrard, K. (1984). The effects of instruction on integrated science process skill achievement. *Journal of Research in Science Teaching, 21*(3), 227-287.

Pedaste, M., Mäeots, M., Siiman, L. A., de Jong, T., van Riesen, S. A. N., Kamp, E. T., et al. (2015). Phases of inquiry-based learning: Definitions and the inquiry cycle. *Educational Research Review, 14*, 47-61.

Piaget, J. (1971). The theory of stages in cognitive development. In D. R. Green, M. P. Ford, & G. B. Flamer (Eds.), *Measurement and Piaget*. McGraw-Hill.

Schwartz, R. S., Lederman, N., & Lederman, N. (2008, March). *An instrument to assess views of scientific inquiry: The VOSI questionnaire.* Paper presented at the international conference of the. Baltimore, MD.

Shahali, E. H. M., Halim, L., Treagust, D. F., Won, M., & Chandrasegaran, A. L. (2017). Primary school teachers' understanding of science process skills in relation to their teaching qualifications and teaching experience. *Research in Science Education, 47,* 257-281.

Senler, B. (2015). Middle school students' views of scientific inquiry: an international comparative study. *Science Education International, 26*(2), 166-179.

Strippel, C., & Sommer, K. (2015). Teaching nature of scientific inquiry in chemistry: how do German chemistry teachers use labwork to teach NOSI? *International Journal of Science Education, 37*(18), 2965-2989.

Testa, I., Zappia, A., & Galano, S. (2017). *Improving students' views about scientific inquiry through explicit teaching: a rasch-based analysis.* Paper presented at European Science Education Research Association, ESERA.

Tirre, F., Kampschulte, L., Thoma, G-B., Höffler, T., & Parchmann, I. (2019). Design of a student lab program for nanoscience and technology – an intervention study on students' perceptions of the nature of science, the nature of scientists and the nature of scientific inquiry. *Research in Science & Technological Education, 37*(4), 393-418.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Yang, I. H., Park, S. W., Shin, J. Y., & Lim, S. M. (2017). Exploring Korean middle school students' view about scientific inquiry. *Eurasia Journal of Mathematics Science and Technology Education, 13*(7), 3935-3958.

Yıldırım, M., Çalık, M., & Özmen, H. (2016). A meta-synthesis of Turkish studies in science process skills. *International Journal of Environmental & Science Education, 11*(14), 6518-6539.

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Nursing Students' Opinions about Usage of YouTube in Operating Room Nursing Lecture

Hemşirelik Öğrencilerinin Ameliyathane Hemşireliği Dersinde YouTube'un Kullanımına İlişkin Görüşleri*

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ABSTRACT: This study was aimed to determine the opinions of nursing students about the usage of YouTube in content of operating room nursing lecture. A descriptive study was conducted with 144 3rd grade students. The data were collected with "Sociodemographic Characteristics and Technology Use Form" and "Evaluation Form of Students' Opinions on the Use of YouTube Videos in the Operating Room Lecture". Data were analyzed by number percentage, mean and standard deviation. 68.9% of the nursing students stated that the integration of YouTube videos to be good. 97.9% of the students stated that they were pleased that the lecture was video-aided. The rate of effective, intelligibility and adequate use of YouTube videos was found between 59.7% and 74.3%, 69.5% and 90.3%, 89.6% and 95.2%, respectively. Nursing students indicated that they were pleased with the integration of YouTube videos into the Operating Room Nursing lecture and they found the videos to be effective, clear and sufficient.

Keywords: Education, nursing, operating room.

ÖZ: Bu çalışmada hemşirelik öğrencilerinin ameliyathane hemşireliği ders içeriğinde YouTube kullanımı hakkındaki görüşlerinin belirlenmesi amaçlandı. Bu çalışma, tanımlayıcı bir çalışma olup 144 3. sınıf öğrencisi ile yapıldı. Veriler "Sosyodemografik Özellikler ve Teknoloji Kullanım Formu" ve "Hemşirelik Öğrencilerinin Ameliyathane Hemşireliği Ders İçeriğinde YouTube Videolarının Kullanımına İlişkin Görüşlerinin Değerlendirilmesi Formu" ile toplandı. Veriler, sayı, yüzde, ortalama ve standart sapma ile analiz edildi. Hemşirelik öğrencilerinin %68.9'u YouTube videolarının derse dahil edilmesinin iyi olduğunu belirtti. Öğrencilerin %97.9'u dersin video destekli olmasından memnun olduklarını belirtti. YouTube videolarının etkin, anlaşılır ve yeterli kullanımı oranı sırasıyla %59.7 ile %74.3, %69.5 ve %90.3 ve %89.6 ve %95.2 arasında bulundu. Hemşirelik öğrencileri, YouTube videolarının Ameliyathane Hemşireliği dersine dahil edilmesinden memnun olduklarını ve videoların etkili, açık ve yeterli olduğunu bulduklarını belirtti.

Anahtar kelimeler: Eğitim, hemşirelik, ameliyathane.

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Nursing education is a special field structured in consideration of increasing technology possibilities in the globalizing world, cultural characteristics of the society, the profile of the students, the facts, requirements, and conditions of the country (Dil, Uzun, & Aykanat, 2012). And, employing technology-based learning techniques in this special field support students with a more productive and enriched learning environment in addition to promoting a more permanent and continuous learning. (May, Wedgeworth, & Bigham, 2013; Terkes, Celik, & Bektas, 2019). The most known video-sharing website, Youtube, which we focused on in our study, was founded in 2005. Generally, its contents range from video clips, television clips, music videos, video blogs to short original videos and educational videos (Duncan, Yarwood-Ross, & Haigh, 2013; "YouTube," 2016). Approximately 65,000 new video clips are added to YouTube daily by the users and around 100 million video clips are watched every day. ("YouTube Nedir?", 2018). YouTube is a platform that unites the information and communication technologies (Szeto & Cheng, 2014). Thus, it was stated that YouTube videos brought a new approach to teaching (Jaffar, 2012). Today, students can be effectively involved in their classes by using YouTube videos (Roodt & Peier, 2013). The use of innovative video technology resources such as YouTube in lectures has been widely recommended in many studies. YouTube videos are regarded as an effective channel and a powerful tool also for health education (Gabarron, Fernandez-Luque, Armayones, & Lau, 2013). In addition to traditional learning, YouTube is an interesting and inspirational source for new generation students and it supports technological learning (Roodt & Peier, 2013). In 2016, there were approximately 14,900 videos for operating room nursing on YouTube, and there were 365 Turkish videos with the tag "ameliyathane hemşireliği" (the Turkish term for operating room nursing) ("Operating room nursing - YouTube," 2016). So, video lists can be easily created to meet the cognitive, affective or psychomotor learning objectives in the classroom (Snelson, 2010). In a study, it was stated that the production of lecture materials with the videos from YouTube (or from the internet generally) by the students provided an opportunity to them to be active, and the students considered this method to be effective (Safar & Alkhezzi, 2016). In another study, when the YouTube videos were used in nursing education, the students' critical awareness level increased as a result of their participation in the classroom and the videos facilitated deep learning. In this rapidly changing digital world, the use of YouTube videos was claimed to facilitate learning for the new generation (Clifton & Mann, 2011). In nursing education, YouTube videos focusing on clinical skills should be used more actively by the educators as supplementary teaching materials (Duncan et al., 2013). It is also important to assess the educational impact of YouTube videos and to identify their benefits in matching the objectives of the lecture (May et al., 2013).

Objective

In this study, the YouTube videos about Operating Room Nursing lecture which was taken as an elective lecture, were selected. The lecture was taught via these selected YouTube videos. This study was conducted in order to learn the opinions of the nursing students on this selected method and to guide them for the preparation of lecture contents in the following years.

Methods

Study Setting and Sample

This study was conducted as a prospective descriptive study regarding the nursing students' assessment of the use of YouTube in the Operating Room Nursing elective lecture. The study was carried out at a Nursing Faculty between the dates of 10.12.2016 and 02.01.2017. The universe and sample of the study consisted of 144 3rd grade students enrolled in an Operating Room Nursing lecture in a Nursing Faculty. Between the dates of 10.12.2016 and 02.01.2017, the students who volunteered to participate in the study were included in the sample.

Study Instruments

The data were collected via two forms developed by the researchers. The Sociodemographic Characteristics and Technology Usage of Nursing Students Form consisting of 24 questions contained the data about sociodemographic characteristics and technology usage of the students. The Nursing Students' Opinions on the Use of YouTube Videos in the Operating Room Nursing Lecture Content Form consisting of 36 questions contained the evaluation of the lecture. Data collection forms were prepared by the researchers in line with the literature (Azer, AlEshaiwi, AlGrain, & AlKhelaif, 2012; Burke, Snyder, & Rager, 2009; Knösel, Jung, & Bleckmann, 2011).

Data Collection

At the Nursing Faculty, where the study was to be conducted, the Operating Room Nursing lecture was a 14-week course and the length of the weekly lecture was 135 minutes. After the lecture content was determined by the relevant lecturer, the videos for the weekly lecture content were searched with keywords related with the content of the lecture on https://www.youtube.com/. The videos were watched to identify if they fit in the lecture duration and the best videos were selected in context of reflecting the subject. Then, these were shown to the students according to the contents of the weekly lecture. As the videos were being watched, the lecturer paused the video when an information needed to be emphasized. In that pause time, theoretical information about the subject was transferred and the subject was discussed with the students. Each lecture was continued in this way for 14 weeks. At the 14th week of the Operating Room Nursing lecture, questionnaires were applied regarding students' sociodemographic characteristics, technology usage and Operating Room Nursing lecture. An average of 6 videos were watched during the entire lesson, and the duration of all videos watched in one lesson was 42 minutes on average.

Data Analysis

The data were collected from the students by survey method. The statistical analysis of the data was conducted via Statistical Package for Social Science – SPSS 16.0 software. The measurable data were shown as mean ± standard deviation (sd) while categorical data were shown as number and percentage (%).

Ethical Consideration

An ethical approval and a written permission were obtained from the X University Nursing Faculty Scientific Ethics Committee (28.11.2016 dated and 2016-

288 numbered) and X University Nursing Faculty, respectively. The aim and the method of the study were introduced to the students, their verbal permissions were also obtained.

Results

When the socio-demographic characteristics of the students in the study were analyzed, the mean age of the students was found to be 21.54 ± 1.33 (Min.20-Max.29) years while 79.1% of them (*n*=114) were females. When the technology use of the students in the study was examined, it was determined that 97.2% of them (*n*=140) had a smartphone, 83.3% (*n*=120) had their own internet connection. 84.0% of the students (*n*=121) used the internet at home, 38.2% of them (*n*=55) spent 2-4 hours on the internet. 94.4% of the students (*n*=136) used the internet for education and information search, 92.4% of them (*n*=133) spent zero-two hours for education. 92.4% of the students (*n*=133) spent zero-two hours a day talking on the phone. 61.1% of the students (*n*=88) used video conferencing and 36.9% of them (*n*=35) used it several times a month. 47.2% of the students (*n*=68) prefer the technology-based learning. 71.5% of the students (*n*=103) stated that the use of information technology in education increased the quality of education (Table 1).

Table 1

Nursing Students' Characteristics and Technology Usage Statuses

Variables	Variables Subgroup	*f*	%
Gender	Female	114	79.1
	Male	30	20.9
Technological Equipment Owned by Students *	Smartphone	140	97.2
	Laptop	111	77.1
	Tablet	27	18.7
	Television Connected to The Internet	27	18.7
	Desktop Computer	21	14.6
	Other	6	4.2
Own Internet Connection	Yes	120	83.3
	No	24	16.7
Internet-Enabled Environments *	Home	121	84.0
	Mobile Internet Access	115	79.9
	School	100	69.4
	Anywhere with Wifi Access	89	61.8
	Dormitory	72	50.0
	Internet Cafe	34	23.6
Time on The Internet	Less than 2 Hours	48	33.3
	2-4 Hours	55	38.2

	More than 4 Hours	41	28.5
Purpose of Using the Internet *	Social Media/Communication	139	96.5
	Education/Information Search	136	94.4
	Entertainment/Game/Movie/Series etc.	118	81.9
	Banking	80	55.5
	Shopping	78	54.2
	Utilizing Public Service	62	43.0
Time Spent for Education	Less than 2 Hours	133	92.4
	2-4 Hours	9	6.2
	More than 4 Hours	2	1.4
Time Spent Talking on The Phone	Less than 2 Hours	133	92.4
	2-4 Hours	6	4.1
	More than 4 Hours	5	3.5
Video Calling	Yes	88	61.1
	No	56	38.9
Frequency of Video Call	Once a day	4	4.2
	Several times a day	4	4.2
	Once a week	10	10.6
	Several times a week	20	21.0
	Once a month	22	23.1
	Several times a month	35	36.9
Preferred Type of Training*	Technology Based Learning	68	47.2
	Computer Based Learning	55	38.2
	Web Based Learning	51	35.4
	Traditional Learning	48	33.3
	Blended Learning	40	27.7
	Mobile Learning	39	27.1
	e-Learning	34	23.6
	Distance Learning	26	18.0
Positive Effects of Using Information Technology in Education*	Increasing the Quality of Education	103	71.5
	Faster Training for More Students	84	58.3
	Personalization of Education and Increase of Education	81	56.2
	Reduced Expenditure on Training	72	50.0
	Facilitate the Monitoring of participants	67	46.5
	Providing Continuity of Education	49	34.0
	Standardization in Education	32	22.2

	Do Not Know	2	1.4
	Other	1	0.7

* More than one option marked.

When the nursing students' opinions on the integration of YouTube videos into the Operating Room Nursing lecture were analyzed, 68.9% of the students (*n*=99) expressed a positive opinion and 71.5% of the students (*n*=103) approved the positive effect of videos on understanding the subjects. 62.5% of them (*n*=90) positively considered the contribution of the video assisted education to clinical environment. After the lesson, according to their own statements, 47.2% of the students (*n*=69) watched another video related to the lesson, 45.1% (*n*=65) watched same videos again. 61.1% of the students (*n*=88) preferred to learn with videos, 36.1% of them (*n*=52) preferred a mixed style. And 70.8% of them (*n*=102) preferred the videos due to easy access. 68.8% of the students (*n*=99) rated the videos as visually well-understood while 21.5% of them rated the video assisted education as excellent. 97.9% of the students (*n*=141) expressed satisfaction with the video assisted lecture (Table 2).

Table 2

Students' Opinions on the Integration of YouTube Videos in the Operating Room Nursing Lecture

Variables	Variables Subgroup	*f*	%
Integrating Video Content into Lecture Content	Good	99	68.7
	Middle	42	29.2
	Bad	3	2.1
The Effect of The Related Videos on The Conception	Good	103	71.5
	Middle	38	26.4
	Bad	3	2.1
How the Videos Will Contribute to The Clinical Environment	Good	90	62.5
	Middle	49	34.0
	Bad	5	3.5
Other Video Watch Status Outside of Class	Yes	69	47.2
	No	76	52.8
Outside the Classroom, The Place to Watch the Videos	YouTube	65	45.1
	Others (academic publications, Duolingo, hospital)	3	2.1
Preference to Learn by Video	Yes	88	61.1
	Partially	52	36.1
	No	4	2.8

Reasons for Choosing Video in Education*	Providing Accessibility	102	70.8
	Ability to Work on Topics as Well As Learn the Subject	88	61.1
	Ability to Work Again when The Point is Not Understood	78	54.1
	No Location Restriction	75	52.1
	Being Cheap	63	43.7
	Unlimited Time	57	39.6
	Other	8	5.5
	Don't Know	3	2.0
Reasons for Not Choosing Video in Education*	Being Delayable	74	51.3
	No Internet Connection or Interruption	51	35.4
	Falling Motivation	25	17.3
	Do not Feel Isolated/Alone	22	15.2
	Do Hesitate to Ask Questions	19	13.2
	Inadequate Use of Computers	14	9.7
	Require More Responsibility and Self-Discipline	14	9.7
Visual Understanding of Videos	Good	99	68.8
	Middle	44	30.5
	Bad	1	0.7
Evaluation of Training-Supported Video	Excellent	31	21.5
	Very good	47	32.6
	Good	42	29.2
	Middle	23	16.0
	Bad	1	0.7
Satisfaction of The Lecture with Video Assisted	Satisfied	91	63.2
	Mid-grade Satisfied	50	34.7
	Not satisfied	3	2.1

* More than one option marked.

According to the weekly course assessment of the students, the rate of the YouTube videos' effectiveness was found between 59.7% and 74.3%, the rate of the YouTube videos' pellucidity was found between 48.6% and 60.4%, the rate of the YouTube videos' sufficiency was found between 52.1% and 69.4%. The effectiveness and understandability rates of the video use in course content were the highest in the subjects of "staff safety in operating room" and the lowest in "specimens". The sufficiency was the highest in "environmental sanitation and cleaning" and the lowest in "specimens" (Table 3).

Table 3

Students' Opinions on Effectiveness, Pellucidity and Sufficiency of the Videos Used in the Lecture Content

Content	Students' Opinion		*f*	%
Basic Concepts in Operating Room Nursing	Effectiveness of Video Usage	Effective	103	71.5
		Ineffective	5	3.5
		Undecided	36	25.0
	Pellucidity of Video Usage	Understandable	74	51.4
		Partially Understandable	55	38.2
		Undecided	10	7.0
		Not Understandable	5	3.4
	Sufficiency of Video	Sufficient	85	59.0
		Partially Enough	52	36.1
		Insufficient	7	4.9
Nursing Careers in Operating Room Nursing	Effectiveness of Video Usage	Effective	91	63.2
		Ineffective	9	6.2
		Undecided	44	30.6
	Pellucidity of Video Usage	Understandable	76	52.8
		Partially Understandable	49	34.0
		Undecided	12	8.3
		Not Understandable	7	4.9
	Sufficiency of Video	Sufficient	90	62.5
		Partially Enough	43	29.9
		Insufficient	11	7.6
Patient Safety in Operating Room	Effectiveness of Video Usage	Effective	102	70.9
		Ineffective	5	3.4
		Undecided	37	25.7
	Pellucidity of Video Usage	Understandable	77	53.5
		Partially Understandable	52	36.1
		Undecided	13	9.0
		Not Understandable	2	1.4
	Sufficiency of Video	Sufficient	90	62.5
		Partially Enough	45	31.3
		Insufficient	9	6.2

Staff Safety in Operating Room	Effectiveness of Video Usage	Effective	107	74.3
		Ineffective	8	5.6
		Undecided	29	20.1
	Pellucidity of Video Usage	Understandable	87	60.4
		Partially Understandable	42	29.2
		Undecided	13	9.0
		Not Understandable	2	1.4
	Sufficiency of Video	Sufficient	97	67.4
		Partially Enough	39	27.1
		Insufficient	8	5.5
Environmental Safety in Operating Room	Effectiveness of Video Usage	Effective	100	69.5
		Ineffective	11	7.6
		Undecided	33	22.9
	Pellucidity of Video Usage	Understandable	86	59.7
		Partially Understandable	41	28.5
		Undecided	11	7.6
		Not Understandable	6	4.2
	Sufficiency of Video	Sufficient	98	68.0
		Partially Enough	37	25.7
		Insufficient	9	6.3
Infection Prevention and Control in the Perioperative Setting	Effectiveness of Video Usage	Effective	97	67.3
		Ineffective	4	2.8
		Undecided	43	29.9
	Pellucidity of Video Usage	Understandable	79	54.9
		Partially Understandable	49	34.0
		Undecided	14	9.7
		Not Understandable	2	1.4
	Sufficiency of Video	Sufficient	88	61.1
		Partially Enough	48	33.3
		Insufficient	8	5.6

Positioning the Patient for Surgery	Effectiveness of Video Usage	Effective	102	70.8
		Ineffective	7	4.9
		Undecided	35	24.3
	Pellucidity of Video Usage	Understandable	80	55.6
		Partially Understandable	44	30.6
		Undecided	16	11.1
		Not Understandable	4	2.7
	Sufficiency of Video	Sufficient	94	65.3
		Partially Enough	43	29.9
		Insufficient	7	4.8
Stures, Needles and Instruments	Effectiveness of Video Usage	Effective	98	68.0
		Ineffective	12	8.3
		Undecided	34	23.7
	Pellucidity of Video Usage	Understandable	82	56.9
		Partially Understandable	42	29.2
		Undecided	16	11.1
		Not Understandable	4	2.8
	Sufficiency of Video	Sufficient	93	64.6
		Partially Enough	41	28.5
		Insufficient	10	6.9
Specimens	Effectiveness of Video Usage	Effective	86	59.7
		Ineffective	47	32.6
		Undecided	11	7.7
	Pellucidity of Video Usage	Understandable	70	48.6
		Partially Understandable	41	28.5
		Undecided	23	16.0
		Not Understandable	10	6.9
	Sufficiency of Video	Sufficient	75	52.1
		Partially Enough	54	37.5
		Insufficient	15	10.4

Environmental Sanitation and Cleaning	Effectiveness of Video Usage	Effective	103	71.5
		Ineffective	10	7.0
		Undecided	31	21.5
	Pellucidity of Video Usage	Understandable	79	54.9
		Partially Understandable	51	35.4
		Undecided	9	6.2
		Not Understandable	5	3.5
	Sufficiency of Video	Sufficient	100	69.4
		Partially Enough	33	22.9
		Insufficient	11	7.7
Surgical Smoke	Effectiveness of Video Usage	Effective	100	69.5
		Ineffective	12	8.3
		Undecided	32	22.2
	Pellucidity of Video Usage	Understandable	84	58.3
		Partially Understandable	40	27.8
		Undecided	12	8.3
		Not Understandable	8	5.6
	Sufficiency of Video	Sufficient	94	65.3
		Partially Enough	38	26.4
		Insufficient	12	8.3
Communication Skills for Nurse in Operating Room	Effectiveness of Video Usage	Effective	104	72.2
		Ineffective	9	6.3
		Undecided	31	21.5
	Pellucidity of Video Usage	Understandable	84	58.3
		Partially Understandable	46	31.9
		Undecided	8	5.6
		Not Understandable	6	4.2
	Sufficiency of Video	Sufficient	93	64.6
		Partially Enough	42	29.2
		Insufficient	9	6.2

Discussion

Education, like many aspects of our lives, should be adapted to changing times and developments in technology. The use of YouTube videos in education has increasingly become common. In this study, the use of YouTube videos in the Optional Operating Room Nursing lecture was evaluated by the students.

Students thought that the integration of YouTube videos into their lecture content and the effect of these videos on understanding of the subject were benevolent. Most students thought that the contribution of the videos used in the optional Operating Room Nursing lecture in clinical environment would be good. June, Yaacob, and Kheng (2014) discovered that the use of YouTube videos increased students' participation and it certainly helped the development of their critical thinking skills (June et al., 2014). In another study, it was found that YouTube videos enabled the implementation of a theory, in addition to encouraging discussion and critical thinking (Burke, Snyder, & Rager, 2009). Critical thinking is a necessary process for safe, effective and skill-based nursing practice. Recently, it has been suggested that nursing education programs adopt and implement attitudes that improve critical thinking (Papathanasiou, Kleisiaris, Fradelos, Kakou, & Kourkouta, 2014). One of the ways to improve students' critical thinking skills is to use YouTube videos in lessons; this approach helps them to find effective solutions to the problems they encounter in the working environment after they graduate.

Although there are very few articles that analyzed students' perceptions and the use of YouTube, Snyder and Burke (2008) reported that 89% of the students improved their learning through YouTube videos and 73% of them wanted the videos to be used more in the classroom (Snyder & Burke, 2008). In another study, 92% of the students who watched a human anatomy training channel on YouTube stated that the video assisted education made it easier to learn anatomy (Jaffar, 2012). In another study, it was detected that the students had a positive view on using YouTube videos as teaching tools (June et al., 2014). YouTube videos were found efficient by the students because they are accessible via mobile devices and users do not need for any specific software to properly access or view videos on Youtube (Buzzetto-More, 2014).

In our study, most of the students said that they preferred YouTube videos to be used in education because they can re-watch as many as they like if they do not understand a topic. Since almost all students considered video assisted education as "excellent", "very good" and "good", it was clear that they were satisfied with the video-assisted lecture. And the fact that students found the videos adequate for the lecture can be linked with the professional guiding of the lecturer while selecting the clearest videos related to the subjects.

Duncan et al. (2013) described ten of the most commonly used clinical skills for first-class nursing students in their work. These skills are venous access, catheter placement, urinary catheterization, injection, use of pain assessment tools, wound assessment, cardiopulmonary resuscitation, oral care, electrocardiogram and aseptic technique. Ten YouTube videos related to each topic were used in training. It was found that the most frequently watched technique was cardiopulmonary resuscitation, but the videos related to injection and pain assessment were the least frequently watched ones (Duncan et al., 2013). YouTube videos classified under education in the dentistry area were also stated to be useful and knowledgeable for students (Knösel, Jung, &

Bleckmann, 2011). In another study, it was emphasized that YouTube videos could be an important tool for the anatomy training and local anesthesia in dentistry. In addition, it was thought that the view count of the videos could help to determine the desired topics. Besides, for countries where higher education is a far target, video assisted learning can also be used to address the gaps of certain professions in education-restricted areas (Mukhopadhyay, Kruger, & Tennant, 2014). However, in our study, the students indicated that the selected videos about tissue samples and surgical smoke issues were insufficient. The opinions of the students should be considered important while evaluating the existing videos and more content should be produced on the topics defined as not adequate.

Limitation of the Study

The number of videos for some subjects in the content of the Operating Room Nursing lecture was limited. The number of students in the classroom was high but, in some weeks, there were absent students. These constituted the limitations of the study.

Conclusions

The nursing students stated that they were happy with the integration of YouTube videos into the Operating Room Nursing lecture. It was found that the videos were effective, clear and sufficient according to the students. YouTube videos can be integrated into lectures to support lecture content in nursing education, to enrich the learning environment and to provide targeted information. It is recommended that the quality and quantity of YouTube videos should be increased for the subjects defined as inadequate from the perspective of the students.

Statement of Responsibility

Meryem Yavuz van Giersbergen; conceptualization, software, formal analysis, writing-reviewing & editing, methodology, validation, visualization, supervision, and project administration. Özlem Soyer Er; investigation, data curation, writing – original draft, writing-reviewing & editing, resources.

References

Azer, S. A., AlEshaiwi, S. M., AlGrain, H. A., & AlKhelaif, R. A. (2012). Nervous system examination on YouTube. *BMC medical education, 12*(1), 126.

Burke, S. C., Snyder, S., & Rager, R. C. (2009). An assessment of faculty usage of YouTube as a teaching resource. *The Internet Journal of Allied Health Sciences and Practice, 7*(1), 1-8.

Buzzetto-More, N. A. (2014). An examination of undergraduate student's perceptions and predilections of the use of YouTube in the teaching and learning process. Interdisciplinary *Journal of E-Learning and Learning Objects, 10,* 17-32. https://doi.org/10.28945/1965

Clifton, A., & Mann, C. (2011). Can YouTube enhance student nurse learning? *Nurse Education Today, 31*(4), 311-313. https://doi.org/10.1016/j.nedt.2010.10.004

Dil, S., Uzun, M., & Aykanat, B. (2012). Hemşirelik eğitiminde inovasyon. *International Journal of Human Sciences, 9*(2), 1217-1228.

Duncan, I., Yarwood-Ross, L., & Haigh, C. (2013). YouTube as a source of clinical skills education. *Nurse Education Today, 33*(12), 1576-1580. https://doi.org/10.1016/j.nedt.2012.12.013

Gabarron, E., Fernandez-Luque, L., Armayones, M., & Lau, A. Y. (2013). Identifying measures used for assessing quality of YouTube videos with patient health information: A review of current literature. *Interactive Journal of Medical Research, 2*(1), 1-9. https://doi.org/10.2196/ijmr.2465

Jaffar, A. A. (2012). YouTube: An emerging tool in anatomy education. *Anatomical Sciences Education, 5*(3), 158-164. https://doi.org/10.1002/ase.1268

June, S., Yaacob, A., & Kheng, Y. K. (2014). Assessing the use of YouTube videos and interactive activities as a critical thinking stimulator for tertiary students: An action research. *International Education Studies, 7*(8), 56-67.

Knösel, M., Jung, K., & Bleckmann, A. (2011). YouTube, dentistry, and dental education. *Journal of Dental Education, 75*(12), 1558-1568.

May, O. W., Wedgeworth, M. G., & Bigham, A. B. (2013). Technology in Nursing Education: YouTube as a Teaching Strategy - ScienceDirect. *J Pediatr Nurs., 28*(4), 408-410.

Mukhopadhyay, S., Kruger, E., & Tennant, M. (2014). YouTube: A new way of supplementing traditional methods in dental education. *Journal of Dental Education, 78*(11), 1568-1571.

Operating room nursing - YouTube. (2016, October 29). Retrieved October 29, 2016, from Operating room nursing - YouTube website: https://www.youtube.com/results?search_query=operating+room+nursing

Papathanasiou, I. V., Kleisiaris, C. F., Fradelos, E. C., Kakou, K., & Kourkouta, L. (2014). Critical thinking: The development of an essential skill for nursing students. *Acta Inform Med., 22*(4), 283-286.

Roodt, S., & Peier, D. (2013). Using youtube© in the classroom for the net generation of students. *Issues in Informing Science and Information Technology, 10*, 473-488. https://doi.org/10.28945/1823

Safar, A. H., & Alkhezzi, F. (2016). Students' perspectives of the impact of online streaming media on teaching and learning at the college of education at Kuwait University. *Eurasia Journal of Mathematics, Science & Technology Education, 12*(12), 2975-2989. https://doi.org/10.12973/eurasia.2016.02317a

Snelson, C. (2010, March). *Mapping YouTube "Video playlist lessons" to the learning domains: Planning for cognitive, affective, and psychomotor learning - learning & technology library (LearnTechLib).* Presented at the Society for Information Technology & Teacher Education International Conference, Chesapeake, VA: Association for the Advancement of Computing in Education (AACE). Retrieved from https://www.learntechlib.org/primary/p/33518/

Snyder, S. L., & Burke, S. (2008). Using YouTube in the classroom: A how-to guide. *International Journal of Instructional Technology & Distance Learning, 5*(4), 45-52.

Szeto, E., & Cheng, A. Y. N. (2014). Exploring the usage of ICT and YouTube for teaching: A study of pre-service teachers in Hong Kong. *Asia-Pacific Edu Res., 23*(1), 53-59.

Terkes, N., Celik, F., & Bektas, H. (2019). Determination of nursing students' attitudes towards the use of technology. *Japan Journal of Nursing Science, 16*(1), 17-24. https://doi.org/10.1111/jjns.12207

YouTube. (2016, October 26). Retrieved October 26, 2016, from Vikipedi website: https://tr.wikipedia.org/w/index.php?title=YouTube&oldid=20366249

YouTube Nedir? Nasıl Kullanılır? Ne İşe Yarar? (2018, April 22). Retrieved April 22, 2018, from Bilgihanem.com website: https://bilgihanem.com/youtube-nedir-nasil-kullanilir/

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Examining the Problems Faced by Teachers: The Case of Şanlıurfa

Öğretmenlerin Karşılaştıkları Sorunların İncelenmesi: Şanlıurfa Örneği

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ABSTRACT: The purpose of this research is to identify the problems experienced by teachers. The research was carried out with a survey pattern. Data were collected online from 4657 teachers working in Şanlıurfa province. According to the results of the research, teachers often experience problems related to their personal rights, workload and education system. While there are sometimes problems regarding vocational education and respect, there are no problems based on school climate. It was determined that men had more problems in their personal rights than women and less problems in the school climate. As age increases, there are more problems in personal rights, workload, respect and school climate, and less problems in the education system and vocational education. As seniority increases, there are more problems in personal rights, workload, respect and school climate. Teachers working in kindergarten have less problems in all dimensions compared to other teachers. High school teachers are more respected than primary and secondary school teachers. It has been determined that graduates of postgraduate education perceive more workload. As a result of the research, it was suggested that reducing the workloads of teachers, eliminating the negativities that cause teachers to experience stress at school, the pre-service and in-service training of teachers towards need and practice, increasing the prestige of the teaching profession.

Keywords: Education system, workload, personal rights, school climate, teacher problems.

ÖZ: Bu araştırmanın amacı öğretmenlerin yaşadıkları sorunların belirlenmesidir. Araştırma tarama deseniyle yürütülmüştür. Şanlıurfa ilinde görev yapan 4657 öğretmenden çevrimiçi ortamda veriler toplanmıştır. Araştırmanın sonucuna göre öğretmenler, sık sık özlük hakları, iş yükü ve eğitim sistemine bağlı sorunlar yaşamaktadırlar. Mesleki eğitim ve saygı görmeye ilişkin bazen sorun yaşanırken, okul iklimine dayalı hiç sorun yaşanmamaktadır. Erkeklerin kadınlara göre özlük haklarında daha fazla, okul ikliminde ise daha az sorun yaşadıkları belirlenmiştir. Yaş arttıkça özlük hakları, iş yükü, saygı görme ve okul ikliminde daha fazla sorun yaşanmakta, eğitim sisteminde ve mesleki eğitimde daha az sorun yaşanmaktadır. Kıdem arttıkça özlük hakları, iş yükü, saygı görme ve okul ikliminde daha fazla sorun yaşanmaktadır. Anaokulunda görev yapan öğretmenler diğer öğretmenlere kıyasla tüm boyutlarda daha az sorun yaşamaktadırlar. Lise öğretmenleri ilk ve ortaokul öğretmenlerinden daha fazla saygı görmektedirler. Lisansüstü öğrenim mezunlarının daha fazla iş yükü algıladıkları belirlenmiştir. Araştırmanın sonucunda öğretmenlerin iş yüklerinin azaltılması, öğretmenlerin okulda stres yaşamalarına neden olan olumsuzlukların ortadan kaldırılması, öğretmenlerin hizmet öncesi ve içi eğitimlerinin ihtiyaca ve uygulamaya dönük olması, öğretmenlik mesleğinin saygınlığının artırılması önerilmiştir.

Anahtar kelimeler: Eğitim sistemi, iş yükü, özlük hakları, okul iklimi, öğretmen sorunları.

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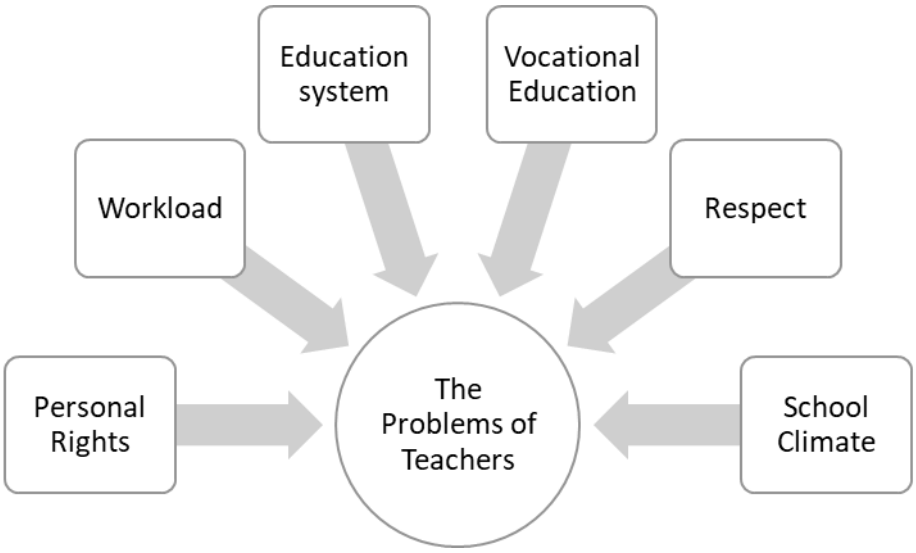
Teachers play the most important role in the success of students (Hattie, 2009). Teachers should be student-centered, participatory, motivating and sensitive to individual differences (Schleicher, 2012). In contrast the fact that teachers in Turkey cannot provide students' success is understood from the results of PISA and TIMSS exams. Teachers' problems may have prevented them from influencing student achievement. Therefore, it may be important to identify the problems experienced by teachers. Problems can only be resolved once identified. This research aims to determine the problems experienced by teachers.

Many problems are encountered in ensuring effective teaching. When the literature is examined, it is stated that teachers have problems related to personal rights, workload, education system, vocational education, respect, and school climate. However, it can be said that the relevant research focuses on one or more problems and is based on qualitative data that cannot be generalized more. A standardized scale is needed in order to analyze all problems at the same time, digitize their degrees and achieve generalizable results. In this study, a theoretical framework was created according to the findings of the related research (Figure 1). Later, the scale for determining teachers' problems to identify problem areas related to personal rights, workload, education system, vocational education, respect, and school climate was developed. In the following sections of the study, the findings of the researches that are the basis of the theoretical framework are presented according to the problem areas and the steps of developing the scale are explained. Also, the research sought to answer the following questions:

1) What is the level of problems in the personal rights, workload, education system, vocational education, respect, school climate areas of the teachers working in Şanlıurfa?
2) What are the correlations between related dimensions?
3) Do teachers' problems in related dimensions differ according to demographic variables (Gender, age, seniority, branch, school type, graduation)?

Figure 1. The Framework of the Research



Personal Rights

Personal rights of teachers who practice the profession of primary and secondary education in Turkey is guaranteed by laws and regulations. The problems of teachers' personal rights have been the subject of research and discussion for many years. The main problems of teachers cover basic problems such as; occupational advancement, housing, retirement, prenatal and postnatal leave, kindergarten and nursery for children, cadre, contract and paid teaching (Erdem, 2010). The problems of teachers are numerous and complex. Therefore, teachers should unite and defend their rights.

The organization of employees in their professions dates back to a very long time. However, the quality and inadequacy of the institutions based on the personal rights of teachers and producing solutions can be clearly seen. The main task of the unions is to contribute to the development and production of the profession and to examine the daily, special and basic problems of the profession with the participation of members with different ideas. Union activities in the field of education should find solutions to problems. The workload, stress, and burnout of teachers may result from the failure of these unions to turn the right tools into practice. The reasons for unions being ineffective on behalf of teachers are; the inadequacy of the loss of prestige that teachers lost over the years, their inadequacy of political groups, their inadequate and ineffective activities and policies in the field of education and training of the country, their inadequacy in improving the living areas of teachers, their inadequate contributions to scientific studies in the field of education and training throughout the country (Akcan, Polat & Ölçüm, 2017). Therefore, it remains very hard to solve the personal rights of teachers, and this places education at risk.

The main purpose of education is to ensure that individuals in the country participate in life and become ready for life. As a result of the wrong education and training activities implemented over the years, the problem of qualified teachers and students is coming to the surface day by day. Hundreds of thousands of teachers who perform their jobs with difficulty in national education; The fact that they are far from basic and fundamental rights such as personal rights, social rights, and organizational opportunities deepens the wound in the education system. Teachers may try to find the material and spiritual professional satisfaction which they cannot find in the National Education by transferring to private schools. In this context regarding the employment of experienced and competent teachers trained by the private sector; Yılmaz (2006) argued that the Turkish education system was obstructed, exhausted, or attempted to be repaired with patches. This situation causes teachers to be vulnerable to unexpected changes and political conflicts of interest.

Workload

In organizations, more and more efforts are expected from employees due to increasing competition. This situation may cause burnout and avoidance of work (Erdem, Kılınç & Demirci, 2016). The problem also applies to teachers. The success of the students in the exams for the continuation of education, including the public schools, is considered as the success of the teachers and the prestige of the school is measured in this way. Therefore, teachers must pressure their students to succeed.

Today, the workload of teachers working in schools should not be defined only as paperwork. In addition to a responsibility that includes colleagues, administrators,

students and parents with whom they have social relationships in their environment, their personal lives also participate in this cycle. The constant change of the system and the lack of organizational support of teachers cause an excessive workload. Institutional and organizational support is important for more effective and efficient occupational status.

The fact that teachers take on many roles in the classroom at the same time increases their workload and the stress it creates. Another result of the workload is role uncertainty (Ertürk & Keçecioğlu, 2012). A teacher is expected to teach the lessons, understand the needs of students, measure success, determine appropriate teaching methods for students, keep in constant contact with family and class, and comply with the rules of school administrators and laws. However, it is always desired to be friendly, understanding and energetic. High expectations from teachers make them face intense stress. This situation may bring along personal problems such as working overtime, moving away from social life, setting hard-to-reach targets and irritability (Ertürk & Keçecioğlu, 2012). Thus, teachers must work excessively to meet what is expected of them.

Some of the teachers, who have an excess of workload due to organizational and personal reasons, increase their workload by giving private tutoring or additional lessons. The teachers who are interested in the students in the school are obliged to carry out activities such as preparing exams, reading exams, making notes, researching new learning systems and planning in the evenings or on weekends during the time they need to spare for themselves and their social lives. Teachers who cannot relax by spending quality time with their family and environment may feel their workload more than their colleagues or employees from different sectors (Esen, Temel, & Demir, 2017). Of course, this situation increases stress and boredom levels and causes problems in the family and social life.

Education System

Teachers' problems related to the education system also play an important role. For example, the implementation of a central program in education is important for equal opportunity and education, but factors such as student, the physical condition of the school, age, and the way the teacher teaches can sometimes conflict with the central education system. In this case, the teacher has to deal with the subject but cannot ensure that the subject is learned sufficiently. The variability of the learning time of the classroom may make it difficult for the subjects to grow, and opportunities such as repetition cannot be created. In addition, it is necessary to return to the previous topic for the students to understand the subject. However, when time is not enough, there may be problems of knowledge in the classroom. Moreover, all the students who are exposed to this situation or not, take the central exams and find themselves in competition. The results obtained from these exams turn into a scale used to measure the success of school and teacher (Köşterelioğlu & Bayar, 2014). This focus on the quantitative aspects of education puts teachers under pressure.

There are academic researches on how the teaching profession should be done. However, state and system solutions such as establishing the right system, minimizing the personal, environmental and social problems of teachers, and reducing the financial problems they face are among the most important steps in achieving the highest quality

of education by reinforcing the relationship between teachers and students. In a study conducted by Sarıbaş and Babadağ (2015), it was revealed that a distorted education process emerges when the problems experienced by teachers and the problems of the education program come together. In fact, all problems are directly and indirectly related to each other.

The problems created by the system are not limited to this. Differences such as the previous level of knowledge of the students and the social, economic and educational structure of their families are also proof of the complexity of the system. However, the inclusion of everyone in the same system means that some students see the lessons very simple and others find it very difficult. In this case, it becomes imperative that the teacher establish a balance within the classroom. However, when rote education is added, it becomes more difficult to measure the level and concentrate the attention of the students in order to achieve balance. All of these can lead to inequality of opportunity.

When talking about inequality of opportunity, the combination of technology and system should also be examined. Teachers and the system push students to do research on the internet (Arsham, 2002). However, students may not have access to the internet and computer in their homes. There may be students who are not allowed to use them by their families or those who cannot use technology due to financial impossibilities. This is one of the most common examples of inequality of opportunity among students. In addition, pushing students to the internet for reasons such as preparing homework, preparing for class or exam, doing research may cause them to encounter elements such as social media, games, and entertainment that will distract them and reduce their success levels. In this case, parents and children can be accused of school and teacher (Tess, 2013). This suggests that teachers have problems regarding to inequality of opportunity.

It is also possible to mention the problems experienced by teachers in terms of assignment and relocation. The teacher's inability to work at the school he/she wants affects his / her job satisfaction level and this situation is also reflected in the attitudes in the classroom. Although the teacher has to work in a school away from his family or home or wants to leave because of problems in the school, the obligation to wait for the appointment period is an important factor that decreases his motivation and increases his stress. However, the concerns of prospective teachers about whether they can be appointed may lead them to fail to pay sufficient attention to their vocational training. In fact, some pre-service teachers are only trained to be university graduates. This may be an obstacle to the personal development of the profession. The hopelessness of the candidates affects the society indirectly in the long term, and teachers who are not developed in terms of quality can grow in numbers (Yeşil & Şahan, 2015). High number of underdeveloped and unassigned teachers may damage the image of the profession.

In schools, teachers may also be administrators. Lack of leadership skills may prevent teachers from understanding their problems and finding solutions. In addition, non-communicating school heads prevent teachers from seeking help to solve problems they feel. Teachers need the support of the administrators in the face of problems they cannot reach. In the relationship between parents and teachers, administrators also act as bridges. In addition, when planning the school's physical problems and needs, teachers' opinions should be taken.

The problems of schools or educational policies are reflected to teachers as management-related problems. School administrators are sometimes under intense stress, which may prevent them from behaving inappropriately while performing their managerial duties and establishing an environment of respect and effective communication. It is the main duty of education administrators to ensure that schools are democratic, healthy and in compliance with the legislation. All behaviors and practices that may be contrary to this hinder teachers' job satisfaction, dignity, discipline-building skills, and leadership skills. The school needs to be socially, physically and psychologically healthy places for students and all employees, and management skills of managers are very important at this point. Keeping the morale of students, teachers, and staff high is a factor that directly affects the psychological and social health of the students. The democratic environment of the school helps students and teachers to exercise respect for their rights. This will mean that in the future, the society will be defending their rights and it will be a democratic society, and it will enable teachers and students to solve the problems they feel easily, to ask for help and share with others for the solution (Gündüz & Can, 2011). Given the fact that school administrators are assigned among teachers, it is important that teachers are trained in school administration, so that there may be less problems related to school administration.

Another problem that teachers face with the education system is insufficient salaries. Inadequate wages cause teachers to experience subsistence problems. It may be difficult for teachers who fail to meet their needs in their daily life to pay attention to the students in the classroom. Many prospective teachers are worried about appointments, finding a job and getting enough salary, and are turning to alternative professions instead of teaching. This situation prevents them to train themselves as teacher candidates during the education process (Yılmaz & Altınkurt, 2011). Therefore, insufficient salaries harm both vocational education and prestige of teachers.

The frequent changes in the education system and the implementation of a new program in each government period are also a problem for teachers. Teachers need to learn the new system, plan the students' scheme accordingly and raise the awareness of parents. The existence of frequently changing central examination systems is also a stress factor for teachers and students. Today, the mission of teachers is to prepare students for centralized examinations, as well as to educate students and to ensure that they enter good schools. However, there are dissimilar parts between the exam and the curriculum. The exams to measure students in schools are different from the questions asked by the central system. Therefore, the fact that teachers have to prepare their students for both kinds of questions also makes it difficult for other subjects to grow and makes pressure on students and teachers (Başdemir, 2012). This forces teachers to focus on quantity (grades) rather than quality (merits, benevolence).

Vocational Education

Teachers are individuals who raise society. Therefore, their training should be given meticulously. Individuals who are open to personal development, who follow the innovations and who have a high level of culture are required to fulfill the teaching profession. Young teacher candidates should learn to make research and planning during university education process and improve their ability to make comments. In

addition, it is important for them to be developed during this period in terms of general culture and to receive education on community and student psychology. After starting teaching, a system should be established for teachers to renew these features from time to time with training. It is also possible with the right training that prospective teachers and teachers can be brave in making decisions and implementing their decisions. In this way, it will be possible to become an effective leader in the class. However, it is not possible to provide all these in vocational education, and problems with teachers, students, administrators, and parents become inevitable (Sarıbaş & Babadağ, 2015). These problems should be addressed by the system.

The Ministry of National Education has conducted research on the issues that need to be trained in order to improve the teaching profession and make teachers more successful with vocational training. According to the study carried out within the "Teacher Training" component of the Support to Basic Education Project, teachers and education administrators were worked together. As a result of the study, it was concluded that the teachers wanted to make their own education plans. At this point, the necessity of teaching teachers and prospective teachers about the ability to plan and implement it emerges. Developing teachers' visions on how to teach the subject to their students, provided that they adhere to the curriculum, can strengthen coordination and communication within the classroom. However, in the same research, it was observed that teachers faced problems such as system and physical deficiencies even if they could make planning and this situation created problems both in exercising the profession and interacting with the student (Köksal, 2008). Some teachers resist different teaching approaches or find it a chore to find the most appropriate learning style for themselves / their classrooms. At this point, it is concluded that teachers should be trained as people who love the profession, have job satisfaction level, and have learned the skills of making plans.

Respect

Teachers are employees who have a direct impact on the development level of society in a country, and it is, therefore, crucial for them to make the best of their profession that they can develop in every sense of the country. Another factor that enables them to succeed in their profession is their position in society and the environment. Their relationship with other people (administrators, parents, students, and their own social environment), inside or outside the school, directly affects their psychological and social health. Failure of a teacher to adapt to his / her environment may prevent him/her from succeeding. If the problem arises from the teacher, the children and young people raised by this person are also likely to experience social conflict. For this reason, the social cohesion of the people who carry out teaching profession is very important. Generally, teachers are respected in their environment. However, teachers are also charged with the failure of the students or the failure of the school in general. In some regions, ideological conflicts may occur and there may be instances of intimidating and bullying teachers. In some villages, the teacher cannot understand the values of the village and other cultural elements, and the way of life of the teacher and the parents may be contrary to each other and this may damage the respect and trust of the parents to the teacher. The lack of healthy communication with the teacher's environment is directly reflected in his / her attitude, energy and

communication skills in the classroom (Özdemir et al., 2015). Therefore, a respectful environment is essential for teachers.

Some of the problems that the teacher has with his / her environment may also be due to the fact that the teacher is young and inexperienced. Young teachers who have not yet strengthened their communication skills with students and parents cannot get the support of parents during the school term and cannot influence them to make the right arrangements for learning at home. Furthermore, they cannot keep up with the lifestyle of society. For example, in rural areas, children are expected to help with household chores in the time left of school. At this point, the teacher should educate the parents and invite them to the labor department during the child's learning process. Failure to do so may result in students being tired and reluctant in the classroom, which may be reflected in other students and teachers as a factor that slows down learning. The teacher's conflict with his / her environment may lead to negativity both in his private and work life (Habacı et al., 2013). This is not the only environmental problem caused by the teacher's inexperience. Lack of adequate general culture may mean that the teacher cannot be assigned to socialize the students. The integration of children with different characteristics in the classroom and having common goals is closely related to teachers' understanding of them correctly and teaching them to respect other people. For this to happen, the teacher must have both educational and cultural background. Otherwise, he or she may not be able to easily respect the people who have foreign lifestyles.

School Climate

Another problem faced by teachers is the physical and environmental conditions of the school and the educational philosophy of the administrators. Issues such as how education will be directed, the role of the teacher in it, and how it will function are within the educational philosophies of the administrators. The formation of policies and planning without taking the opinions of teachers in these fields leads to a distorted system. The lack of an educational philosophy can also be a problem for teachers. Failure of the administrator to make good planning or establish effective communication channels between teachers may result in failure of students and therefore teachers (Sarıbaş & Babadağ, 2015). Administrators play an important role in creating teacher-friendly school climate.

The fact that teachers do not have awareness and experience about their profession causes them to have different problems in school. One of them is to understand the duties given by the school administrators and to train them on time. It is sometimes difficult for teachers to communicate with students, to provide discipline, to communicate with parents or to find answers to students' various questions, and this can damage their self-esteem in their work life. In addition, teachers' general culture levels are sometimes lower than the others. This situation decreases the respect of parents and other teachers/school administrators and the teacher loses motivation over time (Çam Aktaş, 2016). A vocational education providing general culture would solve this problem.

Another problem that teachers experience at school is the inadequacy of conditions in the classroom. The reasons such as the fact that the classrooms are very crowded (Yalçın & Yalçın, 2018), the lack of educational materials in the classroom,

the indifference of the students to the lesson, the insensitivity of the parents or the failure of the school administration to make the right planning for success prevent the teacher and the students from being successful (Al-amarat, 2011). Classrooms should be physically and psychologically adequate environments, so that school climate would be also adequate.

Teachers may be exposed to violence at school. Violence can be physical or verbal. Colleagues or administrators may act to intimidate teachers. Mobbing behavior disrupts the peace in the organization and prevents one's commitment to the organization. This means that the person does not want to go to work and is not happy at work. In fact, people who are not happy in the work environment cannot be expected to be happy and productive in their social life. Therefore, they may not provide society with the expected benefits. This can become psychological violence when a teacher's ideas and opinions are not respected, given the right to communicate, his / her professional knowledge is not trusted or intervened by school administrators or other teachers. Some teachers may be exposed to verbal attacks by other colleagues, administrators or parents. In some cases, attacks can cease to be verbal and transform into physical violence. It is important for teachers to know their rights to what they can do in these situations, both for themselves and for other employees and students in the school in a healthy environment. Students who are directly exposed to or witnessed violence cannot be expected to have a healthy physical and mental development (Çelebi & Taşçı Kaya, 2014). Therefore, teachers should not be exposed to violence at school.

Another problem experienced by teachers in the school environment is the problems stemming from communication with the administrators. Communication problems may occur due to the physical conditions of the school, as well as carelessness and insensitivity of the administration on this issue may create the problem of non-communication. In these cases, it becomes difficult for teachers to report their problems and solution suggestions to their superiors, the teacher is left alone with the problem and often loses his / her loyalty and willingness to work by feeling helpless (Yıldız, 2013). The problems of communication within the organization and the problems arising from the system may cause teachers to create a perception that they have been wronged. Moreover, in the presence of such a situation, students may have a similar perception. It is very important for individuals from all levels of the school to reach others in order to feel valuable within the organization (Terzi et al., 2017). Communication is at the center of education processes.

Given the fact that the problems of teachers are researched by various researchers, these research results are very dispersed (Başdemir, 2012; Demir & Arı, 2013; Sarıbaş & Babadağ, 2015). Some of the research were done qualitatively (Balbağ & Karaer, 2017; Çam Aktaş, 2016). Data were gathered from various populations. A quantitative research that investigates many problems that teachers face would make more consistent contribution to the literature. Also, there is no standardized instrument to measure problems that teachers face. This research first develops the scale for determining teachers' problems to identify problem areas related to personal rights, workload, education system, vocational education, respect, and school climate, then investigates problems that teachers face. Therefore, this research is different from previous research in terms of these aspects.

Method

Design

The research was conducted with a survey design. As perceptions of a large sample are demonstrated with valid and reliable data collection tools, generalizable results can be obtained by the survey design (Christensen, Johnson & Turner, 2013). When data is collected at a time, it is cross-sectional and when it is collected more than once in a wider time frame, longitudinal surveying is performed (Fraenkel, Wallen & Hyun, 2012). In this study, data were collected by cross-sectional surveying.

Participants

The population of the research consists of 25734 teachers working in Sanliurfa province in the 2017-2018 academic year. This population was selected because teachers in Sanliurfa have many problems (Karacabey & Boyacı, 2018).

Table 1

Descriptive Statistics of the Participants

Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	2084	44.7
	Female	2573	55.3
Age	20-23	253	5.4
	24-27	1851	39.7
	28-31	1080	23.2
	32 and above	1433	30.8
	Not specified	40	0.9
Seniority	0-1 year	858	18.4
	2-3 years	1488	32.0
	4-5 years	856	18.4
	6 years and above	1420	30.5
	Not specified	35	0.8
Subject Specialization	Subject Specialist	3234	69.4
	Pre School	277	5.9
	Classroom	1146	24.6
School Type	Preschool	134	2.9
	Primary	1408	30.2
	Secondary	1894	40.7
	High School	1221	26.2
Graduation	Bachelor's	4345	93.3
	Graduate Degree	312	6.7

All teachers were reached without sampling. Schools were sent a link to an online form on the computer and teachers were invited to participate in the research. Therefore, there was no need for a sampling procedure. Data collected from 4657 volunteer teachers were analyzed. The form return rate was calculated as approximately 18%. Descriptive statistics of the participants are presented in Table 1.

Among the participants in Table 1, there were 2084 males and 2573 females, 253 teachers reported having ages between 20 and 23, 1851 teachers reported having ages between 24 and 27, 1080 teachers reported having ages between 28-31 and 1433 teachers reported having ages 32 and above. As a seniority indicator, 858 teachers indicated that they had experienced for 0-1 years, 1488 teachers indicated that they had experienced for 2-3 years, 856 teachers indicated that they had experienced for 4-5, 1420 teachers indicated that they had experienced for 6 years and above. There were 3234 teachers who were subject specialists, 1146 teachers who were classroom teachers and 277 teachers who were preschool teachers. There were 134 teachers working at preschools, 1408 teachers working at primary schools, 1894 teachers working at secondary schools and 1221 teachers working at high schools. Most of the teachers (n=4345) had a bachelor's degree.

Data Collection Tool

Data were collected through online questionnaire prepared by the researcher. The questionnaire included questions about demographic variables and a scale for determining teachers' problems. The scale developed by the researcher consists of 22 items with frequency degrees between 1 = none and 5 = always belong to 6 dimensions (Appendix). These include 8 items that need to be reverse coded. For the development of the scale, the results of previous research conducted in Turkey were taken into account (Akcan, Polat & Ölçüm, 2017; Demir & Arı, 2013; Ekinci, 2010; Erdem, Kamacı & Aydemir, 2005; Habacı, Karataş, Adıgüzelli, Ürker & Atıcı, 2013). According to the results of the literature review and the opinions of the five education management experts including the researchers, 54 items were generated, and a draft form was created. The items contain statements about the problems that teachers may face. For example, one item has the expression "I have to work overtime". Therefore, it can be said that as the average of the answers given to the items increases, teachers face the related problem more frequently. After data collection, 23 items with low item-total correlations (r <0.35) were eliminated. The remaining 31 items were analyzed by Principal Axis Factoring (PAF) and exploratory factor analysis. Kaiser-Meyer-Olkin value calculated for adequacy of data amount was 0.85 and Bartlett test was statistically significant (p <0.001). According to the parallel analysis technique, the scale could have 6 dimensions. Since significant correlations were determined between the dimensions (p <0.05), the distribution of the items to the dimensions was provided by oblimin rotation technique. Factor loads of the items ranged from 0.37 to 0.91. Cronbach's alpha reliability coefficients of the sub-dimensions ranged from $\alpha = 0.67$ to $\alpha = 0.83$. Revelle beta coefficient, which is the lowest limit of half-half reliability was found to be $\beta = 0.68$, Guttman lambda 4 coefficient, which was the highest limit, was found to be $\lambda_4 = 0.91$ and the average coefficient was 0.85. The total variance explained by the scale is 50.6%. When the six-dimensional structure was tested with confirmatory factor analysis based on robust maximum likelihood calculation, compatible index values were

determined other than χ^2/ df which were sensitive to sample size (χ^2/ df = 10.5, p <0.001, AGFI = 0.94, CFI = 0.94. , NFI = 0.93, IFI = 0.94, RFI = 0.92 RMSEA = 0.05, SRMR = 0.04) and the factor structure was found to be compatible with the data structure validity (Hooper, Coughlan & Mullen, 2008). For the validity of fit, calculated mean variances calculated according to the formula of Fornell and Larcker (1981) were found between AVE = 0.29 and AVE = 0.70. Since the formula is very strict, it is accepted that the AVE value should be 0.50 and above (Fornell & Larcker, 1981). Factor loads of the items ranged from 0.40 to 0.90 (Table 2).

Table 2

Factor Structure of the Scale for Determining Teachers' Problems

Factors	Item	Factor Loading	α	Variance %	AVE
Education System	5	0.40-0.65	0.67	6.9	0.29
Workload	5	0.58-0.82	0.83	11.7	0.49
Personal Rights	3	0.63-0.80	0.73	7.6	0.49
School Climate	4	0.62-0.81	0.80	9.4	0.50
Respect	3	0.54-0.90	0.77	8.3	0.56
Vocational Education	2	0.77-0.90	0.82	6.7	0.70

Data Collection

Data were collected with a form prepared online. Compared to traditional paper forms, online forms are more advantageous in terms of cost and time, facilitating data collection and analysis from large audiences (Fan & Yan, 2010; Selm & Jankowski, 2006). In addition, online forms are considered equivalent to paper forms because they do not affect research results (Huang, 2006).

Data Analysis

The data were analyzed with R, an open-source statistical programming language (Ihaka & Gentleman, 1996). Exploratory factor analysis was performed with psych (Revelle, 2018) package in the R library, confirmatory factor analysis with lavaan (Rosseel, 2012) package, and multivariate normality hypothesis analysis of data was performed with mvn (Korkmaz, Göksülük & Zararsız, 2014) package. When multivariate normality hypothesis is examined, Doornik-Hansen (2008), Henze-Zirkler (1990), Mardia (1970, 1974) and Royston (1992) tests were found to be significant (p <0.001). Therefore, exploratory factor analysis was performed with PAF (Strahan, 1999), and confirmatory factor analysis was performed with robust probability calculation (Kline, 2012). In this calculation, Satorra-Bentler (2001, 2010) correction factor used for chi-square scaling was found to be 1.12. The levels corresponding to the averages were determined according to the five grading ranges (never: 1.00–1.79, rarely: 1.80–2.59, sometimes: 2.60–3.39, often: 3.40–4.19, always: 4.20–5.00). Differences according to gender and graduation were analyzed by independent groups t-test. Differences according to age, seniority, branch, and type of school were determined by one-way analysis of variance (ANOVA). The means and Tukey test findings were examined for the source of the differences.

Ethical Principles

Ethical principles were taken into consideration while conducting the research. In this sense, the participant volunteering principle was embraced, all the data collected about the participants were used only within the scope of the research, the data were not shared with third parties and the identity of the participants was kept confidential. In addition, participants were assured that the research results would not be used against them. The research ethics committee of Artvin Çoruh University approved the research on the official letter numbered 78646441-050.01.04-E.3563.

Results

In order to answer the first research question, the dimensions of the scale of determining teachers' problems were examined. The mean, standard deviation and frequency levels of the dimensions are presented in Table 3.

Table 3

Levels of Problems Experienced by Teachers

Factors	*X*	Sd	Level
Personal Rights	3.76	0.90	Often (4/5)
Workload	3.43	0.93	Often (4/5)
Educational System	3.42	0.77	Often (4/5)
Vocational Education	2.84	1.14	Sometimes (2/5)
Respect	2.65	0.91	Sometimes (2/5)
School Climate	1.61	0.80	Never (1/5)

According to the findings presented in Table 3, teachers frequently experience problems arising from personal rights, workload, and education system. While there are sometimes problems with respect to vocational training and respect, there are no problems based on school climate.

In order to find answers to the second research question, the correlations between the dimensions of the scale of determining teachers' problems were examined. Pearson product-moment correlations between dimensions are presented in Table 4.

According to the findings presented in Table 4, statistically significant (p <0.001) and weak correlations were determined among all dimensions. The workload is mostly related to personal rights, school climate, respect, and the education system. Vocational education is mostly related to personal rights. Personal rights are most related to respect, education system, vocational training, and workload. School climate is associated most with the workload. Respect is most related to personal rights and workload. The education system is most concerned with personal rights and workload.

Table 4

Correlations between teachers' problem sources

	Vocational Education	Personal Rights	School Climate	Respect	Education System
Workload	0.15**	0.30*	0.34*	0.30*	0.32**
Vocational Education		0.34*	0.11*	0.21*	0.16**
Personal Rights			0.22*	0.37*	0.34**
School Climate				0.23*	0.22**
Respect					0.18**

* p <0.05, ** p <0.001

In order to answer the third research question, the differences in the mean dimension of teachers' scale for determining the problems according to demographic variables were examined. Independent groups t-test and one-way analysis of variance (ANOVA) findings are presented in Table 5.

Table 5

Differences of Teachers' Problem Sources According to Demographic Variables

	Gender	Age	Seniority	Subject Specialization	School Type	Graduation
Personal Rights	8.89**	13.37**	45.42**	8.80**	2.97*	-1.63
Workload	1.50	3.46*	8.82**	38.65**	6.41**	-2.65*
Education System	1.86	6.36**	1.79	19.82**	5.31*	-1.28
Vocational Education	0.14	3.39*	0.35	10.15**	7.28**	-1.66
Respect	-0.96	8.97**	42.60**	7.14**	15.95**	0.24
School Climate	-2.97*	6.69**	21.42**	8.23**	3.65*	-0.55

* p <0.05, ** p <0.001

According to the findings presented in Table 5, significant differences have been identified in terms of gender and personal rights and school climate. As a source of differences, it was determined that men had more problems in terms of personal rights than women and fewer problems in school climate. Significant differences were determined in all dimensions according to age. As age increases, there are more problems in personal rights, workload, respect, and school climate and fewer problems in education system and vocational education. Significant differences were determined

in terms of personal rights, workload, respect, and seniority according to seniority. As seniority increases, there are more problems in these dimensions. Significant differences were determined in all dimensions according to the branch. Preschool teachers have fewer problems in all dimensions compared to other teachers. Significant differences were determined in all dimensions according to school type. Teachers working in kindergarten have fewer problems in all dimensions than other teachers. High school teachers are more respected than primary and secondary school teachers. Significant differences were determined only in the workload according to education. It was determined that master's and Ph.D. graduates perceived more workload.

Conclusion and Discussion

According to the results of the study, teachers working in Şanlıurfa frequently experience problems related to personal rights. A similar finding was also found by Can (2015). The teachers think that they are not informed enough about their personal rights. Before starting the service and in-service training, it is necessary to be informed about changing personal rights. Failure to know the rights of the person may lead to problems in exercising their rights (Habacı et al. 2013). Another problem regarding the personal rights of teachers is actual compensation. Many civil servants are entitled to compensation despite the difficulty of their work, but teachers are not included. The importance of the profession of teachers for society is quite great. However, workloads of teachers are heavy. The lack of compensation for this burden can be perceived as an injustice. It also directly affects job satisfaction. Retirement age is another condition that lowers the motivation of teachers and makes them reluctant to work. Teachers physically and psychologically get tired quite easily, but they are subject to the same conditions as other civil servants in order to retire. Despite being retired for exceptions to the implementation of the teaching profession in many countries in the world is not such a case for Turkey. This situation prevents teachers who feel tired from being successful in their professions and hence the education of young people in need of society and this situation is important enough to turn into a social problem (Erdem, 2010).

According to the results of the study, teachers working in Şanlıurfa frequently experience problems related to their workload. Teachers do not just lead their students in making them love teaching and learning. At the same time, teachers are at the forefront as social workers educating the members of the society. Teachers decide how to teach, what they will teach, how to meet the learning needs of different students, how to create an efficient and effective learning environment, and overcome unexpected events of the classroom environment and produce quick solutions about them (Cerit & Özdemir, 2015). In this context, teachers; in the processes where curricula or system changes are frequently experienced, it is a necessity to work overtime in order to complete the financial and moral responsibilities. In research about the situations that teachers should overcome; it has been observed that workloads increase, and they need to work overtime because individual learning is emphasized with many difficulties and new processes (Gunnporsdottir & Johannesson, 2014). In another study; it is illustrated that 50% of the teachers were working between 7-11 hours out of working hours, 45% were working between 1-7 hours, 5% were never working (Bivona, 2002). Each profession has its own difficulties, which can be called tedious. The profession of

teachers can often be both physically and mentally challenging. Teachers have to be energetic in the nature of their work and life in their family life and in the classroom. The difficulties of the profession, expectations, support that cannot be obtained from inside and outside push the limits of tolerance of the teachers (Bakan, Erşahan, Büyükbeşe, Okumuş & Akmeşe, 2017). In this context, all the responsibilities that have been tried and overcome have led to the physical and mental burnout of teachers.

According to the results of the study, teachers working in Şanlıurfa frequently experience problems related to the education system. Education is undoubtedly one of the most important issues that form the basis of a country. It is one of the main tasks of the state to exhibit approaches that will eliminate the problems in the education system (Karataş & Çakan, 2018). In Turkey, the Ministry of National Education determines the whole curriculum of the courses that will be given by the schools that carry out education and training activities from preschool education to secondary education. It is very important that education is built on the philosophical, economic and social foundations of education. When we look at the present, it is very sad to see that there are subjects in our education system that will not attract the interest of the student or that are difficult to apply in practice with complex theoretical narratives that are disconnected from life. The student is left alone with a curriculum where there is no chance of applying the information given to the student, but instead of learning, he takes an exam-oriented approach. The education system and curriculum dominated by the rote system put the student at the center of the exam focus and conclude that it is sufficient to pass the course, not to learn the information they have received. The needless and complex information-based curriculum could not find a response in the life of the society and the country, and the perception of "passing the test" was facilitated.

The authority of the central government in the system, which is one of the main problems of the education system of our country, has been an issue that has been discussed for years. The cumbersome and slow response of the centralized education system causes blockages and problems in the education system. It can be clearly seen that there will be positive changes such as local rapid dissemination of decisions from management to the organization by ensuring localization in education and using the necessary materials and human resources effectively in education. Some negative elements of the centralized structure are listed as follows; Increased stationery, delayed work, inability to meet urgent needs, lack of connection with public services that affect and influence the public very closely, making provincial civil servants pending orders, destroying creativity, biased and partisan use of public resources, loss of service efficiency and efficient use of resources (Kurt, 2006).

One of the problems in the education system is the problem of assignment and displacement. The Regulation on Appointment and Relocation announced by the Ministry of National Education constitutes problems for teachers and administrators within the education system with its major deficiencies. Presently, the prospective teachers who can get the right to appoint with the Public Personnel Selection Examination (KPSS) cannot be appointed even if they can get a high score due to lack of education policies. The problem of unassigned pre-service teachers, whose number reaches hundreds of thousands, has become a social problem that has been continuously processed in visual and printed media in the recent history of the country. Merit and success cannot be mentioned in relocations. School administrators, who should be

selected according to their professional knowledge, skills, and achievements, were sacrificed to partisan policies and criteria such as acquaintances, spouses, friends, and relatives started to be considered. Lack of transfer rights of contracted teachers has caused many problems. Many teachers apart from their families are trying to perform their duties in difficulties. In these problems, teachers, and administrators who deal with the difficulties of the profession struggle with problems such as social and personal rights within the education system.

According to the results of the research, teachers sometimes have problems with vocational education. A similar finding is presented by Balbağ and Karaer (2017). Nowadays, the main problem in the programs that train teachers in universities is that the lack of connection between theory and practice (Ünver, 2016). It is not easy to teach pre-service teacher candidates the theoretical situations that have never been experienced in practice (Darling, 2010). In this context, it should be aimed to improve the teaching practice by providing the applicability of the theoretical knowledge that forms the basis of teaching in pre-service education. Teachers are required to have professional competence according to their branches and age, demographic characteristics and mental development levels of the students they will provide education. However, the teacher's ability to understand the student's problems, abilities, and familial characteristics is essential for professional success. In addition, learning with games, having a natural ability to attract students' attention in learning, creating a democratic environment in the classroom and providing discipline, is very important for the continuation of learning and preparing students for life. In order to achieve all this and more, a multi-faceted approach should be adopted in the education process of the candidates who will start this profession. Persons should be educated both theoretically and practically, information should be provided to understand the psychological status of students and parents, and the teacher should know and trust himself (Can, 2019). In addition, it is necessary to enrich their skills in terms of legal rights and requirements, curriculum, identifying students' abilities and interests, attracting attention, directing and communicating. However, a four-year faculty of education may not be expected to provide all of these. Some of these traits are related to education and some of them to experience and some to the characteristics of the person. Of course, this situation is sometimes an advantage and sometimes a disadvantage in teachers' professional lives.

According to the results of the research, teachers sometimes have problems with respect. Similar findings also expressed by Esen, Temel and Demir (2017). There are several criteria for observing teachers' reputation in society. Parents and students' respect for teachers, comparison of earnings of teaching profession with respect to other professions, levels of parents' desire of their children to be teachers, trust in the education system in the country, and determining the status of prestige of teachers are effective in determining the status of respectability of teachers. It can be clearly seen how much effort and dedication teachers spend in schools based on human factor. It is seen that it is difficult for teachers to gain prestige in an educational order such as not being able to get their social and personal rights, low level of earnings against other professions, and people in the society regard teaching profession as ordinary. Respect is often associated with the external environment. However, the need for teachers and administrators to respect each other and students should also be considered. In order for students to respect other people, an environment should be created where educators and

other employees in the school respect each other. Students 'abilities, problems, ideas and values, their families' economic or educational level should be respected. Only in this way can students be placed without prejudice and tolerance towards others. The fact that teachers make some explanations about the tasks they assign to their students and administrators give them a sense of their well-being, respect, and commitment to the organization. For example, people may want to know which task is required and why. In addition, the rights, if any, the values, policies, and rules that the organization adheres to while performing its duties are important in order to prevent conflicts within the organization. These and similar explanations should be explained to the teachers by the administrators and to the students by the teachers (Celep, 1992; Fidan & Küçükali, 2014).

According to the results of the study, teachers have no problems based on school climate. This result is similar to the previous studies (Sezgin & Kılınç, 2011; Şenel & Buluç, 2016). However, this result is not similar with the findings of the study carried out by Ayık and Şayir (2014), Sabancı, Altun and Altun (2018). Schools are essentially social structures with the people in it. This social area; education, teaching, and development of the individual with the existence of the society are effective institutions. The ongoing communication and interaction between teachers and administrators of these institutions should be healthy. Unhealthy communication and interaction cause disconnection, conflict and inefficiency. Giving privileges to people, especially in public institutions; it may be related to moral belonging rather than material interest. In order to reach many officials who do their job in public institutions, instruments of influence are used instead of intermediaries of material value using spiritual bonds. This intangible solidarity or trade-off is essentially based on favoritism. Nepotism means defending, supporting and protecting people who feel close to it unlawfully (Meriç & Erdem, 2013). It is natural as there are ideological differences between teachers working in schools, as well as among people in general. The fact that the managers do not respect this ideological difference and give privilege to the people who think that they are supporters leads to the formation of a nepotism culture. Favoritism leads to a number of dilemmas such as obedience to strong relations, crushing weak ones, not being able to empathize, giving up ethical values and social insecurity (Koçöz, 2004).

There is a kind of violence that is expressed verbally in schools. Verbal violence may adversely affect the education and training activities and the mental health of teachers and students. Korkut (2004) introduces verbal violence as “fierce emotion or expression or intense belligerent or angry and often destructive action or power hurting by distorting, violating or disrespecting important issues”.

It is seen that the mobbing behaviors in educational institutions weaken the organizational trust and general climate of the school, and a significant decrease in teachers' quality of life and job satisfaction is observed. Mobbing has negative effects not only on teachers but also on the school organization (Can & Çağlar, 2017). The most important results in the school include distrust, reduced respect, and the disappearance of human values (Can & Işık Can, 2019).

According to the results of the research, the workload is mostly related to personal rights, school climate, respect, and education system. Therefore, teachers may think that as their workload increases, their personal rights are damaged, school climate deteriorates, they are less respected and education system deteriorates. According to the

results of the research, vocational education is mostly related to personal rights. Therefore, teachers may see good vocational education as a personal right. Therefore, the decrease in the quality and quantity of the education given to the teachers may lead to the perception of more problems about the personal rights of the teachers. According to the results of the research, personal rights are mostly related to respect, education system, vocational training, and workload. Therefore, with the improvement of personal rights, teachers may think that they are more respected, that the education system and vocational education are improving and that their workload is decreasing.

According to the results of the study, it was determined that male teachers had more problems in terms of personal rights than female teachers. Male teachers may have a higher awareness of personal rights. Thus, they may perceive more problems in personal rights.

Implications

Teachers' workloads should be reduced. In particular, teachers should not be assigned tasks that extend beyond school hours to ensure a balance between work and private life. Negative problems that cause teachers to experience stress in school should be eliminated. Teachers may experience fewer problems if pre-service and in-service training of teachers is in accord with need and practice. The credibility of the teaching profession should be increased in order for society to respect teachers more. Improving teachers' personal rights as well as their financial means can increase the prestige of the profession. A review of the legislation governing the appointment and relocation of teachers, eliminating memorization, reducing exam-centered assessment, increasing localization of education, and shifting curricula to new needs that may be of interest to students may reduce the problems experienced by teachers in the education system.

References

Akcan, E., Polat, S., & Ölçüm, D. (2017). Yönetici ve öğretmen görüşlerine göre sendikal faaliyetlerin okullara etkisi. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 17*(3), 1101-1119.

Al-amarat, M. S. (2011). The classroom problems faced teachers at the public schools in Tafila Province, and proposed solutions. *International Journal of Educational Sciences, 3*(1), 37-48.

Arsham, H. (2002). Impact of the internet on learning and teaching. *Journal of United States Distance Learning Association, 16*(3), 10-21.

Ayık, A. & Şayir, G. (2014). Okul müdürlerin öğretimsel liderlik davranışları ile örgüt iklimi arasındaki ilişki. *Elektronik Sosyal Bilimler Dergisi, 13*(49), 253-279.

Bakan, İ., Erşahan, B., Büyükbeşe, T., Okumuş, M. T., & Akmeşe, A. (2017). Öğretmenlerin işe yönelik davranışlarında (örgütsel stres, iş yükü, işten ayrılma niyeti ve iş tükenmişliği) örgütsel desteğin rolü: Bir alan araştırması. *International Journal of Disciplines Economics & Administrative Sciences Studies,* 3(6), 444-464.

Balbağ, M. Z., & Karaer, G. (2017). Sınıf öğretmenlerinin fen öğretiminde karşılaştıkları sorunlar. *Trakya Üniversitesi Eğitim Fakültesi Dergisi, 8*(1), 28-46.

Başdemir, H. Y. (2012). Türk eğitim sisteminin yapısal sorunları ve bir öneri. *Liberal Düşünce, 17*(67), 35-53.

Bivona, K. N. (2002). *Teacher morale: The Impact of teaching experience, workplace conditions, and workload.* ERIC Research Report, ED467760, 1-32.

Can, E. (2015). Qualitative obstacles in Turkish education system and suggestions. *Anthropologist, 20*(1-2), 289-296.

Can, E. (2019). Professional development of teachers: Obstacles and suggestions. *Journal of Qualitative Research in Education, 7*(4), 1618-1650. http://dx.doi.org/10.14689/Issn.2148-2624.1.7c.4s.14m.

Can, E., & Işık Can, C. (2019). Okul yöneticilerinin etik dışı uygulamalarının belirlenmesi. *Journal of Social, Humanities and Administrative Sciences, 5*(16), 406-422. http://dx.doi.org/10.31589/JOSHAS.130

Can, E., & Çağlar, H. (2017). Examination of school principals' mobbing practices against class teachers) University of Thessaly Press, Editor: Domna -Mika Kakana, Polyxeni Manoli, ISBN:978-960-9439-47-3.

Celep, C. (1992). İlkokullarda yönetici öğretmen iletişimi. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 8,* 301-316.

Cerit, Y., & Özdemir, T. (2015). Sınıf öğretmenlerinin iş yükü algıları ile işten ayrılma niyetleri arasındaki ilişki. *International Journal of Human Sciences, 12*(2), 626-637.

Christensen, L. B., Johnson, R. B., & Turner, L. A. (2013). *Research methods: Design and analysis* (12. b.). Boston: Pearson.

Çam Aktaş, B. (2016). Sınıf öğretmeni adaylarının mesleki yaşamlarında karşılaşabileceklerini düşündükleri sorunlar. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi, 38,* 16-30.

Çelebi, N. & Taşçı Kaya, G. (2014). Öğretmenlerin maruz kaldığı mobbing (Yıldırma): Nitel bir araştırma. *Eğitim ve İnsani Bilimler Dergisi: Teori ve Uygulama, 5*(9), 43-66.

Darling, H. L. (2010). Teacher education and the American future. *Journal of Teacher Education, 61*(1-2), 35-47.

Demir, M. K., & Arı, E. (2013). Öğretmen sorunları-Çanakkale ili örneği. *Ondokuz Mayıs Üniversitesi Eğitim Fakültesi Dergisi, 32*(1), 107-126.

Doornik, J. A., & Hansen, H. (2008). An omnibus test for univariate and multivariate normality. *Oxford Bulletin of Economics and Statistics, 70*, 927-939.

Ekinci, A. (2010). İlköğretim okullarında çalışan müdür ve öğretmenlerin mesleki sorunlarına ilişkin görüşleri. *İlköğretim Online, 9*(2), 734-748.

Erdem, A. R. (2010). İlköğretim ve ortaöğretim öğretmenlerinin karşılaştığı özlük sorunları ve bu özlük sorunlarının performanslarına etkisi konusundaki görüşleri. *Adnan Menderes Üniversitesi Eğitim Fakültesi Eğitim Bilimleri Dergisi, 1*(1), 21-55.

Erdem, A., Kamacı, S., & Aydemir, T. (2005). Birleştirilmiş sınıfları okutan sınıf öğretmenlerinin karşılaştıkları sorunlar: Denizli örneği. *Eğitimde Kuram ve Uygulama, 1*(1-2), 3-13.

Erdem, H., Kılınç, E., & Demirci, D. (2016). Çalışanlarda iş yükü fazlalığın algılanan istihdam edebilirlik üzerine etkisi. *Elektronik Sosyal Bilimler Dergisi, 15*(58), 772-784.

Ertürk, E. & Keçecioğlu, T. (2012). Çalışanların iş doyumları ile mesleki tükenmişlik düzeyleri arasındaki ilişkiler: Öğretmenler üzerine örnek bir uygulama. *Ege Akademik Bakış Dergisi, 12*(1), 39-52.

Esen, Y. D., Temel, F., & Demir, E. (2017). Türkiye'deki öğretmenlerin karşılaştıkları mesleki sorunların ikili karşılaştırma yöntemi ile ölçeklenmesi. *Eğitimde ve Psikolojide Ölçme ve Değerlendirme Dergisi, 8*(1), 47-62.

Fan, W. & Yan, Z. (2010). Factors affecting response rates of the web survey: A systematic review. *Computers in Human Behavior, 26*, 132-139.

Fidan, M. & Küçükali, R. (2014). İlköğretim kurumlarında yöneticilerin iletişim becerileri ve örgütsel değerler. *Eğitim Bilimleri Araştırmaları Dergisi, 4*(1), 317-334.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement errors. *Journal of Marketing Research, 18*, 39-50.

Fraenkel, J. R., Wallen, N., & Hyun, H. (2012). *How to design and evaluate research in education* (8. b.). New York: McGraw-Hill.

Gunnporsdottir, H., & Johannesson, J. A. (2014). Additional workload or part of the job? Icelandiic teachers' discourse on inclusive education. *International Journal of Inclusive Education*, 18(6), 580-600.

Gündüz, Y. & Can, E. (2011). Öğretmenlerin eğitim sistemi ve uygulamalarına ilişkin güncel sorunları algılama düzeylerinin incelenmesi. *Türk Eğitim Bilimleri Dergisi, 9*(4), 745-774.

Habacı, İ., Karataş, E., Adıgüzelli, F., Ürker, A., & Atıcı, R. (2013). Öğretmenlerin güncel sorunları. *Turkish Studies - International Periodical For The Languages, Literature and History of Turkish or Turkic 8*(6), 263-277.

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement.* New York: Routledge.

Henze, N., & Zirkler, B. (1990). A class of invariant consistent tests for multivariate normality. *Communications in Statistics-Theory and Methods, 19*(10), 3595-3617.

Huang, H. (2006). Do print and Web surveys provide the same results? *Computers in Human Behavior, 22*, 334-350.

Hubert, A. B., & Veldhoven, M. (2001). Risk sectors for undesirable behaviour and mobbing. *European Journal of Work and Organizational Psychology, 10*(4), 415-424.

Hooper, D., Coughlan, J., & Mullen, M. (2008). Structural equation modelling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods, 6*(1), 53-60.

Ihaka, R. & Gentleman, R. (1996). R: A language for data analysis and graphics. *Journal of Computational and Graphical Statistics, 5*(3), 299-314.

Karacabey, M. F., & Boyacı, A. (2018). Factors contributing to secondary school dropouts and the dropouts' socioeconomic profiles: Şanlıurfa sample. *Kuram ve Uygulamada Eğitim Yönetimi, 24*(2), 247-293. http://dx.doi.org/10.14527/kuey.2018.007

Karataş, K., & Çakan, S. (2018). Öğretmenlerin bakış açısıyla eğitim–öğretim sorunları: Bismil ilçesi örneği. *Elementary Education Online, 17*(2).

Kline, R. B. (2012). Assumptions in structural equation modeling. İçinde R. H. Hoyle (Ed.). *Handbook of structural equation modeling* (ss. 111-125). New York: Guilford Press.

Koçöz, R. (2004). Aydınlarımız, toplumsal çelişkilerimiz ve duyarlılıklarımız. *Çağın Polisi Dergisi, 34.*

Korkmaz, S., Göksülük, D., & Zararsız, G. (2014). MVN: An R package for assessing multivariate normality. *The R Journal, 6*(2), 151-162.

Korkut, F. (2004). *Okul temelli önleyici rehberlik ve psikolojik danışıma.* Ankara: Anı.

Köksal, N. (2008). Öğretmenlik mesleği genel yeterliklerinin öğretmen, müdür ve bakanlık yetkilileri tarafından değerlendirilmesi. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi, 1*(23), 36-46.

Köşterelioğlu, İ. & Bayar, A. (2014). Türk eğitim sisteminin sorunlarına ilişkin güncel bir değerlendirme. *The Journal of Academic Social Science Studies International Journal of Social Science, 25*(1), 177-187.

Kurt, T. (2006). Eğitim yönetiminde yerelleşme eğilimi. *Kastamonu Eğitim Dergisi, 14*(1), 61-72.

Mardia, K. V. (1970). Measures of multivariate skewness and kurtosis with applications. *Biometrika, 57*(3), 519-530.

Mardia, K. V. (1974). Applications of some measures of multivariate skewness and kurtosis for testing normality and robustness studies. *Sankhya, 36,*115-128.

Meriç, E., & Erdem, M. (2013). İlköğretim okullarında görev yapan öğretmenlerin algılarına göre okul yönetiminde kayırmacılık. *Kuram ve Uygulamada Eğitim Yönetimi, 19*(3), 467-498.

Özdemir, M., Civelek, Ş., Çetin, Y. E., Karapınar, N., & Özel, D. (2015). Öğretmenlerin eğitimsel çevresel ve sosyal sorunları (Şırnak ili örneği). *Dicle Üniversitesi Ziya Gökalp Eğitim Fakültesi Dergisi, 26,* 163-181.

Revelle, W. (2018). Psych: Procedures for Personality and Psychological Research, Northwestern University, Evanston, Illinois, USA.

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software,* 48(2), 1-36.

Royston, J. P. (1992). Approximating the Shapiro-Wilk W-Test for non-normality. *Statistics and Computing, 2,* 117-119.

Sabancı, A., Altun, M., & Altun, S. U. (2018). Okul yöneticilerinin, öğretmenlerin ve velilerin görüşlerine göre ana sınıfı eğitiminde karşılaşılan sorunlar. *Kuram ve Uygulamada Egitim Yönetimi Dergisi*, *24*(2), 339-385.

Sarıbaş, S. & Babadağ, G. (2015). Temel eğitimin temel sorunları. *Anadolu Eğitim Liderliği ve Öğretim Dergisi, 3*(1), 18-34.

Satorra, A., & Bentler, P. M. (2001). A scaled difference chi-square test statistic for moment structure analysis. *Psychometrika, 66*(4), 507-514.

Satorra, A., & Bentler, P. M. (2010). Ensuring positiveness of the scaled difference chi-square test statistic. *Psychometrika, 75*(2), 243-248.

Selm, M. V. & Jankowski, N. W. (2006). Conducting online surveys. *Quality & Quantity, 40,* 435-456.

Sezgin, F., & Kılınç, A. Ç. (2011). İlköğretim okulu öğretmenlerinin örgüt iklimine ilişkin algılarının incelenmesi. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi*, *31*(3), 743-757.

Schleicher, A. (2012). *Preparing teachers and developing school leaders for the 21st century: Lesson from around the world.* Paris: OECD Publishing.

Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods, 4*(3), 272-299.

Şenel, T., & Buluç, B. (2016). İlkokullarda okul iklimi ile okul etkililiği arasındaki ilişki. *TÜBAV Bilim Dergisi*, *9*(4), 1-12.

Terzi, A.R., Dülker, A.P., Altın, F., Çelik, F., Dalkıran, M., Yulcu, N.T., Tekin, S., & Deniz, Ü. (2017). An analysis of organizational justice and organizational identification relation based on teachers' perceptions. *Universal Journal of Educational Research, 5*, 488-495.

Tess, A. P. (2013). The role of social media in higher education classes (real and virtual) – A literature review. *Computers in Human Behavior Journal, 29,* 60-68.

Ünver, G. (2016). Türkiye'de hizmet öncesi öğretmen eğitiminde kuram-uygulama bağlantısı. *Yükseköğretim ve Bilim Dergisi*, *6*(1) 61-70.

Yalçın, F. A., & Yalçın, M. (2018). Okul öncesi öğretmenlerin okul öncesi eğitimin sorunlarıyla ilgili görüşleri: Ağrı ili örneği. *Elementary Education Online, 17*(1), 367-383.

Yeşil, R. & Şahan, E. (2015). Öğretmen adaylarının Türk Eğitim Sisteminin en önemli sorun, neden ve çözüm yollarına ilişkin algıları. *Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi (KEFAD), 16*(3), 123-143.

Yılmaz, M. (2006). Türkiye'nin çağdaşlaşma sorunu ve eğitim. *Uludağ Üniversitesi Fen-Edebiyat Fakültesi Sosyal Bilimler Dergisi*, *7*(10), 1-14.

Yılmaz, K. & Altınkurt, Y. (2011). Öğretmen adaylarının Türk eğitim sisteminin sorunlarına ilişkin görüşleri. *Uluslararası İnsan Bilimleri Dergisi, 8*(1), 942-973.

Appendix

The Scale for Determining Teachers' Problems

#	Items	X	SD	Factors
1	I think my workload is more than necessary	3.34	1.16	Workload
2	I have to take work home	3.68	1.20	
3	I also have to work on weekends	2.91	1.41	
4	I'm under intense stress	3.31	1.25	
5	I feel tired	3.94	1.02	
6	**The training I received before the service will help me**	2.76	1.23	Vocational Education
7	**In-service training helps me**	2.93	1.24	
8	**Institutions representing teachers are sufficient**	4.00	1.02	Personal Rights
9	**Unions respect the rights of teachers**	3.76	1.09	
10	**MoNE respects our rights**	3.53	1.21	
11	I have problems with school management	1.82	1.02	School Climate
12	My school experiences ideological discrimination and nepotism	1.61	1.07	
13	I'm exposed to verbal violence at my school	1.51	0.96	
14	Mobbing is applied against me	1.50	1.01	
15	**Society respects teachers**	3.43	1.19	Respect
16	**Students respect me**	2.20	1.05	
17	**Parents respect me**	2.33	1.06	
18	I find some topics in the curriculum unnecessary	3.09	1.13	Educational System
19	I think that memorization cannot be eliminated in the education system	3.86	1.04	
20	I complain about the exam-centered education system	3.21	1.28	
21	I would like to increase localization in the education system	3.38	1.20	
22	Assignment and displacement regulation causes problems	3.59	1.20	

*Items that need to be reversed are marked in bold.

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The Effects of Distractors to Differential Item Functioning in Peabody Picture Vocabulary Test

Peabody Resim Kelime Testinde Çeldiricilerin Değişen Madde Fonksiyonuna Etkisi

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ABSTRACT: In this study logistic regression and Lord's Chi Square methods were used to research the items that have DIF. The study utilized Peabody Picture Vocabulary Test (PPVT). The original form of the PPVT includes four options. Three different forms (A, B and C) were formed by removing one of the distractors respectively. The original form of PPVT was implemented in a group of 970 preschool children who were aged between 3 to 6. 757 of them took one of the forms. In each implementation, the order to the implementation of the original form and the form (A, B or C) was changed. The applications were conducted 15 days apart. In the first application, the original form was applied, while one of the devised forms (A, B or C) was used in the following application. In this way, the effect of order of application on responses was investigated. The gender variable constituted the reference and focus group of the study. The Logistic Regression and Lord's Chi-square methods did not give compatible results in DIF analysis. DIF was found in 15 items in the original form according to the logistic regression method and in nine items according to the Lord's Chi-square method. The three-option and four-option applications of the test revealed that DIF was determined in five items in different forms. It was observed that there was no compliance in different applications and analyses in other items with DIF.

Keywords: Differential item functioning, logistic regression, Lord's chi square, Peabody picture vocabulary test.

ÖZ: Bu araştırmada değişen madde fonksiyonunun belirlenmesinde lojistik regresyon ve Lord'un Ki-kare yöntemleri karşılaştırılmıştır. Araştırmada Peabody Resim Kelime Testi (PRKT) kullanılmıştır. PRKT dört seçenekli maddelerden oluşmaktadır. Çeldiricilerin uygulamadaki etkisini görmek amacıyla farklı formlarda farklı bir çeldirici maddeden çıkarılarak üç seçenekli formlar oluşturulmuştur. PRKT 3-6 yaş arasında 970 çocuğa uygulanmış 757 uygulamadan elde edilen yanıtlar çözümlenmiştir. Uygulamalar 15 gün arayla gerçekleştirildi. Bir uygulamada önce original form uygulandı, diğer uygulamada oluşturulan formlardan biri (A, B veya C) uygulandı. Bu yolla yanıtlarda uygulama sırasının etkisi kontrol edildi. Cinsiyet değişkeni araştırmanın referans ve odak grubunu oluşturmuştur. DIF analizinde Lojistik Regreyon ve Lord'un Ki-kare yöntemi uyumlu sonuçlar vermedi. Araştırma bulgularına göre lojistik regresyon yöntemine göre orijinal formda 15, Lord'un Ki-kare yöntemine göre 9 maddede DIF belirlendi. Testin üç seçenekli ve dört seçenekli uygulamalarından elde edilen sonuçlarda farklı formlarda beş maddede uyumlu bir biçimde DIF belirlenmiştir. DIF belirlenen diğer maddelerde ise farklı uygulama ve analizlerde uyum olmadığı gözlenmiştir.

Anahtar kelimeler: Değişen madde fonksiyonu, lojistik regresyon, Lord'un ki-karesi, Peabody resim kelime testi.

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The cognitive or psychological construct to be measured with a test should be measured free of undesirable variables. This is related to the validity of the measuring tool. Measuring constructs other than the construct intended to be measured is a validity problem. There are many variables that can affect the validity of an assessment instrument. One of these variables is whether an instrument has bias that can change sample's possibility of giving the correct answer. The instruments that are used in developmental evaluations should be reported properly about their psychometric details considering the difference about culture and language (Alordiah & Agbajor, 2014; Washington, Kamhi, Pollock, & Harris, 1996). These details include precious findings about the validity of the instruments that are used.

In norm-referenced tests measuring cognitive tasks, item content can be an important validity problem. There are studies on how the differences in the ranking of the items (e.g. Hambleton & Traub, 1974) or the content of items lead to a difference in the total score (e.g. Zwick, 1991). Taking cultural and language differences in sub-groups into consideration in evaluation may prevent bias (Van de Vijver, 2018). Bias can stem from the structure of a test as well as from the items in that test. Item bias is the change in the possibility of responding correctly in one of the two groups with the same ability level (Osterlind, 1983).

Lord (1980) argues that when individuals with the same ability level have the same probability of answering an item correctly, then the test is fair. Holland and Wainer (1993) maintain that individuals with the same ability level should have equal chance of answering the item correctly, regardless of the group they are in.

In identifying item bias, whether there is differential item functioning (DIF) in the item or not may be researched. If there is a possibility of responding differently in one of the two groups that are at the same ability level, then, there is differential item functioning for that item (Gierl, Khaliq, & Boughton, 1999; Maller, 2001; Stump, Monahan, & McHorney, 2005). In cases where an item has bias, there is differential item functioning; however, the fact that there is differential item functioning in an item is not a decisive evidence for the existence of bias (Zumbo, 1999).

If a test contains DIF in one or more items, differential test functioning may occur. This seems to be more important than the presence of DIF in the item since items containing DIF are also used to obtain the total score (Chalmers, Counsell, & Flora, 2016). In the literature, there are studies whether items in a test had DIF or not (e.g. Adebule, 2013; Köse, 2015); there are also some studies that researched the effects of DIF identification techniques on item bias (e.g. Doğan & Öğretmen, 2010; Ikeda, 1995; Kalaycıoğlu & Kelecioğlu, 2001; Karakaya & Kutlu, 2012; Yıldırım & Büyüköztürk, 2018; Yurdugül, 2003). In addition to these types of studies, some other studies focused on the comparison and contrast of DIF in contexts where different grading conditions were realized (e.g. Tunç & Kutlu, 2018). Thissen, Steinberg, and Fitzpatrick (1989) and Love (1997) stated that there is a relationship between choosing the incorrect option in a multiple-choice item and the level of ability. Sehmitt and Dorans (1990) argued that there is a relationship between choosing the incorrect option and ethnicity.

If an item includes DIF, it may be related to the difficulty level of the item. This difficulty may arise from the content of the item while it may also arise from the form (number of options, whether the items depend on the same shared root and so on) of the item. Ascalon, Meyers, Davis, and Smits (2007) applied items involving similar and

dissimilar distractors to 520 university students and conducted DIF analysis. They stated that factors such as the content and difficulty of distractors and their degree of proximity to the correct answer affect the difficulty level of items. They found that the probability of having DIF increased in the items involving distractors with a similar meaning.

Even if all the distractors in an item function equally, some subgroups may tend to choose particular distractors. Respondents may have little or no knowledge about some distractors (Banks, 2009). The time to respond to the item and the probability of answering the item correctly are related to the content of the distractors. Distractors may change the response behavior of subgroups (Meyer & Wise, 2006). Studies conducted on the structure and complexity of distracters revealed that distractors reduce test difficulty (Harasym, Leong, Violato, Brant, & Lorscheider, 1998), increase test difficulty (Hughes & Trimble, 1965), and do not affect test difficulty (Forsyth & Spratt, 1980). In an item devised for a test, the structure of the distractors as well as the correct response itself affects the psychometric property of the item (Suh & Talley, 2015).

The use of options in an item that can change the probability of a group responding correctly points to significant problems in terms of the psychometric properties of the test (Banks, 2009). There may be many external variables that can affect the ability of a distractor to function. Studies on distractors as causes of DIF in multiple choice items have been examined (e.g. Banks, 2009; Green, Crone, & Folk, 1989; Penfield, 2008, 2010; Suh & Talley, 2015; Terzi & Suh, 2015; Terzi & Yakar, 2018). In their study, Ascalon, Meyers, Davis, and Smits (2007) created distractors with similar and different content, and investigated whether DIF was found in the items. In the study, the items which aim to measure the same content and which involve similar and dissimilar distractors had significantly different Maentel Haenszel effect size.

Our study investigates with the DIF analysis whether the possibility of answering an item correctly changes in the subgroups when one of the distractors was removed from the item. This study is thought to be important as test developers may gain an insight into the function of distractors in a test. In the study, the main purpose of creating a new form by removing a distractor from the options for the same item and applying this form is to keep the options under control.

We used Logistic Regression and Lord's Chi Square methods to investigate the items that have DIF. One aim of this study is to compare logistic regression and Lord's Chi Square methods in determining DIF. Another aim is to determine whether the items with DIF are affected by the number of distractors.

Method

In this part of the study, the information regarding the sample, the data collection tool and data analysis were presented.

Participants

The original form of the PPVT which consisted of four options was applied to a total of 970 preschool children aged between 3 and 6, and 477 of them were boys while 493 of them were girls. All the children responded to the original form that has four options. Although the number of children who did the original four-choice form is 970, in the implementation of the three-choice forms, data loss is faced due to reasons such

as some children's absence, going onto holiday and so on. Consequently, the number of children responding to the three-choice forms is 757 in total. 242 of the students responded to the items in form A, and 254 and 261 students responded to the items in form B and form C, respectively. Students to receive the forms A, B and C were randomly selected. In addition, while the original form was applied to half of the sample randomly selected, the original form was applied to the other half after the application of forms A, B, C. In this way, the effects that may arise from the order of application of the forms were tried to be eliminated. The information regarding the gender of the children who did the original form was presented in Table 1.

Table 1

The Participant Information

City	Gender	N	%	City	Gender	N	%
Ankara	Girl	24	2.47	Samsun	Girl	25	2.58
	Boy	19	1.96		Boy	25	2.58
Amasya	Girl	25	2.58	Van	Girl	25	2.58
	Boy	25	2.58		Boy	25	2.58
Aydın	Girl	25	2.58	Zonguldak	Girl	25	2.58
	Boy	25	2.58		Boy	25	2.58
Bilecik	Girl	20	2.06	Konya	Girl	43	4.43
	Boy	24	2.47		Boy	47	4.85
Düzce	Girl	24	2.47	Mersin	Girl	25	2.58
	Boy	19	1.96		Boy	17	1.75
Elazığ	Girl	21	2.16	Osmaniye	Girl	25	2.58
	Boy	22	2.27		Boy	25	2.58
Gaziantep	Girl	25	2.58	Karabük	Girl	16	1.65
	Boy	25	2.58		Boy	19	1.96
Hatay	Girl	50	5.15	Kayseri	Girl	25	2.58
	Boy	40	4.12		Boy	25	2.58
İstanbul	Girl	24	2.47	Kocaeli	Girl	44	4.54
	Boy	26	2.68		Boy	46	4.74

The data belonging to the study sample were collected in regional destination of 18 city in Turkey. An equal number of girls and boys were ensured in implementation in each province. In this way, the goal was to have two equal groups in terms of gender. The number and percentage information of the children who answered the form was presented in Table 2.

Table 2

The Response Rates and Percentage Values for the Forms by the Children Who Made up the Sample

Forms	Gender	N	%	Total
Original	Girl	493	50.8	970
	Boy	477	49.2	
A	Girl	124	51.2	242
	Boy	118	48.8	
B	Girl	126	49.6	254
	Boy	128	50.4	
C	Girl	131	50.2	261
	Boy	130	49.8	

We ensure that that the number of girls and boys was equal in all applications. As a result, about half of the students were girls and boys.

The Data Collection Instrument

Peabody Picture Vocabulary Test (PPVT) was utilized to collect the data. PPVT which was developed by Dunn and Dunn (1959) was adapted to Turkish culture (Katz, Önen, Uzlukaya, Demir, & Uludağ, 1972). The adaptation study was realized in a sample group that consisted of 4200 children. The literature reported that it can be implemented on children between the ages of 2 and 12 (Özgüven, 1994). In the test, there are 100 questions that have options consisting of four different pictures. While responding to the items in the test, the child is asked to show the relevant picture or tell the number of the choice belonging to the picture. In the study that was undertaken to develop the test, the internal consistency was found to be between .71 and .81, and test re-test reliability was found to be between .52 and .82. The relationship of PPVT with Stanford-Binet Intelligence Scale was found to be between .82 and .86; while its relation with Wechsler Intelligence Scale for Children was found to be between .41 and .74 (Öner, 1997). Each correct answer in the test is worth 1 point and the sum of the correct responses a child provides makes up the raw score for that child (Temiz, 2002).

Due to existence of the studies (Kurnaz & Kelecioğlu, 2008; Washington & Craig, 1999) that showed that PPVT may be biased for sub-groups that have linguistic or cultural differences, it has the potential to include items with DIF and accordingly, in this study this assessment tool was chosen on purpose.

Procedures

In responding to the forms, if a child was firstly given the four-choice original form, the other child was given the three-choice form. In this way, the aim was to control the effect of the first implementation on the second one. The implementation was led by child development specialists. Before the implementations, the child development specialists were given an education on standard tests and the

implementation of the test. Ethical issues observed informed consent, voluntary participation, avoidance of plagiarism.

The aim of creating three-choice forms is to examine whether the results change in DIF analysis depending on the number of distractors. The chances of children choosing the correct answer may vary based on the distractor. It was decided to use three-option items, since chance factor increases when items have only two options, which would be an important limitation. If the presence of DIF in an item is due to the distractor itself, it will result in DIF in the item in at least two of the three forms and in the original form itself.

Data Analysis

First, descriptive data analyses were conducted as it was thought that descriptive analysis would provide information to interpret the obtained results. The scores were normally distributed in the subgroups according to the gender variable. In order to check whether the subgroups differed in total score in terms of gender variable, *t-test* was performed. The internal consistency of the data obtained from the applications was calculated with KR-20.

ANOVA, transformed item difficulty, Chi-square (χ^2), Item Characteristic Curve, Maentel-Haenszel, Logistic Regression, distractor response analysis methods can be used in identifying DIF (Gierl, Khaliq, & Boughton, 1999; Jensen, 1980; Osterlind, 1983). In this study, Logistic Regression and Lord's Chi-square methods were used to identify DIF.

Logistic Regression can be used for designating both uniform and also non-uniform DIF. It is a special regression model in which the dependent variable can have two values and the independent variable is a continuous variable (Gierl, Khaliq, & Boughton, 1999). The Logistic Regression model is analyzed using the $P(u=1)=\theta^2/1+\theta^2$ equation. Three sub-models are used to study DIF. These were presented below.

$$z=\beta_0+\beta_1X$$

$$z=\beta_0+\beta_1X+\beta_2G$$

$$z=\beta_0+\beta_1X+\beta_2G+\beta_2GX$$

Here X stands for the test score variable, G stands for group variable and GX stands for test score and group interaction variable. In the model when the variable X is significant, this shows that the model is valid; when the variable G is significant, this indicates a uniform differential item functioning and the significance of GX indicates a non-uniform differential item functioning (Yurdugül, 2003). In addition to the views suggesting that logistic regression analysis is affected by sample size (Tian, Pang & Boss, 1994), a consensus could not be achieved on how to identify and classify the items that have DIF (Hidalgo & Lopez-Pina, 2004; Jodoin & Gierl, 2001). In logistic regression model standardized regression coefficients (R^2) give the degree of the DIF and it is identified at three levels (Hidalgo & Lopez-Pina, 2004).

Lord (1980) proposed using the χ^2 method based on the item response model to determine uniform and non-uniform DMF (Maij-de Meij, Kelderman, & Van der Flier, 2010; Wiberg, 2007). This method is based on the comparison of item parameters in subgroups called reference and focus groups. With the help of the difference between

the item parameters calculated across subgroups and the variance-covariance matrix related to this difference, χ^2 statistics is calculated. In order to make comparisons between groups, the estimated parameters are brought to the same scale level. When the χ^2 statistical value exceeds the critical value, it is decided that the item includes DMF according to the relevant meaning level (Camilli, Shepard, & Shepard, 1994).

In DIF studies, the gender variable is widely investigated; thus, comparisons in this study were also made between different genders. In the DMF analysis of the data, the "*difR*" package in the R Studio 3.4.1 program was used. To detect DMF, the "*difLogistic*" function was used for DMF detection with the logistic regression method, and the "difLord" function was used in the Lord's chi square method. The difR package was written by David Magis et al in 2010.

Results

The study investigated whether the original form of the Peabody Picture Vocabulary Test and three different forms created by removing a distractor from the test contain DIF. Logistic regression and Lord's Chi-square methods were used to analyze the data. In Table 3, the descriptive test findings that were obtained from the original and the forms were presented.

Table 3

Descriptive Test Statistics according to Gender

Form	Group	*N*	*Min*	*Max*	$\bar{X}$	*S*	KR-20	*t*
Original	Girl	493	34	96	68.41	9.95	.84	-0.76*
	Boy	477	32	91	68.90	9.84		
A	Girl	124	35	93	72.30	9.06	.85	-0.85*
	Boy	118	35	92	73.39	10.69		
B	Girl	126	48	88	69.14	8.51	.79	-0.74*
	Boy	128	47	87	69.91	8.00		
C	Girl	131	41	93	71.70	8.82	.84	-0.37*
	Boy	130	35	92	71.75	10.45		

N: Frequencies, Min: Minimum Score, Max: Maximum score, $\bar{X}$:Arithmetic mean, *S*: Standard deviation, *p>.05

According to Table 3, the findings below may be deduced when the descriptive results obtained through various procedures were analyzed.

- The data obtained from the girls in the main application shows a broader range of score distribution. In the samples that were formed via random sampling, the range shrinks for both girls and also boys. In the group where form B was implemented, the range is narrower compared to all the other implementations.
- As scores showed normal distribution in each sub-group, whether there is a difference between the mean scores of the girls and boys was analyzed via t-

test and no significant difference was found between any of the groups (p>.05).

- The internal consistency of the data obtained from the implementations was calculated using KR-20 and it was found to vary between .79 and .85. Considering these findings, it can be argued that the data obtained through these implementations provide reliable results.

The logistic regression findings regarding the items with DIF were presented in Table 4.

Table 4

The Logistic Regression Analysis Results according to Gender Variable

Implementation	Item Number	$\chi 2$	p	DIF R^2	DIF Level
Original Form	11	6.190	0.045	0.018	A
	12	14.200	0.603	0.045	A
	18	6.924	0.031	0.013	A
	19	16.397	0.000	0.050	A
	20	7.313	0.025	0.027	A
	29	17.864	0.000	0.030	A
	32	19.452	0.000	0.024	A
	42	10.759	0.004	0.015	A
	44	9.977	0.006	0.043	A
	49	8.468	0.014	0.009	A
	51	12.519	0.001	0.017	A
	54	12.146	0.002	0.015	A
	65	11.636	0.003	0.013	A
	82	10.786	0.004	0.014	A
	96	9.507	0.008	0.017	A
FORM A	24	6.927	0.031	0.119	A
	25	7.493	0.023	0.034	A
	32	6.411	0.040	0.038	A
	34	7.326	0.025	0.157	B
	39	7.285	0.026	0.176	B
	40	6.883	0.032	0.038	A
	85	6.104	0.047	0.032	A
	93	7.366	0.025	0.041	A
FORM B	17	7.827	0.020	0.146	B
	19	7.883	0.019	0.148	B
	23	8.453	0.014	0.052	A
	37	10.436	0.005	0.139	B

	39	6.535	0.038	0.158	B
	59	10.374	0.005	0.051	A
	69	8.966	0.011	0.114	A
	76	6.943	0.031	0.031	A
	77	7.932	0.018	0.034	A
	88	11.611	0.003	0.065	A
FORM C	13	8.285	0.015	0.260	C
	22	10.369	0.005	0.128	A
	24	6.645	0.036	0.143	B
	29	9.015	0.011	0.051	A
	32	17.336	0.000	0.091	A
	38	7.205	0.027	0.058	A
	58	8.641	0.013	0.057	A
	78	9.970	0.006	0.051	A
	93	7.139	0.028	0.039	A

When the logistic regression results are analyzed, DIF was detected in 15 items in the original form (DIF level was A for all items), 8 items in form A (DIF level was A in six items and B in two items), 10 items in form B (DIF level was A in six items and B in four items), and 9 items in form C (DIF level was A in seven items, B in one item and C in one item).

The items with DIF in more than one application are as follows: Item 32 in the Original Form and Form A; item 19 in the Original Form and Form B; item 29 and item 32 in the Original Form and Form C; item 39 in Form A and Form B; item 24, item 32 and item 93 in Form A and Form C.

In the research, Lord's Chi Square test was also used for DIF detection. The findings obtained are given in Table 5.

Table 5

Lord's Chi-square Test Results according to Gender Variable

Implementation	Item Number	$\chi 2$	*p*	Delta Lord	DIF Level
Original Form	29	4.300	0.038	-2.362	C
	42	4.366	0.036	1.870	C
	47	4.468	0.034	1.929	C
	54	6.893	0.008	1.958	C
	58	5.989	0.014	2.257	C
	59	7.498	0.006	1.905	C
	79	6.281	0.012	1.781	C

	84	7.413	0.006	1.979	C
	98	3.852	0.049	1.514	C
Form A	25	10.247	0.001	-2.2866	C
	32	9.177	0.002	-2.830	C
	36	7.167	0.007	-2.419	C
	40	5.239	0.022	-2.189	C
	49	5.782	0.016	-1.910	C
	50	8.341	0.003	-2.350	C
	51	3.888	0.048	-1.692	C
	58	4.334	0.037	-2.196	C
	64	6.052	0.013	-1.998	C
	72	4.512	0.033	-1.483	C
	78	3.916	0.047	-1.510	C
	83	7.323	0.006	-1.897	C
	93	3.893	0.048	-1.531	C
Form B	23	6.478	0.010	2.309	C
	33	3.976	0.046	1.579	C
	42	3.980	0.046	1.580	C
	47	3.877	0.048	1.452	B
	54	6.198	0.012	2.124	C
	57	4.298	0.038	1.422	B
	59	11.402	0.001	2.263	C
	72	4.534	0.033	1.442	B
	85	6.265	0.012	1.776	C
	87	4.137	0.041	1.354	B
	88	4.460	0.034	1.577	C
	93	5.745	0.016	1.848	C
	94	8.363	0.003	2.042	C
	96	7.048	0.007	2.473	C
	97	7.923	0.004	2.606	C
Form C	19	3.972	0.046	-3.28	C
	32	14.192	0.000	-3.357	C
	58	6.357	0.011	-2.687	C
	82	3.849	0.049	-1.345	B

When Table 5 is analyzed, it was determined that there was DIF in nine items in the original form, 13 items in Form A, 15 items in Form B, and 4 items in Form C according to Lord's Chi Square test results. In the original form and form A, the DIF

level is C. In form B, the DIF level is C in eleven items and B in four items. In form C, the DIF level is C in three items and B in one item. In order to compare the results of the Logistic Regression and Lord's Chi-square methods, items containing DIF and item numbers are summarized in Table 6.

Table 6

The Items with DIF and the Number of Items that Have DIF in Different Implementations

	Logistic Regression Results		Lord's Chi Square Results	
Implementation	Item Number	Number of items	Item Number	Number of items
Original	11, 12, 18, 19, 20, 29, 32, 42, 44, 49, 51, 54, 65, 82, 96	15	29, 42, 47, 54, 58, 59, 79, 84, 98	9
A	24, 25, 32, 34, 39, 40, 85, 93	8	25, 32, 36, 40, 49, 50, 51, 58, 64, 72, 78, 83, 93	13
B	17, 19, 23, 37, 39, 59, 69, 76, 77, 88	10	23, 33, 42, 47, 54, 57, 59, 72, 85, 87, 88, 93, 94, 96, 97	15
C	13, 22, 24, 29, 32, 38, 58, 78, 93	9	19, 32, 58, 82	4

As seen in Table 6, the following findings were obtained when Lord's Chi Square results and logistic regression results were compared.

- In the original form, 15 items include DIF according to the logistic regression method. Nine items contain DIF according to the Lord's Chi Square method. Only three items (29, 42, and 54) identified as containing DIF were common in the two methods.
- In Form A, 8 items contain DIF according to the logistic regression method, 13 items include DIF according to the Lord's Chi Square method. Only four items (25, 32, 40, and 93) identified as containing DIF were common in the two methods.
- In Form B, 10 items include DIF according to the logistic regression method, and 15 items include DIF according to the Lord's Chi Square method. Only three items (23, 59, and 88) identified as containing DIF were common in the two methods.
- In Form C, 9 items include according to the logistic regression method, and 4 items include DIF according to the Lord's Chi Square method. Only two items (32 and 58) identified as containing DIF were common in the two methods.

In order to say that DIF is caused by a distractor (e.g. content) in an item, there must be a DIF in the item in both forms including that distractor. In Forms A, B and C, the correct response remained the same and one of the distractors was removed from the item and the item was applied with three options. In this context, if an item has DIF in

both form A and form C and if there is no DIF in form B, it may be due to the distractor in this item. In addition, the presence of the relevant distractor in the item may affect the psychometric feature of the item by changing responder behavior. When the findings were examined in this regard, DIF was determined in items 24, 32, and 93 in forms A and C, while no DIF was found in the same items in form B according to the logistic regression results. DIF was found in item 39 in forms A and B, while no DIF was determined in form C in the same item. According to the Lord's Chi Square results, DIF was found in item 72 in forms A and B, whereas DIF was not found in the same item in form C. Items 32 and 58 contain DIF in forms A and C; however, the same items do not contain DIF in form B. When these results were analyzed, it was seen that the Logistic Regression and Lord's Chi Square methods could not produce similar results except for one item.

Discussion and Conclusion

In this study, the Logistic Regression and Lord's Chi Square methods were compared by performing DIF analysis in four different applications. The two methods produced different results in different applications. When the literature is analyzed (e. g., Başusta, 2013; Erdem, 2015; Gierl, Khaliq, & Boughton, 1999; Gök, Kelecioğlu, & Doğan, 2010), there are findings that different methods used in determining DIF produce different results.

When the distribution of ability is not even in logistic regression analysis, this increases the possibility of type 1 errors (Narayanon & Swaminathan, 1996). French and Maller (2007) undertook a simulation study and used logistic regression analysis in DIF analysis. Yıldırım (2017) suggested that purification of total scores as a criterion for matching did not lead to coherent results and that it did not lead to changes in the number of items with DIF and the levels of DIF. Roznowski and Reith (1999) stated that the existence of biased items in a test did not significantly change the assessment quality. Tian, Pang, and Boss (1994) accordingly reported that the increase in sample size may change the results of logistic regression analysis.

In their study, Ryan and Chiu (2001) investigated the effect of the item content and ordering of the items according to difficulty level on DIF results. In this study, Form 1 questions were created through random ordering. Form 2 was created by ordering the items according to content and difficulty level. The results obtained from the application of the two forms revealed that DIF was not determined depending on the forms the items were in as far as gender variable is concerned. It can be stated that the magnitude of β values differed in different forms and male students were found to be more successful in the test with mixed order in terms of content and difficulty.

In the literature, there are studies which suggested that PPVT has bias towards socio-culturally disadvantaged groups (Washington & Craig, 1999). In the results of Kurnaz and Kelecioğlu (2008), which utilized logistic regression method that obtained data by implementing the test in another sample group, 14 items were found to have DIF in terms of gender. eight of the items (the 29th, 32th, 44th, 49th, 54th, 65th, 82th and 96th items) that were detected to have DIF in Kurnaz and Kelecioğlu (2008) according to the gender variable were also detected in this study. In this sense, the findings of the two studies are partially coherent. When the content of these items is examined, it is seen that they include words such as barbershop, parachute, spider web, hook, joy, and

stadium. The items with content such as barbershop and stadium may be more familiar to boys. This may cause items to contain DIF. In such items, the source of DIF may be the item root rather than the distractor.

Items 24 (content of the item: Insect), 32 (content of the item: parachute), 58 (content of the item: sailboat), and 93 (content of the item: law) include DIF in the original form, Form A and Form C; however, they do not contain DIF in Form B, which may be related to the distractors in these items. Item 72 (content of the item: evaluation) contains DIF in Forms A and B, but not in Form C. In this case, the distractors of this item may need to be re-examined. Future studies may investigate whether the meanings that children attach to the concepts change depending on gender by asking girls and boys their understanding of such concepts. Thus, in tests prepared for young children, the construct to be measured by the test can be explained as operational.

In the literature, there are some findings which suggest that not taking cultural differences into consideration in the tests that have been adapted to different cultures may lead to DIF (Allalouf, 2003; Petersen et al., 2003). In these studies, the significance of DIF analysis in adaptation studies in terms of identifying the psychometric properties of a test was emphasized. A similar suggestion may be made in this study.

A limitation of this study is that total score that were obtained from the implemented test were used to designate the talent criteria of focus and reference groups. In another study, in addition to the total score of the relevant test, other total score that were obtained from another test that assesses the same property can be used as a criterion for talents and abilities and, thus, the difference between the two cases may be discussed.

This study will contribute to the literature by setting an example which demonstrates the effects of different applications of the same test on DIF and also by including a different research design.

Statement of Responsibility

Fatma Betül Kurnaz Adıbatmaz; conceptualization, investigation, resources, software, formal analyses, writing-reviewing, editing, methodology, validation, visualization and supervision. Hüseyin Yıldız; conceptualization, software, formal analyses, writing-reviewing, editing, methodology, validation and visualization.

References

Adebule, S. O. (2013). A study of differential item functioning in Ekiti State Unified Mathematics Examination for senior secondary schools. *Journal of Education and Practice, 4*(17), 43-46.

Allalouf, A. (2003). Revising translated differential item functioning items as a tool for improving cross-lingual assessment. *Applied Measurement in Education, 16*(1), 55-73.

Alordiah, C. O., & Agbajor, H. T. (2014). Bias in test items and implication for national development. *Journal of Education and Practice, 5*(9), 10-13.

Ascalon, M. E., Meyers, L. S., Davis, B. W., & Smits, N. (2007). Distractor similarity and item-stem structure: Effects on item difficulty. *Applied Measurement in Education*, *20*(2), 153-170.

Banks, K. (2009). Using DDF in a post hoc analysis to understand sources of DIF. *Educational Assessment*, *14*(2), 103-118.

Başusta, N. B. (2013). *PISA 2006 fen başarı testinin madde yanlılığının kültür ve dil açısından incelenmesi* (Yayımlanmamış yüksek lisans tezi). Hacettepe Üniversitesi, Ankara, Türkiye.

Camilli, G., Shepard, L. A., & Shepard, L. (1994). *Methods for identifying biased test items* (Vol. 4). Sage.

Chalmers, R. P., Counsell, A., & Flora, D. B. (2016). It might not make a big DIF: Improved differential test functioning statistics that account for sampling variability. *Educational and Psychological Measurement*, *76*(1), 114-140.

Doğan, N., & Öğretmen, T. (2010). Değişen madde fonksiyonunu belirlemede Mantel-Haenszel, Ki-kare ve Lojistik Regresyon tekniklerinin karşılaştırılması [The comparision of Mantel–Haenszel, Chi-Square and Logistic Regression Techniques for identifying Differential item functioning]. *Eğitim ve Bilim, 33*(148), 100-112.

Dunn, L. M., & Dunn, L. M. (1959). *Manual for the Peabody Picture Vocabulary Test-revised*. Circle Pines, MN: American Guidance Service.

Erdem, B. (2015). *Ortaöğretime geçişte kullanılan ortak sınavların değişen madde fonksiyonu açısından kitapçık türlerine göre farklı yöntemlerle incelenmesi* (Yayımlanmamış yüksek lisans tezi). Hacettepe Üniversitesi, Ankara, Türkiye.

Forsyth, R. A., & Spratt, K. F. (1980). Measuring problem solving ability in mathematics with multiple-choice items: The effect of item format on selected item and test characteristics. *Journal of Educational Measurement*, *17*(1), 31-43.

French, B. F., & Maller, S. J. (2007). Iterative purification and effect size use with Logistic Regression for differential item functioning detection. *Educational and Psychological Measurement, 67*(3), 373-393.

Gierl, M., Khaliq, S. N., & Boughton, K. (1999). *Gender differential item functioning in mathematics and science: Prevalence and policy implications.* Paper presented at the annual meeeting of the Canadian Society for the Study of Education, Sherbrooke, Quebec.

Gök, B., Kellecioğlu, H., & Doğan, N. (2010). Değişen madde fonksiyonunu belirlemede Mantel–Haenszel ve Lojistik Regresyon tekniklerinin karşılaştırılması

[The comparision of Maentel-Haenszel and Logistic Regression techniques in determinin differential item functioning]. *Eğitim ve Bilim*, *35*(156), 3-16.

Green, B. F., Crone, C. R., & Folk, V. G. (1989). A method for studying differential distractor functioning. *Journal of Educational Measurement*, *26*(2), 147-160.

Hambleton, R. K., & Traub, R. E. (1974). The effects of item order on test performance and stress. *The Journal of Experimental Education*, *43*(1), 40-46.

Harasym, P. H., Leong, E. J., Violato, C., Brant, R., & Lorscheider, F. L. (1998). Cuing effect of" all of the above" on the reliability and validity of multiple-choice test items. *Evaluation & the health professions*, *21*(1), 120-133.

Hidalgo, M. D., & LÓPez-Pina, J. A. (2004). Differential Item Functioning detection and Effect Size: A Comparision between Logistic Regression and Mantel-Haenszel procedures. *Educational and Psychological Measurement, 64*(6), 903-915.

Holland, P. W., & Wainer, H. eds. (1993). *Diferential item functioning.* Hillsdale, N.J.: Erlbaum.

Hughes, H. H., & Trimble, W. E. (1965). The use of complex alternatives in multiple choice items. *Educational and Psychological Measurement*, *25*(1), 117-126.

Ikeda, E. (1995). Raters differential item functioning and Mantel-Haenszel procedures Applied to an item analysis of write-answer type test. *Japanese Journal Of Educational Psychology, 43*(3), 343-350.

Jensen, A. R. (1980). *Bias in mental testing*. New York: Free Press.

Jodoin, M. G., & Gierl, M.J. (2001). Evaluating Type I Error and Power Rates using an Effect Size Measure with the Logistic Regression procedure for DIF detection. *Applied Measurement in Education, 14*(4), 329-349.

Kalaycıoğlu, D. B., & Kelecioğlu, H. (2011). Öğrenci Seçme Sınavı'nın madde yanlılığı açısından incelenmesi [Item bias analyses of the University Entrance Exam]. *Eğitim ve Bilim, 36*(161), 3-13.

Karakaya, İ., & Kutlu, Ö. (2012). Seviye belirleme sınavındaki Türkçe alt testlerinin madde yanlılığının incelenmesi [An investigation of item bias n Turkish sub Tests in Level Determination Exam]. *Eğitim ve Bilim, 37*(165), 348-362.

Katz, J., Demir, N., Önen, F., Uzlukaya, A., & Uludağ, A. (1972). *Türkçe konuşan çocuklar için Peabody resim kelime testi resim dizisi (Peabody Picture-Vocabulary Test)*. Ankara Rehberlik ve Araştırma Merkezi. Ankara.

Köse, İ. A. (2015). PISA 2009 öğrenci anketi alt ölçeklerinde (Q32-Q33) bulunan maddelerin değişen madde fonksiyonu açısından incelenmesi [Investigation of items in PISA 2009 Student Questionnaire Subscales (Q32-Q33) in terms of differential item functioning]. *Kastamonu Eğitim Dergisi, 23*(1), 227-240.

Kurnaz, F. B., & Kelecioğlu, H. (2008). Investigation of Peabody Picture Vocabulary Test from the point of item bias. *World Applied Sciences Journal, 3*(2), 231-239.

Lord, F. M. (1980). *Applications of item response theory to practical testing problems*. Routledge.

Love, T. E. (1997). Distractor selection ratios. *Psychometrika*, *62*(1), 51-62.

Maij-de Meij, A. M., Kelderman, H., & Van Der Flier, H. (2010). Improvement in detection of differential item functioning using a mixture item response theory model. *Multivariate Behavioral Research*, *45*(6), 975-999.

Magis, D., Beland, S., Tuerlinckx, F., & De Boeck, P. (2010). A general framework and an R package for the detection of dichotomous differential item functioning. *Behavior Research Methods, 42*, 847-862.

Maller, S. J. (2001). Differential item functioning in the WISC-III: Item parameters for boys and girls in the national standardization sample. *Educational and Psychological Measurement, 61*(5), 793-817.

Meyer, J. P., & Wise, S. (2006). *Including item response time in a distractor analysis via Multivariate Kernel Smoothing*. National Council on Measurement in education (NCME).

Narayanon, P., & Swaminathan, H. (1996). Identification of items that show nonuniform DIF. *Applied Psychological Measurement, 20*(3), 257-274.

Osterlind, S. J. (1983). *Test item bias* (Vol. 30). Sage.

Öner, N. (1997). *Türkiye'de kullanılan psikolojik testler: Bir başvuru kaynağı*. İstanbul: Boğaziçi Üniversitesi Yayınları.

Özgüven, İ. E. (1994). *Psikolojik testler*. Psikoloji Danışma Rehberlik ve Eğitim Merkezi (PDREM) Yayınları.

Penfield, R. D. (2008). An Odds Ratio approach for assessing differential distractor functioning effects under the Nominal Response Model. *Journal of Educational Measurement*, *45*(3), 247-269.

Penfield, R. D. (2010). Modeling DIF effects using distractor-level invariance effects: Implications for understanding the causes of DIF. *Applied Psychological Measurement*, *34*(3), 151-165.

Petersen, M. A., Groenvold, M., Bjorner, J. B., Aaronson, N., ... & Sullivan, M. (2003). Use of differential item functioning analysis to assess the equivalence of translations of a questionnaire. *Quality of Life Research, 12*(4), 373-385.

Ryan, K. E., & Chiu, S. (2001). An examination of item context effects, DIF, and gender DIF. *Applied Measurement in Education*, *14*(1), 73-90.

Roznowski, M., & Reith, J. (1999). Examining the measurement quality of tests containing differentially functioning items: Do biased items result in poor measurement?. *Educational and Psychological Measurement, 59(*2), 248-269.

Sehmitt, A. P., & Dorans, N. J. (1990). Differential item functioning for minority examinees on the SAT. *Journal of Educational Measurement*, *27*(1), 67-81.

Stump, T. E., Monahan, P., & Mchorney, C. A. (2005). Differential item functioning in the short portable mental status questionnaire. *Research on Aging, 27*(3), 355-384.

Suh, Y., & Talley, A. E. (2015). An empirical comparison of DDF detection methods for understanding the causes of DIF in multiple-choice items. *Applied Measurement in Education*, *28*(1), 48-67.

Temiz, G. (2002). *Okulöncesi eğitimin çocuğun dil gelişimine olan etkisi* (Yayımlanmamış doktora tezi). Selçuk Üniversitesi, Konya, Türkiye.

Terzi, R., & Suh, Y. (2015). An odds ratio approach for detecting DDF under the nested logit modeling framework. *Journal of Educational Measurement, 52*(4), 376-398.

Terzi, R., & Yakar, L. (2018). Differential item distractor functioning analyses on Turkish High School Entrance exam. *Journal of Measurement and Evaluation in Education and Pshchology, 9*(2), 136-149.

Thissen, D., Steinberg, L., & Fitzpatrick, A. R. (1989). Multiple-choice Models: The distractors are also part of the item. *Journal of Educational Measurement*, *26*(2), 161-176.

Tian, F., Pang, X. L., & Boss, M. W. (1994). *The effects of sample size and criterion variable on the identification of DIF by the Mantel-Haenszel and Logistic Regression procedures.* In Annual Meeting of the American Educational Research Association, New Orleans, LA.

Tunç, E. B., & Kutlu, Ö. (2018). İki ve çok kategorili puanlanan maddelerde değişen madde fonksiyonlarının karşılaştırılması [Comparision of differential item functioning for two-category scored and multi-category scored items]. *Başkent University Journal of Education*, *5*(1), 40-50.

Van de Vijver, F. J. R. (2018). Towards an integrated framework of bias in noncognitive assessment in international large-scale studies: Challenges and prospects. *Educational Measurements: Issues and Practice,37*(4), 49-56.

Washington, J. A., & Craig, H. K. (1999). Performances of at-risk, African American preschoolers on the Peabody Picture Vocabulary Test-III. *Language, Speech, and Hearing Services in Schools, 30*(1), 75-82.

Washington, J. A. (1996). Issues in assessing the language abilities of African American children. In A. G. Kamhi, K. E. Pollock, & J. Harris (Eds.), *Communication development and disorders in African American children: Research, assessment, and intervention* (pp. 35-54). Baltimore, MD: Paul H. Brookes.

Wiberg, M. (2007). *Measuring and detecting differential item functioning in criterion-referenced licensing test: A theoretic comparison of methods*. Retrieved from: http://umu.diva-portal.org/smash/record.jsf?pid=diva2%3A146028&dswid=1318.

Yıldırım, A. (2017). *PISA 2009 okuma becerileri alanındaki maddelerin tek değişkenli ve çok değişkenli eşleştirme yöntemi ile değişen madde fonksiyonlarının incelenmesi* (Yayımlanmamış doktora tezi). Ankara Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.

Yıldırım, H., & Büyüköztürk, Ş. (2018). Using the Delphi Technique and focus-group interviews to determine item bias on the Mathematics Section of the Level Determination Exam for 2012. *Educational Sciences: Theory & Practice*, *18*(2), 447-470.

Yurdugül, H. (2003). *Ortaöğretim Kurumları Seçme ve Yerleştirme Sınavının madde yanlılığı açısından incelenmesi* (Yayımlanmamış doktora tezi). Hacettepe Üniversitesi, Ankara, Türkiye.

Zwick, R. (1991). Effects of item order and context on estimation of NAEP reading proficiency. *Educational Measurement: Issues and Practice*, *10*(3), 10-16.

Zumbo, B. D. (1999). *A handbook on the theory and methods of differential item functioning (DIF)*. Ottawa: National Defense Headquarters.

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EFL Teachers' Assessment Literacy of Young Learners: Findings from a Small-Scale Study*

İngilizce Öğretmenlerinin Çocuklara Yönelik Değerlendirme Okuryazarlığı: Küçük Ölçekli Bir Çalışmanın Bulguları

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ABSTRACT: Assessing language skills is crucial for checking the quality of teaching. Teacher assessment literacy plays a vital role in deciding on the quality of classroom assessment. Although assessment is a time-taking process, the assessment of foreign language speaking and writing with their unique characteristics requires more time, effort, and expertise. Moreover, assessing the language production of young learners requires much more attention because the assessment is a part of teaching and has cognitive and socio-cultural foundations. Therefore, this small-scale qualitative research investigated three English teacher's views and practices on how they assess their young learners' speaking and writing skills. Data were collected via semi-structured interviews and subjected to content analysis. The findings revealed the mismatches between teachers' views and practices. It was found that the teachers did not adopt the assessor identity due to various barriers; namely, problems in teacher training and development, avoiding assessing productive skills, and the necessity for rater training. The findings suggest that the assessment literacy of the teachers needs to be improved. Therefore, pre-service teacher education programs should emphasise the identity development of language teachers as assessors. Additionally, in-service training is required for enhancing the assessment literacy of the language teachers.

Keywords: Assessment literacy, language assessment, young learners, assessing writing, assessing speaking.

ÖZ: Dil becerilerinin değerlendirilmesi, öğretimin kalitesini kontrol etmek için çok önemlidir. Benzer şekilde, öğretmen değerlendirme okuryazarlığı sınıf değerlendirmelerinin kalitesine karar vermede hayati bir rol oynamaktadır. Değerlendirme zaman alıcı bir süreç olmasının yanı sıra, yabancı dilde konuşma ve yazmanın kendine has özellikleri ile değerlendirilmesi daha fazla zaman, çaba ve uzmanlık gerektirir. Ayrıca, çocukların dil üretimini değerlendirmek çok daha fazla dikkat gerektirir çünkü değerlendirme öğretimin bir parçasıdır ve bilişsel ve sosyo-kültürel temelleri vardır. Bu olgulara dayanarak, bu vaka çalışması, üç İngilizce öğretmeninin, sınıflarındaki çocukların konuşma ve yazma becerilerini nasıl değerlendirdiklerine ilişkin görüş ve uygulamalarını araştırmaktadır. Veriler yarı yapılandırılmış görüşmeler yoluyla toplanmış ve içerik analizine tabi tutulmuştur. Bulgular öğretmenlerin görüş ve uygulamaları arasında uyuşmazlıklar olduğunu göstermektedir. Öğretmenlerin, öğretmen yetiştirme ve geliştirmedeki problemler, konuşma ve yazma becerilerin değerlendirilmesinden kaçınılması ve puanlayıcı eğitimi gerekliliği gibi çeşitli nedenlerden dolayı değerlendirici kimliğini benimsemedikleri bulunmuştur. Bulgular öğretmenlerin değerlendirme okuryazarlığının iyileştirilmesi gerektiğini göstermektedir. Bu nedenle, öğretmen yetiştirme programları, yabancı dil öğretmenlerinin değerlendirici kimlik geliştirmeleri üzerinde durmalıdır. Ayrıca yabancı dil öğretmenlerinin değerlendirme okuryazarlıklarını geliştirmek için hizmet içi eğitimler yapılmalıdır.

Anahtar kelimeler: Değerlendirme okuryazarlığı, yabancı dilde değerlendirme, genç öğrenenler, yazmayı değerlendirme, konuşmayı değerlendirme.

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A teacher is sine qua non of classroom-based language testing and assessment (LTA). Teachers need to assess the success and performance of their students for making educational decisions through their teaching lives, and this assessment occurs in various situations, for example, when developing teaching materials, arranging courses, adapting the pace of instruction, managing the classroom, selecting homework, providing feedback as well as deciding on scores, placement, and monitoring (e.g., Allal, 2013; Glock, Krolak-Schwerdt, & Pit-ten Cate, 2015; Stiggins, 1991; Thiede et al., 2015). Assessment related activities are reported to result in teachers spending half of their time (Plake, 1993); therefore, teachers require being assessment literate so as to ensure time management.

The literature abounds with definitions related to language assessment literacy which was rooted in the term *assessment literacy* coined by Stiggins (1991). Stiggins (1995) advocates that teachers who are good at assessment recognise things to be assessed, the reason for performing it, the appropriate way to gauge the ability, knowledge of interest, how to create favourable instances of learner performance, things that are not suitable for evaluation, and the way to block that from occurring). Teachers' LTA literacy consists of various skills that help the individual to comprehend, assess as well as generate language tests and analyse test data (Pill & Harding, 2013). O'Loughlin (2013) views it as a series of competencies "related to testing production, test score interpretation and use, and test evaluation in conjunction with the development of a critical understanding about the roles and functions of assessment within society" (p.363). Fulcher (2012) asserts that the LTA literacy of teachers refers to the knowledge and abilities that a person should have for planning, developing, maintaining or assessing, large-scale standardised, and/or classroom-based tests.

Teacher assessment literacy plays a vital role in deciding on the quality of classroom assessments. Assessment is regarded as the crucial thing we can do to help our students learn as it both initiates and fosters learning (White, 2009). Teachers' competence in LTA has remained under-investigated (Davison & Leung, 2009; Fulcher, 2012; Tsagari & Csépes, 2011) because recent research has delved into the vital role of assessment in student learning – both the impact of important examinations and the need for qualified practice-based classroom assessment (Looney, Cumming, van Der Kleij, & Harris, 2017). A considerable number of studies display that EFL teachers generally lack sufficient assessment literacy and that their classroom assessment practices stay at the alarming rate (Ölmezer-Öztürk & Aydın, 2019; Tsagari & Vogt, 2017; Vogt & Tsagari, 2014). In the Turkish context, Hatipoğlu (2015) conducted a study with 124 student teachers to examine the assessment knowledge of pre-service teachers and their expectations from the testing course. The researcher found that all of the students expected to assess, choose and create tests, and prepare their learners for all types of tests. The pre-service teachers were also noted to have had limited assessment knowledge. Öz and Atay (2017) investigated Turkish EFL instructors' views on in-class language assessment and its link with their classroom practices. Findings revealed that although instructors claimed to be familiar with the basic terms related to classroom assessment, they had difficulty in reflecting their assessment knowledge into their classroom practice. Mede and Atay (2017) examined the assessment literacy of 350 Turkish EFL teachers working at the preparatory schools through an online questionnaire and found that participating teachers had limited assessment literacy and

need training in many domains of testing and assessment. Ölmezer-Öztürk and Aydın (2019) conducted a study in higher education with 542 EFL teachers working at schools of foreign languages to provide an overall picture regarding their general and skill-based Language Assessment Knowledge (LAK) level. They found that teachers had insufficient language assessment knowledge. Finally, Şişman and Büyükkarcı (2019) reviewed studies (from 1987 to 2019) examining language teachers' language assessment literacy and warned that the assessment literacy level of language teachers is low and need to be developed.

As shown in the research mentioned above, studies related to language assessment literacy of EFL teachers, particularly in the Turkish context, were conducted with adults (in higher education on this issue). Thus, there is an urgent need for identifying the LTA literacy of Turkish ELF teachers working at primary and secondary education levels. Primary schools are one of the workplaces in which teachers are asked to teach English, and gauge their students in every skill and integrated skills. In this level, teachers are expected to have the required knowledge of assessment as well as the development of learners. As a starting point, it is a must to contribute to the literature in terms of determining the LTA literacy of Turkish ELF teachers of young learners. In light of these observations, to address the gaps in previous research, the current study aims to gather in-depth information about the LTA literacy of Turkish ELF teachers of young learners.

Teacher Assessment Literacy in Practice (TALiP)

Based on relevant literature in teacher education, Xu and Brown (2016) have developed TALiP as a conceptual framework, which gains insights from Willis, Adie, and Klenowskis' (2013) model and DeLuca's (2012) framework (see Figure 1). This conceptual framework includes six components, starting from the knowledge base which is at the bottom of the pyramid, and ending with teacher identity (re)construction as assessors which stays at the top of the pyramid.

The *knowledge base remains* at the bottom of this pyramid. Xu and Brown (2016) advocate the knowledge base as a necessary, but insufficient condition in terms of TALiP, although no standards or criteria would exist without the knowledge base; therefore, causing poor or incorrect outcomes for teachers and students (Fulcher, 2012). This component consists of seven kinds of knowledge, and it can be conceded as a threshold. Teachers need to cross it in order to gain a chance to engage in assessment at a deeper level. The second component is about teacher understanding of assessment which is considered to be crucial for filtering and interpreting knowledge (Barnes, Fives, & Dacey, 2015; Fives & Buehl, 2012). Teacher beliefs, according to Xu and Brown (2016), serve as an explanatory and guiding framework through which theoretical knowledge is acquired and applied. According to them, teachers' understanding of assessment includes cognitive and affective aspects. While the former shows teachers' beliefs about what is right and false about assessment, the latter refers to emotional tendencies that teachers display concerning different facets and uses of assessment.

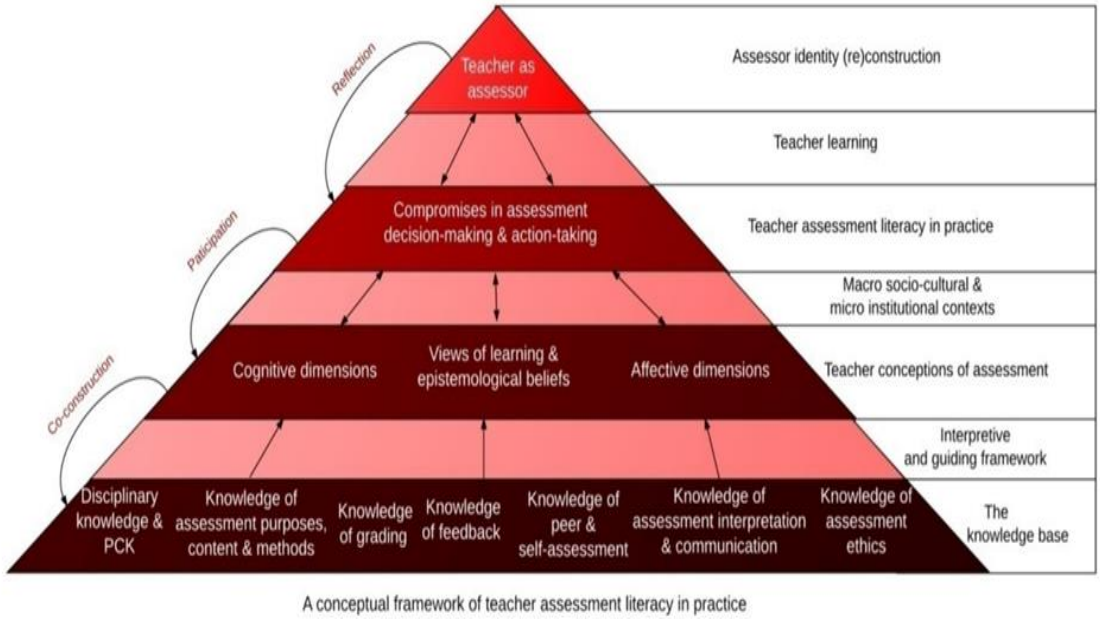

Figure 1. Xu and Brown's (2016) Conceptual Framework of TALiP

The third component indicates that working in a common place and broader communal, political, and cultural contexts limit in-service teachers act whatever they please in real performance. These variables affect teachers' assessment practices via policies and rules to generate a habit of certainty and consent that is not easily disputed by practitioners (Scarino, 2013). These boundaries can be in various forms, being small as pre-specified criteria or being large as nationwide assessment rules (Xu & Brown, 2016). The aforementioned contextual variables establish boundaries, which determine what teachers should do and avoid in their assessment practices (Gu, 2014). The fourth component refers to teachers' efforts to adjust the requirements of extrinsic determinants and their own beliefs (McMillan, 2003). Therefore, Xu and Brown (2016) argue that assessment literacy is better recognised as TALiP, which includes different compromises that teachers make to appease tensions. The fifth component of TALiP aims to help teachers give up on imitating traditional exercises that do not go with effective practices and foster teacher learning. From this point of view, teacher learning can be accepted as the driving force to influence changes in assessment and promote TALiP. The final component serves as the ultimate goal of TALiP. The teacher is considered as an assessor of learning as well as an instructor. If teachers become aware of their own identity as assessors, they likely become assessors of their own practices and they can combine different perspectives into their own understandings (Xu & Brown, 2016). This identity (re)construction as assessors helps them make more substantiated agreements in their assessment applications that may result in enhanced TALiP.

Assessing Young Language Learners

Assessment has many goals, and one of them is to help teachers discover how much their learners have learned throughout the process. Regarding the assessment of young language learners, recent research has focused on the range as well as the value

of teacher assessment and the evaluation process within formative and summative assessment (Rea-Dickins & Gardner, 2000). The results obtained by Rea-Dickins and Gardner (2000) indicate that teachers may need to utilise the formal tests to investigate the language targets that young learners may be considered to succeed since using informal classroom tests is not always appropriate. Although Chou (2014) used games, songs and stories to ease children's learning and studying of English words in her research, she underlined the necessity of adopting formal tests to investigate what children had acquired by the end of the lesson. Testing young learners does not resemble assessing adult language learners. Considering testing young learners, Hughes (2003) and McKay (2006) made several recommendations, such as using short and diverse tasks, and pictures. Teachers are expected to incorporate various assessment practices because using only one assessment method makes it impossible to meet the needs of students (Stiggins, 2002). In addition, Earl (2003) insists that teachers should avoid using only one assessment practice. Instead, they need to apply the amalgamation of assessment for (formative assessment), of (summative assessment), and as learning. The common point in all these statements is that the teacher needs to be equipped with various purposes of assessment and be able to utilise them accordingly (Green & Mantz, 2002). The present study aimed to identify the LTA literacy of Turkish ELF teachers in terms of their views and practices; to determine their assessment types; to examine their teacher identity. Accordingly, the research questions of the present study are as follows:

1. What are the views and practices of Turkish EFL teachers on language assessment?
2. What is the perceived identity of Turkish EFL teachers? (Teacher as an instructor? Teacher as an assessor? Or Both?)

Method

The present study follows a qualitative multiple case studies approach because it allows an in-depth analysis of cases and collects detailed information using various data collection procedures over a while (Creswell, 2013). The multiple cases also help to understand the situation by studying similarities and differences among the cases. In a case study, "a how or why question is being asked about a contemporary set of events over which the investigator has little or no control" (Yin, 1994, p. 9). The researchers seek answers to *how* and *why* questions regarding the assessment beliefs and practices of foreign language young learner teachers.

Participants

Three EFL teachers participated in the study. The participants were recruited purposively as a part purposive sampling, which "is a practical and efficient tool when used properly, and can be just as effective as, and even more efficient than, random sampling" (Tongco, 2007, p. 155), and they were the teachers of 5th-grade prep-class students in the academic year of 2017-2018 (please see Table 1 for their demographic characteristics). Before participating in the study, all participants provided written informed consent for ethical concerns.

Table 1

Demographics of Participants

Teacher	Gender	Age	Years of Experience	Graduation Degree*
Beril	Female	24	2	BA
Ali	Male	40	15	BA
Metin	Male	28	5	MA

*BA: Bachelor's degree, MA: Master's degree.

Table 1 presents that three EFL teachers (one female and two males) participated in the study. Their ages ranged from 24 to 40. They had been teaching English for 2, 5, and 15 years. Two of the teachers had a BA, while one had an MA. Although it was not indicated in the table, the data obtained from the interviews showed that teachers were working in the eastern part of Turkey and graduated from English language teaching (ELT) programs. There are two primary foreign language teacher education programs in Turkey. The first one is ELT programs of educational faculties. These programs are at the undergraduate level and earning a bachelor's degree requires four years of education. A second option is ELT certificate programs for graduate or ongoing students of linguistics, British language and literature, translation and interpreting or American culture and literature programs are one other way of becoming English teachers.

Context

In Turkey, primary school students begin learning English in the second grade. Recently, fifth grade has been determined as an intensive-English class within a project devised by the MoNE. The academic year of 2017-2018 was determined as the piloting year for the project, which was implemented in 620 secondary schools across Turkey. The project focuses on teaching English to young learners throughout a well-structured and balanced intensive English program (MoNE, 2017a). In other words, students at the age of 11 and 12 were provided with an intensified English class who had limited opportunities to use the target language in real life outside the classroom. This issue is common in countries like Turkey in which English is a foreign language. The MoNE (2017a) asserts that the program follows the tenets of communicative approach and it has been designed in line with the principles of CEFR by attaching significance to learner autonomy, critical thinking, and problem-solving. The participants of this study were graduates of ELT programs. The program includes more cultural elements to enhance students' cultural awareness and intercultural communication skills (Dincer & Koç, 2020).

Data Collection and Analysis

The data were gathered via semi-structured interviews. A semi-structured interview is a more flexible and common version of interviews (Holloway & Wheeler, 2010). Rubin and Rubin (2005) advocate that a semi-structured interview "allows depth to be achieved by providing the opportunity on the part of the interviewer to probe and expand the interviewee's responses" (p. 88). The researchers of the current study formed

a semi-structured interview forms consisting of two parts. The first part consisted of questions about participants' demographic information (gender, the region they work, professional experience, university … etc.). In the second part, questions and sub-questions aimed to identify their LTA literacy. The interview process followed two phases. In the first phase, the researchers made contact with participants to give brief information about the aim and content of the study. The goal of this step is to make interviewees familiar with the research environment for ensuring credibility (Richards, 2003). To increase both quantity and quality of the data, teachers were interviewed in their native language (Mackay & Gass, 2005). These interviews were audiotaped and transcribed.

Data analysis was carried out cyclically, with analysis being done on one batch of data as a way to inform the next steps of the research. To discover, develop, and form well-grounded interpretations, systematic data coding process is of importance (Mackey & Gass, 2012). While analysing the data, the researchers followed Dörnyei's (2007) stages of content analysis. First, all data were transcribed, because transcription is the first step of analysing and discovering themes (Rubin & Rubin, 2012). To ease the analysis process, the researcher adopted 'edited transcription' during transcribing the data, omitting hmm, uh, huh, etc. (Hansen, 2003, p. 136). Second, the researcher read the data for getting a general idea and for checking pre-coding. Then, the data was coded and categorised under themes by making interpretations and collaborative discussions were conducted to enrich the interpretation. The remaining data analysis procedure involved negotiating agreement for discrepancies in coding. Additionally, a third coder served as an external auditor (Creswell, 2012). Miles and Huberman's (1994) formula was applied for interrater reliability which was found as 90%, which is a satisfactory level (Miles & Huberman, 1994). The analysis utilised peer debriefing and member check to increase reliability. Pseudonyms were used in reporting the findings.

Results

Findings were provided with respect to research questions. As for the first research question, which aimed at displaying the views and practices of Turkish EFL teachers on language assessment, the findings of the semi-structured interviews were given below. Table 2 displays not only the views and practices of English language teachers in relation to language assessment but also tracks the harmony of the views and practices.

Table 2

Turkish EFL Teachers' Views and Practices on Language Assessment

Teachers	Views	Practices
Beril	Multiple assessment tools and techniques are required	Grammar, vocabulary, and translation
Ali	Productive skills must be assessed	Grammar-based exams
Metin	Presentations, tasks, demonstrations, role-plays	Grammar-based exams, and speaking

As Table 2 shows, there are mismatches between teachers' views and practices. More specifically, they had difficulty in reflecting their assessment beliefs and knowledge into their classroom practice. For example, in terms of views, participants believed that;

> **Beril**: It is not ideal to assess learners' language proficiency only via traditional paper-pen based assessment tools. As far as I know, language proficiency cannot be gauged appropriately through multiple-choice questions. Instead, communicative activities and speaking sessions are of importance in addition to traditional assessment tools.
>
> **Ali**: Great importance needs to be paid to speaking and writing skills. Students write every word in English as they were pronounced due to the structure of their native (Turkish) language. Thus, it is important to foster their writing and speaking as well as pronunciation skills.
>
> **Metin**: Productive skills also need to be assessed. For example, students can be given some argumentative topics and they may be asked to present or demonstrate the related role-plays.

Although teachers underlined the importance of using various assessment tools and techniques and assessing productive skills through presentations, demonstrations, and role-plays, they were found to apply mostly grammar-based exams. They showed students' low level of language proficiency as one of the reasons for this situation. The other issue was claimed to be the fact that assessing productive skills is not a must. Here are some representative statements:

> **Beril**: As I mentioned before, I disagree with the traditional assessment tools. However, students are not good at speaking skills. They cannot even spell their names in English. Therefore, it is inevitable for me to conduct exams based on grammar, vocabulary, and translation although I tried to include listening and writing activities.
>
> **Ali**: Instead of taking into account the productive skills, the scores of paper-pen based exams are used for student evaluation. In other words, since it is not compulsory, I do not assess students through speaking activities.
>
> **Metin**: We are asked to use paper-pen based exams through for giving scores. Nevertheless, I sometimes gauge students' speaking ability and take into account their speaking scores.

The second research question examined whether Turkish EFL teachers were aware of their own identity as assessors. The findings showed that teachers did not adopt the assessor identity due to various barriers; namely, *problems in teacher training and development*, *avoiding assessing productive skills*, and *the necessity for rater training* (see Table 3). For example, the participants tended to use familiar traditional textbook-based assessment tools. They did not prefer using core speaking and writing activities. Moreover, they had low confidence in assessing speaking and writing skills. Last, they had difficulties in selecting the appropriate rubric or preparing their own rubrics.

Table 3

The Barriers to Teacher Assessment Literacy in Practice

Themes	Sub-themes
Problems in teacher training and development	• Lack of courses on assessing young learners • Need for in-service teacher education
Avoiding assessing productive skills	• Mere focus on assessing grammar and vocabulary • Avoiding assessment of communicative skills
The necessity for rater training	• Preparing rubrics • Using rubrics • Providing feedback on assessment • Skill-based assessment.

In the first theme concerning the problems in teacher training and development, three issues are addressed*: lack of courses on assessing young learners* and *the need for in-service teacher education*. All of the participants emphasised the related changes in both pre-service and in-service training considering the effective assessment of young learners.

> **Beril**: In my pre-service education, I do not remember whether we focused on assessing young learners or not. It would be better to learn how to assess young learners.
>
> **Ali**: I do not know how to assess the productive skills of young learners appropriately. Although there are available rubrics for serving this purpose, our scores for the same performance differ from each other, because we need support not only about the assessment of young learners but also about their development (cognitive, affective, physical, etc.).

Unlike Beril and Ali, Metin seemed to utilise speaking activities and assessment of speaking as he stated that "*Although we are asked to assess students through paper-pen based exams for giving scores, I also gauge students' speaking ability and take into account the speaking scores*." However, the data showed that he used English only on one day of the week. He confessed that "*On Fridays, we force ourselves to use only English.*"

Avoiding assessing productive skills is the second theme that confirms the result of the first research question, indicating that there are mismatches between teachers' views and practices. This means that teachers pay attention to the assessment of grammar and vocabulary but avoid assessing communicative skills. Here are some examples:

> **Beril**: The focus is on assessing grammar, vocabulary and translation. I did not assess speaking and writing skills.
>
> **Ali**: Although we are trying to include assessing speaking next semester, now our exams are grammar oriented.

The last theme, the necessity for rater training, showed the necessity for training on preparing rubrics, using rubrics, providing feedback on assessment, and skill-based assessment. Here are the views of the teachers:

> **Beril**: I would prefer we had an opportunity for training on the assessment of young learners as it is supposed to be more communicative. You know, it is got to be paired with games.
>
> **Ali**: I would like to attend the INSET programs by efficient professors in order to compensate for my inadequacy in scoring the performance-based activities.

> **Metin**: I believe I would benefit from a rater training in various ways, such as preparing my own speaking rubric.

According to this finding, teachers are in need of receiving rater training programs because they consider themselves inadequate in terms of preparing and using rubrics. In addition, teachers think that such kind of rater training programs may help them score the performance-based activities appropriately.

Discussion

Regarding the first research question, various mismatches occurred between teachers' views and practices. In other words, teachers were observed to have difficulty in reflecting their assessment beliefs and knowledge into their classroom practice. This confirms the findings noted by Öz and Atay (2017), who examined the relationship between perceptions and practices of Turkish EFL instructors towards in-class language assessment. They found an imbalance between teachers' assessment literacy and their classroom reflection, although the majority asserted to be acquainted with basic classroom assessment. In other words, their research did not reveal enough connections between the experience and assessment perception. In addition, Muñoz, Palacio, and Escobar (2012) investigated teacher's beliefs of assessment in general and whether they could put those beliefs into practice or not. Their study demonstrated a mismatch between teachers' beliefs and their practices. Xu and Brown (2016) assert that teacher beliefs serve as an interpretive and guiding framework through which theoretical knowledge is acquired and applied. Although teachers considered multiple assessment tools and techniques as vital for effective assessment of young learners, they mainly assessed their students via grammar-based exams. The study findings provide insight into the culture of language teaching in Turkey. Instead of communicative activities, Turkish teachers were reported to use the grammar-translation method (Büyükyavuz & İnal, 2008; Oktay, 2015). Moreover, Coskun (2016, p. 1), investigating "I can understand English, but I can't speak" syndrome in Turkey, found that some of the reasons for this syndrome are the grammar-based teaching in English lessons, inadequate speaking practices, speaking anxiety, and use of L1 by the teacher. The current study confirms this fact. Even though the course books and materials were communicatively oriented, the teachers of the young learners in this study had to focus on the forms of the language as assessing forms in the language takes less time. These mismatches may be due to the teachers' efforts to balance the requirements of outside factors and their own beliefs (McMillan, 2003).

The second research question was about the teacher assessment identity. That is, it questioned whether teachers considered themselves as assessors or not. If teachers do not consider themselves as assessors, what are the barriers to the teacher assessor identity? MoNE has recently redefined general teacher competencies under three main components: 1) teacher knowledge, 2) teacher skills, and 3) attitude and values (MoNE, 2017b). Teacher skills pertain to in- and out-of-class practices to design and manage teaching and assessment. Therefore, assessment is one of the skills that are necessary for teacher competency. A teacher is considered as an assessor of learning as well as an instructor. If teachers become aware of their own identity as assessors, they become the creators of their own evaluation practices, started doing self-reflection, and able to combine others' perspectives with their own values (Xu & Brown, 2016). However, it was seen that teachers did not feel as assessors because of various obstacles. For

example, although the English Teacher Education program (ELTE) focuses on training young learner EFL teachers, *Ali* does not remember a specific focus on assessing young learners. He believes he did not put into his pockets anything regarding the assessment of young learners. This finding can be claimed to be an urgent call for some continuing professional development sessions to the English language teaches to increase their awareness as well as to enhance their practices about their own assessment practices. As underlined by Stiggins (1988), much time and effort are needed for classroom assessment, because assessment-related activities in which teachers directly involved consume 40% of their time. It is also believed that there should be at least one assessment course in any effective pre or in-service program involving practitioners with evaluation expertise as well as practical experience (Kahl, Hofman, & Bryant, 2012).

Another issue was the avoidance of assessing communicative skills. Although participating teachers believed that young learners easily got bored during grammar-based instruction, they generally avoided assessing speaking. Young learners complied with their inappropriate pre- and in-service education, so the participants seem to follow the same routines with other teachers, instead of being the authors of their own assessment practices. This is also related to teachers' culture of learning. More specifically, the teachers' experiences in their own language learning seem to affect their teaching. The findings showed that the teachers focused on assessing the language forms instead of the language communicative functions. In other words, the teachers approach the language as an object but not teach the language itself. In other words, teachers try to teach about the language (e.g., grammar rules) instead of teaching the language itself (e.g. teaching the functions). The functional guidance offered in the Common European Reference for Languages (CEFR). In the CEFR (Council of Europe, 2001), the descriptors refer to communication practices demonstrated by language learners who are prone to perform the language for real-life purposes (Benigno & de Jong, 2016). Moreover, when the beliefs and practices of the participants are considered, it is reasonable to conclude that the teachers should be trained and motivated to utilise authentic assessment. The findings show that the teachers are willing to assess with alternative tools, but they are not motivated and not trained to do so. Pre-service and in-service teacher education should help teachers use alternative tools such as drama since it can be used to enrich and enliven the assessment (Rothwell, 2012).

The last theme (the necessity for rater training) showed the necessity for training on preparing rubrics, using rubrics, providing feedback on assessment, and skill-based assessment, which can be useful on reliable and dependable results as analytic and holistic scoring (Han, 2013). Considering Xu and Brown's (2016) TALiP, it is reasonable to conclude that the teachers lack sufficient information almost in all levels of the framework. Thus, as underlined by the participants, teachers need to be provided opportunities for training on assessment through the INSET programs by efficient professors in order to foster the quality of teacher assessment. Turkish EFL teachers in a study conducted by Mede and Atay (2017) asked for training in productive skills particularly speaking.

Conclusion

This study investigated the assessment literacy of three Turkish ELF teachers regarding their views and practices. The findings revealed that EFL teachers' assessment of young learners is not yet satisfying. There were some discrepancies between teachers' views and practices of the participating teachers. In other words, the participants could not reflect their assessment beliefs and knowledge into their classroom practice. The findings also showed that the teachers did not adopt the assessor identity due to various barriers; namely, problems in teacher training and development, avoiding assessing productive skills, and the necessity for rater training. When the final goal of TALiP (Xu & Brown, 2016) is considered, the findings of this research show that applying this model can be a good way to improve the assessment skills of language teachers. Considering the results of this current study, it is fair to advocate that the teachers of young learners should be provided with efficient INSET.

Implications and limitations

The study has some implications for stakeholders. First, the findings suggest that the assessment literacy of the teachers needs to be improved. Therefore, pre-service teacher education programs should emphasise the identity development of language teachers as assessors. Second, for in-service teachers, effective rater training INSET program should be initiated. Pre- and in-service education are essential because educating pre- and in-service teachers establish one of the most crucial dimensions in the quality assurance of language testing and assessment (Vogt & Tsagari, 2014). Third, school principals should provide language teachers with support for implementing alternative assessments by allowing them to be flexible in the assessment. Last, language teachers should notice the significance of the assessment. The teachers can use functional guidance suggested in the CEFR. More specifically, the age-appropriate set of functional descriptors of Benigno and de Jong (2016) can be used to assess young learners.

The study has some limitations. One limitation is that it was conducted with three EFL teachers and the teachers' self-reported data may be subject to bias. Another limitation is the lack of a diverse teacher population. Considering the findings and the limitations of this present study, it can be concluded that there is a need for more studies on assessment literacy of primary and secondary school teachers in Turkey. A future study can observe language teachers' classroom assessment practices. More in-depth large-scale studies can be carried out by using several data collection procedures such as observing classrooms or gathering data from various sources such as teacher and learner journals, narratives and the results of needs analyses. In addition, a similar study can be conducted with more participants from various backgrounds or schools so that it can indicate the implications of the larger groups. Last, further research studies can consider including schools from different regions in Turkey.

Statement of Responsibility

Sabahattin Yeşilçınar; conceptualisation, methodology, validation, formal analysis, writing–original draft, writing-reviewing & editing, visualisation, supervision, and project administration. Galip Kartal; conceptualisation, methodology, validation, investigation, data curation, writing–original draft, writing-reviewing & editing.

References

Allal, L. (2013). Teachers' professional judgement in assessment: A cognitive act and a socially situated practice. *Assessment in Education: Principles, Policy and Practice*, *20*(1), 20-34. https://doi.org/10.1080/0969594X.2012.736364

Barnes, N., Fives, H., & Dacey, C. M. (2015). Teachers' beliefs about assessment. In H. Fives & M. G. Gill (Eds.), *International Handbook of Research on Teacher Beliefs* (pp. 284-300). New York: Routledge.

Benigno, V., & de Jong, J. (2016). The global scale of English learning objectives for young learners: A CEFR-based inventory of descriptors. In M. Nikolov (Ed.), *Assessing young learners of English: Global and local perspectives*. New York: Springer.

Büyükyavuz O., & İnal S. (2008). A descriptive study on Turkish teachers of English regarding their professional needs, efforts for development and available resources. *The Asian EFL Journal*, *10*(3), 215-234.

Chou, M. H. (2014). Assessing English vocabulary and enhancing young English as a foreign language (EFL) learners' motivation through games, songs, and stories. *Education 3-13*, *42*(3), 284-297.

Coskun, A. (2016). Causes of the 'I can understand English but I can't speak' syndrome in Turkey. *i-manager's Journal on English Language Teaching*, *6*(3), 1-12.

Council of Europe. (2001). *Common European framework of reference for languages: Learning, teaching, assessment*. Cambridge, UK: Cambridge University.

Creswell, J. W. (2012). Educational research: Planning, conducting, and evaluating quantitative and qualitative research. Boston, MA: Pearson Publication.

Creswell, J. W. (2013). Research design: Qualitative, quantitative, and mixed methods approaches, Sage publications.

Davison, C., & Leung, C. (Eds.) (2009). Teacher-based assessment. *TESOL Quarterly*, Special Issue *43*(3), 389–562.

DeLuca, C. (2012). Preparing teachers for the age of accountability: Toward a framework for assessment education. *Action in Teacher Education, 34*(5/6), 576-591.

Dincer, A., & Koç, H. K. (2020). The implementation of an intensive English language program in the fifth grade in Turkey: A qualitative evaluation. *Journal of Theoretical Educational Science, 13*(1), 25-43.

Dörnyei, Z. (2007). *Research methods in applied linguistics: Quantitative, qualitative and mixed methodologies*. Oxford: Oxford University.

Earl, L. (2003). *Assessment as learning: Using classroom assessment to maximise student learning*, Corwin Press, Thousand Oaks, CA.

Fives, H., & Buehl, M. M. (2012). Spring cleaning for the "messy" construct of ceachers' beliefs: What are they? Which have been examined? What can they tell us? In K. R. Harris, S. Graham and T. Urdan (Eds.), *APA educational psychology handbook: Individual differences and cultural and contextual factors* (Vol. 2, pp. 471-499). Washington, DC: American Psychological Association.

Fulcher, G. (2012). Assessment literacy for the language classroom. *Language Assessment Quarterly*, *9*(2), 113-132.

Glock, S., Krolak-Schwerdt, S., & Pit-ten Cate, I. M. (2015). Are school placement recommendations accurate? The effect of students' ethnicity on teachers' judgments and recognition memory. *European Journal of Psychology of Education, 30*, 169-188.

Green, S. K., & Mantz, M. (2002). Classroom assessment practices: Examining impact on student learning. Paper presented at the *Annual Meeting of the American Educational Research* Association, New Orleans, LA.

Gu, P. Y. (2014). The unbearable lightness of the curriculum: What drives the assessment practices of a teacher of English as a Foreign Language in a Chinese secondary school? *Assessment in Education: Principles, Policy and Practice, 21*(3), 286-305.

Han, T. (2013). *The impact of rating methods and rater training on the variability and reliability of EFL students' classroom-based writing assessments in Turkish universities: An investigation of problems and solutions* [Doctoral dissertation]. Atatürk university, Erzurum, Turkey.

Hansen, K. (2003). *Writing in the social sciences: A rhetoric with readings.* Boston: Pearson Custom.

Hatipoğlu, Ç. (2015). English language testing and evaluation (ELTE) training in Turkey: Expectations and needs of pre-service English language teachers. *ELT Research Journal*, *4*(2), 111-128.

Holloway, I., & Wheeler, S. (2010). *Qualitative research in nursing and healthcare*. Oxford, UK: Blackwell.

Hughes, A. (2003). *Testing for language teachers* (2nd ed.). Cambridge: Cambridge University.

Kahl, S. R., Hofman, P., & Bryant, S. (2012). Assessment literacy standards and performance measures for teacher candidates and practicing teachers. Measured Progress. *Assessment*. Retrieved from https://www.memphis.edu/caep/caep/assessment-literacy-in-teacher-preparati.pdf.

Looney, A., Cumming, J., van Der Kleij, F., & Harris, K. (2018). Reconceptualising the role of teachers as assessors: teacher assessment identity. *Assessment in Education: Principles, Policy & Practice*, *25*(5), 442-467.

Mackay, A., & Gass, S. (2005). *Second language research: Methodology and design*. mahwah, New Jersey: Lawrence Erlbaum Associates.

Mackey, A., & Gass, S. (2012). *Research methods in second language acquisition: A practical guide*. Oxford: Wiley-Blackwell

McKay, P. (2006). *Assessing young language learners*. Cambridge: Cambridge University.

McMillan, J. H. (2003). Understanding and improving teachers' classroom assessment decision making: Implications for theory and practice. *Educational Measurement: Issues and Practice*, *22*(4), 34–43.

MoNE (2017a). Yabancı dil ağırlıklı 5. Sınıf İngilizce dersi öğretim programı. Retrieved from

https://dogm.meb.gov.tr/meb_iys_dosyalar/2017_09/26153336_5._SINIF_YNG._PROGRAMI.pdf

MoNE (2017b). Öğretmenlik mesleği genel yeterlikleri. Ankara: Öğretmen Yetiştirme ve Geliştirme Genel Müdürlüğü. Retrieved from http://oygm.meb.gov.tr/meb_iys_dosyalar/2017_12/11115355_YYRETMENLYK_MESLEYY_GENEL_YETERLYKLERY.pdf

Mede, E., & Atay, D. (2017). English Language Teachers' assessment literacy: The Turkish context. *Dil Dergisi, 168*(1), 1-5.

Miles, M. B., & Huberman, A. M. (1994). Qualitative data analysis: An expanded sourcebook. London, UK: Sage

Muñoz, A. P., Palacio, M., & Escobar, L. (2012). Teachers' beliefs about assessment in an EFL context in Colombia. *Profile Issues in Teachers Professional Development, 14*(1), 143-158.

Oktay, A. (2015). Foreign language teaching: A problem in Turkish education. *Procedia - Social and Behavioral Sciences, 174*(1), 584-593.

O'Loughlin, K. (2013). Developing the assessment literacy of university proficiency test users. *Language Testing, 30*(3), 363-380.

Ölmezer-Öztürk, E., & Aydın, B. (2019). Investigating language assessment knowledge of EFL teachers. *Hacettepe University Journal of Education, 34*(3), 602-620. https//doi.org/10.16986/HUJE.2018043465

Öz, S., & Atay, D. (2017). Turkish EFL teachers' in-class language assessment literacy: Perceptions and practices. *ELT Research Journal, 6*(1), 25-44.

Pill, J., & Harding, L. (2013). Defining the language assessment literacy gap: Evidence from a parliamentary enquiry. *Language Testing, 30*(3), 381-402.

Plake, B. S. (1993). Teacher assessment literacy: Teachers' competencies in the educational assessment of students. *Mid-Western Educational Research, 6*(1), 21-27.

Rea-Dickins, P., & Gardner, S. (2000). Snares and silver bullets: Disentangling the construct of formative assessment. *Language Testing, 17*(2), 215-243.

Richards, K. (2003). *Qualitative inquiry in TESOL*. Springer.

Rothwell, J. (2012). Drama and languages education: authentic assessment through process drama. In Winston, J (Ed.), *Second language learning through drama: practical techniques and applications* (pp. 54-68). Routledge, United States of America.

Rubin, H. J., & Rubin, I. S. (2005). *Qualitative interviewing: The art of hearing data* (2nd ed.). Thousand Oaks, CA: Sage.

Rubin, H. J., & Rubin, I. S. (2012). *Qualitative interviewing: The art of hearing data.* Los Angeles: SAGE.

Scarino, A. (2013). Language assessment literacy as self-awareness: Understanding the role of interpretation in assessment and in teacher learning. *Language Testing, 30*(3), 309-327.

Stiggins, R. J. (1988). Revitalising classroom assessment: The highest instructional priority. *The Phi Delta Kappan, 69*(5), 363-368.

Stiggins, R. J. (1991). Assessment literacy. *Phi Delta Kappan*, *72*(7), 534-539.

Stiggins, R. J. (1995). Assessment literacy for the 21st century. *Phi Delta Kappan*, *77*(3), 238-245.

Stiggins, R. J. (2002) Assessment crisis! The absence of assessment FOR learning. *Phi Delta Kappan, 83*(10), 758-765.

Şişman, E. P., & Büyükkarcı, K. (2019). A review of foreign language teachers' assessment literacy. *Sakarya University Journal of Education*, *9*(3), 628-650.

Thiede, K. W., Brendefur, J. L., Osguthorpe, R. D., Carney, M. B., Bremner, A., Strother, S.,…Jesse, D. (2015). Can teachers accurately predict student performance? *Teaching and Teacher Education*, *49*, 36-44.

Tongco, M. D. C. (2007). Purposive sampling as a tool for informant selection. *Ethnobotany Research and Applications, 5*, 147-158.

Tsagari, D., & Csépes, I. (2011) (Eds.). *Classroom-based language assessment*. Frankfurt am Main: Peter Lang.

Tsagari, D., & Vogt, K. (2017). Assessment literacy of foreign language teachers around Europe: Research, challenges and future prospects. Papers in *Language Testing and Assessment*, *6*(1), 41-63.

Vogt, K., & Tsagari, D. (2014). Assessment literacy of foreign language teachers: Findings of a European study. *Language Assessment Quarterly*, *11*(4), 374-402.

White, E. (2009). Are you assessment literate? Some fundamental questions regarding effective classroom-based assessment. *OnCUE Journal*, *3*(1), 3-25.

Willis, J., Adie, L., & Klenowski, V. (2013). Conceptualising teachers' assessment literacies in an era of curriculum and assessment reform. *The Australian Educational Researcher*, *40*(2), 241-256.

Xu, Y., & Brown, G. T. L. (2016). Teacher assessment literacy in practice: A Reconceptualisation. *Teaching and Teacher Education*, *58*, 149-162.

Yin, R. K. (1994). *Case study research: Design and methods* (2nd ed.). Thousand Oaks, CA: Sage.

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Development of Teacher Job Performance Scale and Determining Teachers' Job Performance Level*

Öğretmen İş Performansı Ölçeğinin Geliştirilmesi ve Öğretmenlerin İş Performansı Düzeyinin Belirlenmesi

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ABSTRACT: This study aims to develop a valid and reliable scale to measure teachers' self-reported job performance and use it for the first time on the target group. In line with this aim, the current study employed a single surveying model. The study sample consisted of three groups. There are 265 teachers in the first group; 509 teachers in the second and 1935 teachers in the last one. Exploratory factor analysis and confirmatory factor analysis were used to determine the factor structure of the teachers' job performance scale (TJPS). Cronbach's Alpha reliability coefficient and item statistics were also calculated. Results showed that the TJPS is a valid and reliable three-dimensional measure: task performance (16 items), contextual performance (9 items) and adaptive performance (12 items). On the other hand, teachers' performance level is "always" for task, adaptive and the overall scale and sometimes for contextual performance. Based on the findings, some suggestions were made.

Keywords: Teacher, job performance, scale development.

ÖZ: Bu araştırmanın amacı öğretmenlerin iş performansını öz-bildirim yöntemiyle ölçmede kullanılabilecek geçerli ve güvenilir bir ölçme aracı geliştirmek ve geliştirilen ölçeğin ilk uygulamasını hedef grup üzerinde yürütmektir. Bu amaç doğrultusunda, araştırmada tekil tarama yöntemi esas alınmıştır. Araştırma üç farklı çalışma grubu üzerinde yürütülmüştür. Birinci çalışma grubunda 265 öğretmen; ikinci çalışma grubunda 509 öğretmen ve üçüncü çalışma grubunda 1935 öğretmen yer almaktadır. Öğretmen iş performansı ölçeğinin yapı geçerliğini test etmek amacıyla açımlayıcı faktör analizi ve doğrulayıcı faktör analizi yürütülmüştür. Güvenirlik analizleri kapsamında ise Cronbach Alfa güvenirlik katsayısı ve madde istatistikleri hesaplanmıştır. Elde edilen bulgular ölçeğin geçerli ve güvenilir bir ölçme aracı olduğuna işaret etmektedir. Ölçek görev performansı (16 madde), bağlamsal performans (9 madde) ve uyumsal performans (12 madde) olmak üzere üç boyuttan oluşmaktadır. Ayrıca, elde edilen bulgular öğretmen iş performansının görev performansı, uyumsal performans ve ölçek genelinde "her zaman" bağlamsal performans boyutunda ise "ara sıra" düzeyinde olduğunu göstermektedir. Bulgular temelinde birtakım öneriler getirilmiştir.

Anahtar kelimeler: Öğretmen, iş performansı, ölçek geliştirme.

* This study is a part of doctoral thesis prepared by the first author under the supervision of second author.

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The ability of organizations to continue their operations and achieve their goals depends largely on employee performance. Job performance is simply defined as all behaviors in which employees engage at work (Jex & Britt, 2008) or as measurable actions, behaviors and outputs directly engaged in or indirectly caused by employees to serve organizational objectives (Viswesvaran & Ones, 2000). In another definition Motowidlo (2003) states that job performance is the expected total value of behavioral episodes displayed by the employee at a given period. According to Jamal (2007) job performance can be defined as the extent to which an employee can carry out the tasks successfully using the organizational resources under regular conditions. As can be understood from the definitions, job performance can be conceptualized in terms of employee behavior or outcomes produced by the employee. However, in this study teachers' job performance is dealt with a behavioral perspective.

Motowidlo, Borman, and Schmit (1997) put forward some assumptions about job performance. These assumptions can briefly be summarized as follows:

- Job performance is behavioral which means that circumstances not controlled by the employee can be influential on it. In this sense, an approach based on only outcomes will not reflect the contribution to organizational objectives truly.
- Job performance is episodic which means that an employee can sometimes be engaged in activities that do not contribute to organizational objectives.
- Job performance is evaluative which means that behavioral episodes can display variance in terms of the extent of the contribution they provide for organizational objectives.
- Job performance is multi-dimensional.

As stated in the last assumption above job performance is multidimensional (Campbell, Mchenry, & Wise, 1990; McCloy, Campbell, & Cudeck, 1994) and they vary in the literature (Campbell et al., 1990; Carlos & Rodrigues, 2016; Griffin, Neal, & Parker, 2007; Koopmans, Bernaards, Hildebrandt, Vet, & Beek 2013; Pradhan & Jena, 2017; Ramawickrama, Opatha, & Pushpakumari, 2017; Robbins & Judge, 2012; Welbourne, Johnson, & Erez, 1998). However, this study is based on the teacher job performance framework (task performance, contextual performance and adaptive performance) developed by Bhat and Beri (2016). Thus, we will briefly explain these three performance dimensions respectively.

Task Performance

In the literature task performance is used interchangeably with the terms of role performance (Cohen & Liu, 2011; Johari & Yahya, 2009; Williams & Anderson, 1991; Zhu, 2013), role-based performance (Welbourne, Johnson, & Erez, 1998), task proficiency (Stout, Salas, & Carson, 1994) and technical skills (Wade & Parent, 2002). Despite these different conceptualizations, it refers to the same thing. Task performance is defined as fixed task outcomes that distinguish one profession from another (Witt, Kacmar, Carlson, & Zivnuska, 2002). Task performance is profession-specific because it excludes performance factors common to most professions (Scotter & Motowidlo, 1996). It is directly associated with the achievement of organizational objectives and refers to predetermined behaviors, the dimensions of which are clearly stated in job

descriptions (Allworth & Hesketh, 1999). It arises when employees use their technical skills and knowledge to perform a specific task (Scotter, Motowidlo, & Cross, 2000).

Contextual Performance

The second dimension of job performance is contextual performance. It is stated by Coleman and Borman (2000) that contextual performance includes behaviors implied in organizational citizenship (Organ, 1990), prosocial behaviors (Brief & Motowidlo, 1986), extra-role performance (Van Dyne & LePine, 1998). Contextual performance refers to behaviors that do not directly contribute to the technical essence but create and maintain the psychological, social and organizational settings in which task performance is prominent (Griffin, Neal, & Neale, 2000; Witt et al., 2002). We can talk about contextual performance, when employees help others complete a task, collaborate with their superiors, or make suggestions to improve organizational processes (Scotter et al., 2000). According to Robbins and Judge (2012), good employees are those who can perform the desired behaviors in both task and contextual performance.

Adaptive Performance

The last dimension of job performance is adaptive performance. The perception that organizations are facing more and more uncertainty and employee roles are becoming more dynamic and flexible increased the interest in modelling the performance competencies which are required to cope with these changes and uncertainty (Campbell, 2012). Because of fast-changing nature of organizational activities, adopting new skills and the ability to adapt to different situations have become substantial for organizations to obtain their objectives (Charbonnier-Voirin, Akremi, & Vandenberghe, 2010) and brought about the concept of adaptive performance (Allworth & Hesketh, 1999; Pulakos, et al., 2002). In literature, adaptive performance is interchangeably used with terms such as adaptive ability (Ployhart & Bliese, 2006; Pulakos, Dorsey, & White, 2006), adaptation (Jundt, Shoss, & Huang, 2015), adaptive expertise (Wetzel, Arment, & Reed, 2015), adaptive transfer (Kluge, Sauer, Burkolter, & Ritzmann, 2010) and performance adaptation (Baard, Rench, & Kozlowski, 2013). However, adaptive performance is defined as the ability of employees to change their behavior to respond to demands arising from new situations (Charbonnier-Voirin & Roussel, 2012; Shoss, Witt, & Vera, 2011) or as the extent to which they can adapt to changes (in the organizational system as a whole or in the definition of its role) (Ramawickrama et al., 2017). According to Allworth and Hesketh (1999), adaptive performance can be defined, in broad terms, as the ability to cope with change and transfer learning from one task to another in the face of changing job demands.

In today's competitive environment, organizations need employees who can perform well in all three dimensions mentioned above. Educational organizations are especially in need of such employees. This makes teachers' job performance critical because they are the most important stakeholders of educational organizations. In this context, the next section deals with teacher job performance in particular.

Teachers' Job Performance

Most developed countries allocate a significant portion of their national budget to education because it plays a vital role in social development (Fadeyi, Sofoluwe, & Gbadeyan, 2015). The success of an educational system depends largely on the performance of teachers, who can be considered as the backbone of the system (Amin, Shah, Ayaz, & Atta, 2013; Hanif, 2004; Khan, Shah, Khan, & Gul, 2012).

In broader terms, teachers' job performance is defined as their contribution to the achievement of educational goals and objectives (Özdemir & Gören, 2017; Özdemir & Yirmibeş, 2016) while in some studies it is limited to teaching behavior (Bashir, Alias, Saleh, & Halizah, 2017; Okeniyi, 1995 cited in Amin et al., 2013). However, teachers' job performance applies not only to the classroom or school, but to all settings where students are present (Shaikh, Saad, & Bhutto, 2012). So, teachers' job performance can be regarded as multidimensional (Adeyemi, 2008; Ali & Haider, 2017; Amin et al., 2013; Demir, 2008; Hanif & Pervez, 2004; Mehmood, Qasim, & Azam, 2013; Yusoff, Ali, & Khan, 2014). These dimensions are preparation for the lesson, instruction, student evaluation, commitment, extracurricular activities, effective monitoring and inspection, effective leadership, motivation and discipline (Adeyemi, 2008); instructional, professional and personal qualities (Ali & Haider, 2017); contextual and task performance (Yusoff, Ali, & Khan, 2014); classroom management, considering individual differences among students, using motivational tools continuously, teaching style and methods, finding solutions to students' problems and guidance (Mehmood, Qasim, & Azam, 2013). However, this study employed the three-dimensional (task performance, contextual performance and adaptive performance) teacher job performance approach proposed by Bhat and Beri (2016).

Teachers are expected to carry out effective teaching, satisfy the students with his/her teaching quality and style, manage the time effectively in the classroom, discipline the class, carry out the tasks assigned to them by school administrators, motivate the students, be punctual and orderly and assure the students' academic achievement. Additionally, teachers are required to build positive relationships with the parents and their colleagues since these relationships have a direct or indirect effect on teachers' job performance. An effective teacher should always update himself/herself and adopt new skills (Hanif, 2004). On the other hand, the ones who go beyond their roles are the most desirable employees for organizations. Education organizations cannot be excluded in this sense. Policymakers introduce some reform initiatives aiming at a facilitating learning and school atmosphere. The ultimate aim of all these initiatives as mentioned above is to guarantee teachers to display extra-role behaviors (Duyar, Ras, & Pearson, 2015). According to OECD (2005), role expectations from teachers are much more comprehensive today. In individual student level these expectations are initiating and managing learning processes, responding to students' learning needs effectively, evaluating student learning; in classroom level instructing in multicultural classrooms, integrating students with special needs to the learning process, a cross-curricular focus. As for the school level, these expectations are teamwork, evaluation, and strategic planning, using educational technologies, administration and shared leadership. Lastly, in parent and society level providing professional guidance and creating partnerships for learning. On the other hand, according to Collie and Martin (2016), one of the distinguishing features of the teaching profession is that it requires a constant adaptation to daily innovations, change, and uncertainty. Teachers have to

apply to various resources to respond to students' needs during the instruction. They also have to manage his emotions and adapt to unexpected situations in terms of classroom management. Effective collaboration with other shareholders is a must for teachers in case of changes in curriculum and regulations. When appointed to a new school or classroom, they have to communicate with their new colleagues and adapt to the priorities of his new school and its administration. Most of the schools change their timetable very often and they do this without notice. Teachers have to engage in continuous professional development and teach new knowledge. The changes in educational policies are another factor that requires the adaptation of teachers. Shortly, it can be asserted that teachers are required not only to carry out their tasks effectively but also to go beyond the job definitions. Additionally, they need to show a high level of adaptation to different and changing situations.

Since performance of teachers is extremely important for the effectiveness of the system, the studies on teachers' job performance in literature is abundant (Adejumobi & Ojikutu, 2013; Adayemi, 2008; Akman, 2018; Akyüz, 2012; Akyüz, 2013; Alkış & Güngörmez, 2015; Altaş & Çekmecelioğlu, 2015; Argon, Sezgin-Nartgün, & Göksoy, 2013; Bakker & Bal, 2010; Balkar, 2015; Büyükgöze & Özdemir, 2017; Chamundeswari, 2013; Cerit, 2012, 2015; Çöl, 2008; Dilekçi & Sezgin-Nartgün, 2020; Erdem, Gökmen, & Türen, 2016; Hanif & Pervez, 2004; Hanif, Tariq, & Nadeem, 2011; Hatipoğlu & Kavas, 2016; Kalay, 2016; Koç, Yazıcıoğlu, & Hatipoğlu, 2009; Korkmaz, 2005; Özdemir, 2017; Özdemir & Gören, 2017; Özdemir & Yirmibeş, 2016; Shalmani & Praveena, 2013; Shen, Benson, & Huang, 2014; Töre, 2018; Usop, Askandar, Langguyuan-Kadtong, & Usop, 2013; Yazıcıoğlu, 2010). However, the studies especially in national literature use narrow-scoped scales that address job performance as a unidimensional phenomenon (Cerit, 2012, 2015; Çöl, 2008; Şehitoğlu, 2010). The aim of this study was, therefore, to develop a more comprehensive scale to fill that gap. We believe that the scale will help us to identify strong and weak (individual and organizational) aspects of teacher performance and obtain findings that can be used to increase the effectiveness and quality of education (Hanif & Pervez, 2004). It will also allow us to determine teachers' job performance levels in a holistic manner and identify the demographics and other organizational variables that affect performance, which will help us to plan the in-service trainings offered to teachers accordingly.

Purpose of the Study

The purpose of this study is to develop a valid and reliable scale to measure teachers' job performance and determine teachers' job performance level employing the scale.

Method

Research Design

This is a scale development study but on the other hand it aims to determine teachers' job performance level. So, a single surveying model was used. Single surveying models allow us to focus on a single variable and examine its state at a given moment or its change over a given period (Şimsek, 2012).

Participants

The study participants consisted of three groups. The first group consisted of 265 teachers. Exploratory factor analysis (EFA) and reliability analyses were conducted on their data. Of the first group, 129 (51.3%) were women, 71 (26.8%) were primary school teachers, 84 (31.7%) were secondary school teachers and 110 (41.5%) were high school teachers. 58 (21.9%) had 0-5 years of work experience, 48 (18.1%) had 6-10 years of work experience, 64 (24.2%) had 11-15 years of work experience, 45 (17%) had 16-20 years of work experience and 50 (18.9%) had ≥21 years of work experience.

The second group consisted of 509 teachers. A confirmatory factor analysis (CFA) was performed on their data. Of the second group, 280 (55%) were women, 138 (27.1%) were primary school teachers, 152 (29.9%) were secondary school teachers and 219 (43%) were high school teachers. 161 (31.6%) had 0-5 years of work experience, 112 (22%) had 6-10 years of work experience, 75 (14.7%) had 11-15 years of work experience, 71 (13.9%) had 16-20 years of work experience and 90 (17.7%) had ≥ 21 years of work experience.

The third group consisted of 1935 teachers. 896 (46.3%) were women, 669 (34.6%) were primary school teachers, 661 (34.1%) were secondary school teachers and 605 (31.3%) were high school teachers. 462 (23.9%) had 0-5 years of work experience, 440 (22.7%) had 6-10 years of work experience, 330 (17.1%) had 11-15 years of work experience, 337 (17.4%) had 16-20 years of work experience and 366 (18.9%) had ≥21 years of work experience.

Data Collection

The scale that was used in this study were reviewed and approved by University of Bolu Abant İzzet Baysal Human Research Ethical Committee at 2018/06 meeting held on 9th of July, 2018. The data collection was carried out with the permission of Sakarya Provincial National Education Directorate (No: 29065503-44-E.17092559; Date: 21.09.2018) and the confirmation of Sakarya Governor's Office. The participation was voluntary.

This study employed online data collection procedure. With the advancement of technology online data collection has become a common method in social sciences (Akbulut, 2015; Avcıoğlu, 2014; Büyüköztürk, 2005; Çakıroğlu, 2008; Kılınç & Fırat, 2017; Loomis & Paterson, 2018; Payne & Barnfather, 2012; Stanton, 1998; Stanton & Rogelberg, 2001) because it has plenty of advantages (Çakıroğlu, 2008; Karakulakoğlu, 2014; Kılınç & Fırat, 2017; Loomis & Paterson, 2018). By employing an online method in data collection this study exploited these advantages. The scale items were prepared on Google Forms. An electronic link was sent to schools and school administrators sent this link to teachers.

Scale Development Process and Generating a Pool of Candidate Items

The scale development steps proposed by De Vellis (2017) were followed. The first step involves the determination of the behavior to be measured, which is teachers' self-reported job performance. The second step is the generation of a pool of candidate items. To this end, the literature was reviewed in detail, and it was determined that Koopmans et al. (2013) proposed the most comprehensive framework for job performance. The item pool was based on their framework and the indicators suggested

by them. Some other scales were also used to widen the item pool (Bhat & Beri, 2016; Carlos & Rodrigues, 2016; Charbonnier-Voirin & Roussel, 2012; Lynch, Eisenberger, & Armeli, 1999; Pradhan & Jena, 2017; Pulakos, Arad, Donovan, & Plamondon 2000; Raza, 2010; Yusoff et al., 2014). Face-to-face interviews were also conducted with four teachers to verify the item pool. They were asked four open-ended questions and asked to give examples of behaviors regarding the dimensions of job performance. Those examples were also included in the item pool. 85 candidate items were prepared. Based on the first assessment performed together with field experts, ten items measuring similar behaviors were discarded. Thus, the first 75-item draft scale was developed.

The measurement format was determined after generating the item pool. It was decided that the scale would have a 5-point Likert type format ranging from Never to Always (1: Never 2: Rarely 3: Occasionally, 4: Often, 5: Always).

The next step involved determining the content validity of the candidate items and consulting experts to revise them. 13 experts were consulted, and the content validity ratios of the items were calculated based on their ratings of the items using the formula suggested by Lawshe (1975). 25 items with a content validity ratio of less than 0.54 were discarded. Due to the potential challenges of addressing the issue quantitatively (Doğan & Kılıç, 2014), the 40-item "counter-productive job behavior" factor was excluded from the scope of the study in line with expert opinion and as stated in the literature. Again, based on expert opinion, 10 items were added to the scale. Consequently, the final number of items was 45.

Lastly, the 45-item draft was presented to a measurement and evaluation expert to check its face validity before validity and reliability analysis. Based on expert feedback, the items were revised, and the scale was finalized for validity and reliability analysis.

Results

Exploratory Factor Analysis

The steps and criteria proposed by Pallant (2007) were followed for EFA. In the first step, the sample size and correlation matrix were analyzed to determine whether the data set was suitable for factor analysis. According to Pallant, a sample of over 150 participants and at least 5 participants for each scale item are ideal. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy is expected to be >.60 and Bartlett's test of sphericity to be statistically significant ($p<.00$). If the data set is suitable for factor analysis, the second step involves determining the minimum number of factors that best represent the relationship between variables. The principal component analysis is the most widely used method. Kaiser's criterion and scree test were used to determine the number of factors. Kaiser's criterion refers to the consideration of factors with an eigenvalue of 1.00 or higher. The Scree test seeks factors above the point where the line forms an elbow. The final step of factor analysis is factor rotation. Varimax rotation was used to generate orthogonal factors.

The first analysis after checking the suitability of the data set for EFA yielded a 10-dimensional structure with an eigenvalue greater than 1. According to the scree plot, there was a significant rupture after the third dimension. Besides, according to the 5% rule, the eigenvalue of only three factors was greater than 5% of the total eigenvalue (Huck, 2012). Therefore, the number of factors was limited to three, and the analysis

was repeated. At this stage, items 5, 6, 43, 45, 29, 32, 7 and 30 with low or overlapping factor loadings were excluded from EFA one by one, and the process was repeated. Consequently, 37 items loaded on three factors, and the factor structure satisfied the cut off values in literature. The results are presented below.

The Kaiser-Meyer-Olkin (KMO) was .90, for which Bartlett's test of sphericity was significant, indicating that the data set was suitable for factor analysis (Huck, 2012; Pallant, 2007; Tabachnick & Fidell, 2013). On the other hand, most of the correlations in the matrix were above *r>.30* which is another indication for the factorability of the data set. Then, the factor structure of the TJPS was determined.

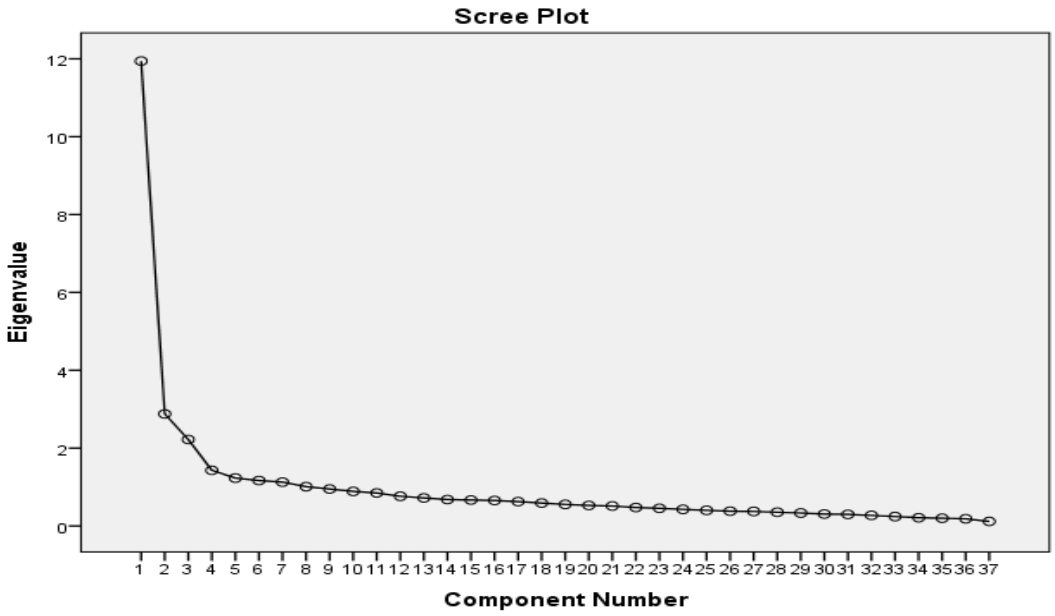
Table 1

Eigenvalues of Factors and Explained Variance

Factor	Eigenvalues	Variance %	Cumulative %
1	11.94	32.28	32.28
2	2.88	7.78	40.06
3	2.22	6.00	46.06

Table 1 shows eigenvalues and the proportion of variance explained by the factors of the TJPS. The factors had eigenvalues of 11.94, 2.88 and 2.22, respectively. The factors 1, 2 and 3 accounted for 32.28%, 7.78% and 6.00% of the total variance, respectively. They all accounted for 46.06% of the total variance, which was adequate (Çokluk, Şekercioğlu, & Büyüköztürk, 2018). The scree plot (Graph 1) clearly shows a significant rupture after the third factor indicating a three-factor structure.

Figure 1. Scree Plot of Teacher Job Performance Scale



In the next step, the factors were rotated using the varimax method to determine the factor structure of the TJPS. Table 2 below presents the findings of these analyses.

The communalities ranged from .32 (Item 4) to .61 (Item 24) and factor loadings from .49 (Item 4) to .74 (Item 26). Moreover, the differences between factor loadings were >.10, suggesting that the items satisfied the cut off values in literature (Büyüköztürk, 2011; Tabachnick & Fidell, 2013).

Table 2

Communalities and Factor Loadings of Scale Items

	Pre-Rotation		Post Rotation	
Item No	Communalities	Factor 1	Factor 2	Factor 3
1	.35	.55		
2	.45	.64		
3	.41	.63		
4	.32	.49		
8	.35	.50		
9	.43	.52		
10	.38	.53		
11	.43	.64		
12	.45	.58		
13	.45	.64		
14	.36	.53		
15	.38	.57		
16	.44	.63		
17	.47	.66		
18	.35	.53		
19	.38	.55		
20	.60		.53	
21	.52		.53	
22	.56		.64	
23	.51		.59	
24	.61		.66	
25	.59		.73	
26	.58		.74	
27	.37		.52	
28	.55		.73	
31	.42			.51
33	.34			.55
34	.51			.69
35	.49			.58

36	.57		.71
37	.55		.69
38	.43		.59
39	.53		.69
40	.53		.59
41	.46		.62
42	.47		.65
44	.49		.59

Reliability Analysis

In this section, findings regarding the reliability of the scale are presented. In this sense, Cronbach's Alpha coefficients, differences between upper and lower 27% groups' mean scores, corrected item-total correlations and correlation coefficients among factors were calculated. Table 3 below presents Cronbach's Alpha coefficients of factors and the scale.

Table 3

Cronbach's Alpha Coefficients

Factors	N. of Items	$\bar{X}$	α
Factor 1	16	4.53	.89
Factor 2	9	3.93	.88
Factor 3	12	4.26	.89
Total Scale	37	4.30	.94

As can be seen in Table 3, Cronbach's alpha reliability coefficients of factors 1, 2 and 3, and the total scale are .89, .88, .89 and .94, respectively. These findings are satisfactory considering the cut off value in the literature (Büyüköztürk, 2011; Singh, 2007).

Table 4

Communalities and Factor Loadings of Scale Items

Item No	Group	n	$\bar{X}$	ss	t	*p*	CITC
1	Lower 27%	71	4.26	.48	-9.87**	.00	.47
	Upper 27%	71	4.91	.28			
2	Lower 27%	71	4.32	.55	-8.34**	.00	.47
	Upper 27%	71	4.92	.26			
3	Lower 27%	71	4.01	.77	-7.38**	.00	.42
	Upper 27%	71	4.78	.44			
4	Lower 27%	71	4.15	.82	-7.38**	.00	.47

	Upper 27%	71	4.91	.28			
8	Lower 27%	71	3.61	.74	-9.44**	.00	.50
	Upper 27%	71	4.67	.58			
9	Lower 27%	71	4.04	.69	-11.11**	.00	.59
	Upper 27%	71	4.97	.17			
10	Lower 27%	71	3.97	.56	-11.01**	.00	.54
	Upper 27%	71	4.84	.36			
11	Lower 27%	71	4.32	.60	-7.35**	.00	.45
	Upper 27%	71	4.94	.37			
12	Lower 27%	71	4.00	.76	-9.57**	.00	.54
	Upper 27%	71	4.91	.28			
13	Lower 27%	71	4.15	.73	-6.61**	.00	.46
	Upper 27%	71	4.81	.42			
14	Lower 27%	71	4.21	.61	-8.58**	.00	.49
	Upper 27%	71	4.90	.30			
15	Lower 27%	71	4.22	.60	-7.11**	.00	.45
	Upper 27%	71	4.95	.20			
16	Lower 27%	71	4.15	.75	-8.24**	.00	.50
	Upper 27%	71	4.92	.26			
17	Lower 27%	71	3.38	.77	-8.08**	.00	.42
	Upper 27%	71	4.76	.49			
18	Lower 27%	71	4.04	.57	-9.18**	.00	.49
	Upper 27%	71	4.80	.40			
19	Lower 27%	71	4.11	.43	-12.15**	.00	.51
	Upper 27%	71	4.80	.32			
20	Lower 27%	71	3.19	.89	-11.75**	.00	.60
	Upper 27%	71	4.67	.58			
21	Lower 27%	71	3.60	.84	-12.07**	.00	.66
	Upper 27%	71	4.88	.32			
22	Lower 27%	71	3.43	.73	-12.85**	.00	.64
	Upper 27%	71	4.77	.48			
23	Lower 27%	71	3.46	.89	-11.89**	.00	.63
	Upper 27%	71	4.84	.40			
24	Lower 27%	71	3.35	.85	-14.53**	.00	.69
	Upper 27%	71	4.90	.30			
25	Lower 27%	71	3.33	.81	-13.08**	.00	.57
	Upper 27%	71	4.76	.43			

26	Lower 27%	71	2.95	.85	-10.53**	.00	.53
	Upper 27%	71	4.42	.80			
27	Lower 27%	71	3.21	.81	-10.46**	.00	.49
	Upper 27%	71	4.54	.71			
28	Lower 27%	71	2.26	1.00	-9.79**	.00	.49
	Upper 27%	71	4.07	.19			
31	Lower 27%	71	4.28	.64	-8.84**	.00	.56
	Upper 27%	71	4.97	.17			
33	Lower 27%	71	3.26	.84	-7.39**	.00	.44
	Upper 27%	71	4.32	.86			
34	Lower 27%	71	3.77	.51	-10.17**	.00	.51
	Upper 27%	71	4.71	.59			
35	Lower 27%	71	3.73	.74	-10.16**	.00	.51
	Upper 27%	71	4.77	.45			
36	Lower 27%	71	3.91	.65	-11.92**	.00	.59
	Upper 27%	71	4.91	.28			
37	Lower 27%	71	3.88	.73	-9.71**	.00	.56
	Upper 27%	71	4.84	.40			
38	Lower 27%	71	4.12	.75	-8.96**	.00	.51
	Upper 27%	71	4.95	.20			
39	Lower 27%	71	3.78	.77	-10.22**	.00	.55
	Upper 27%	71	4.84	.40			
40	Lower 27%	71	3.74	.58	-13.54**	.00	.66
	Upper 27%	71	4.84	.36			
41	Lower 27%	71	3.64	.61	11.51**	.00	.55
	Upper 27%	71	4.73	.51			
42	Lower 27%	71	3.59	.79	8.28**	.00	.51
	Upper 27%	71	4.57	.62			
44	Lower 27%	71	3.57	.75	10.96**	.00	.57
	Upper 27%	71	4.73	.48			

In Table 4, corrected item-total correlations and the differences between "upper and lower 27% groups' mean scores" are presented. As can be seen in Table, the corrected item-total correlations ranged from .42 (Item 3-17) to .69 (Item 24). The differences between the upper and lower 27% groups' mean scores were significant for all items, suggesting that the items had high internal consistency, exemplified similar behavior and distinguished individuals well (Büyüköztürk, 2011; Field, 2009).

Table 5

Correlations among Factors

Factors	Factor 1	Factor 1	Factor 3	Total Scale
Factor 1	1			
Factor 2	.56**	1		
Factor 3	.55**	.60**	1	
Total Scale	.83**	.86**	.85**	1

In Table 5, Pearson correlation coefficients among factors and overall scale are presented. As can be seen in Table, the correlation coefficients ranged from *r=.55* (Factor 1 and 3) to *r=.86* (Scale and Factor 2). These findings indicate the presence of high correlations between the scale and its dimensions (Russo, 2004) and the internal consistency of the scale.

Confirmatory Factor Analysis Results

The factor structure revealed by EFA was tested using CFA (Brown, 2015; Worthington & Whittaker, 2006), which was performed on 509 teachers. The subject to item ratio shows that the study group was more than adequate (Pallant, 2007) and considering only sample size, it was "very good" (Comrey & Lee, 1992).

CFA was performed on a different study group, and therefore, Cronbach's Alpha reliability coefficients were calculated again. The factors 1, 2 and 3 and the total scale had a Cronbach's Alpha of .88; .88; .88 and .94 respectively which indicates that the data set met the reliability criterion (Singh, 2007; Büyüköztürk, 2011).

Table 6

Item Statistics of TJPS

Factor	Item	λ	R^2	Error variance	t
Factor 1	1	.53	.28	.72	12.19**
	2	.60	.36	.64	14.34**
	3	.58	.34	.66	13.75**
	4	.49	.24	.76	11.32**
	8	.57	.33	.67	13.56**
	9	.47	.22	.78	10.72**
	10	.60	.36	.64	14.36**
	11	.56	.32	.68	13.27**
	12	.51	.26	.74	11.68**
	13	.55	.30	.70	12.74**
	14	.55	.30	.70	12.86**
	15	.49	.24	.76	11.28**
	16	.53	.28	.72	12.32**

	17	.71	.50	.50	17.65**
	18	.65	.43	.57	15.90**
	19	.62	.39	.61	14.91**
	20	.71	.51	.49	17.79**
	21	.65	.42	.58	15.61**
	22	.77	.59	.41	19.74**
	23	.64	.42	.58	15.55**
Factor 2	24	.80	.64	.36	20.87**
	25	.59	.35	.65	13.86**
	26	.63	.39	.61	14.97**
	27	.64	.41	.59	15.31**
	28	.58	.34	.66	13.63**
	31	.60	.36	.64	14.34**
	33	.51	.26	.74	11.59**
	34	.69	.48	.52	17.03**
	35	.55	.31	.69	12.90**
	36	.65	.43	.57	15.83**
	37	.68	.46	.54	16.73**
Factor 3	38	.56	.31	.69	13.06**
	39	.59	.35	.65	14.04**
	40	.70	.48	.52	17.23**
	41	.66	.44	.56	16.19**
	42	.67	.46	.54	16.54**
	44	.64	.42	.58	15.56**

** $p < .01$

In Table 6, factor loadings, t values (the level of statistical significance) and multiple correlation square values (R^2) (an indicator of validity) of TJPS items are presented. As can be seen in Table, factor loadings ranged from .47 (Item 9) to .80 (Item 24) while R^2 values ranged from .22 (Item 9) to .64 (Item 24). t values were significant at $p<.01$ and greater than 2.56 which indicates that there was no statistically problematic item in CFA item statistics (Kline, 2009; Ullman, 2013).

In the next step, goodness-of-fit indices were calculated. Goodness-of-fit indices in the first analysis did not fully meet the criteria sought in the literature. To improve the model-fit, covariances were established between error terms where MI>10.00 (Byrne, 2016). Table 7 presents the goodness of fit indices.

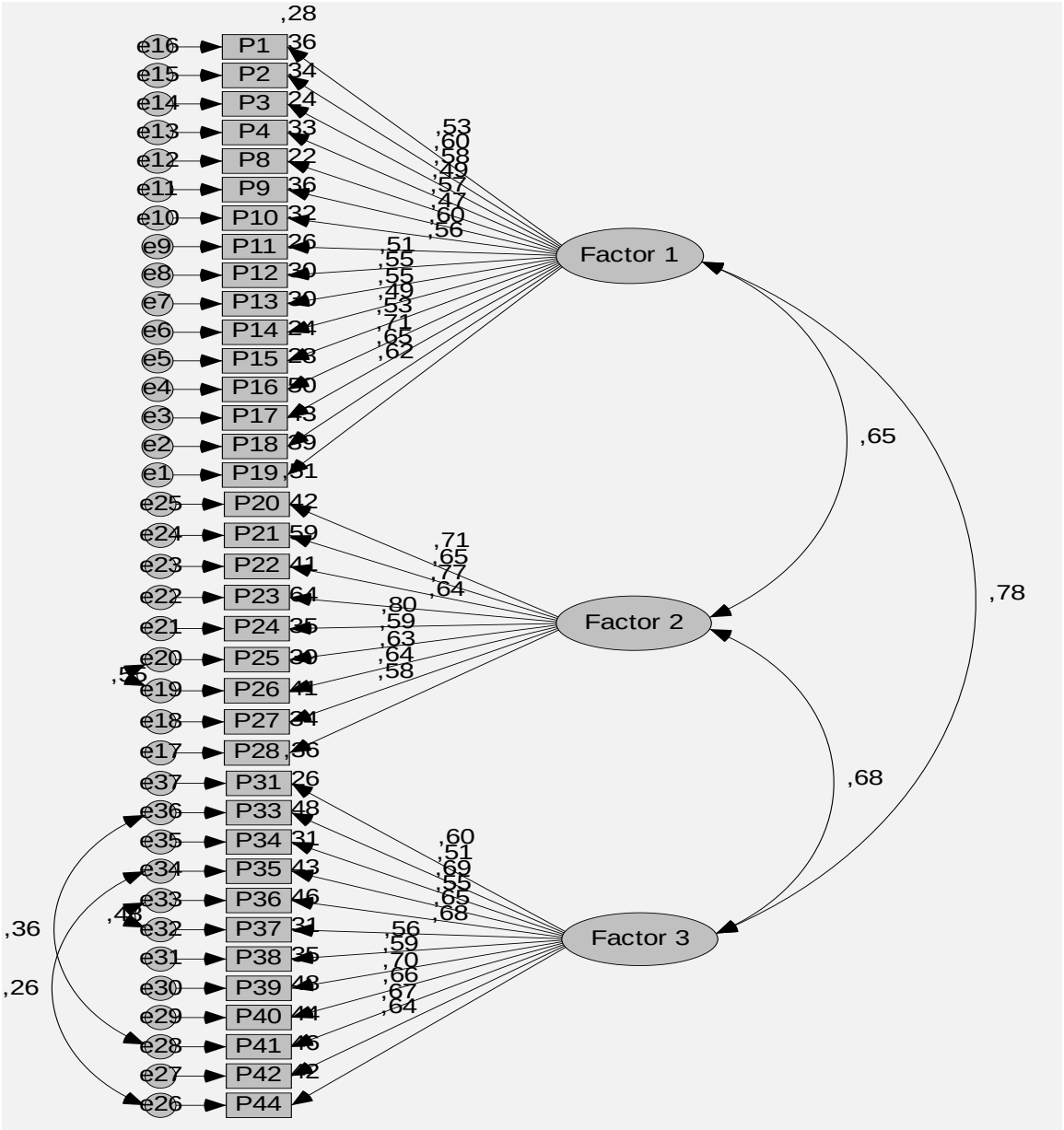
Table 7

The Goodness of Fit Indices

Modification	x^2 / df	*p*	RMSEA	CFI	GFI	AGFI	NNFI	NFI	IFI	RMR	SRMR
Pre	2.88	.00	.06	.85	.83	.81	.84	.79	.85	.03	.06
Post	2.19	.00	.05	.90	.87	.90	.90	.84	.90	.03	.05

As can be seen in Table 7, after modification x^2/df, RMSEA, CFI and SRMR met the criteria sought in the literature (Brown, 2015; Kline, 2009) and confirmed the validity of the scale structure. Graph 2 below shows the path diagram of the TJPS.

Figure 2. Path Diagram of Teacher Job Performance Scale



The results indicate that TJPS is a valid and reliable measure. The factors 1, 2 and 3 were named task performance (16 items), contextual performance (9 items) and adaptive performance (12 items), respectively.

Participants' Job Performance Level

Table 8 shows the descriptive statistics of the TJPS. The task performance, contextual performance, and adaptive performance dimensions and the total scale had an arithmetic mean ($\bar{x}$) 4.53, 3.97, 4.30 and 4.32, respectively. The arithmetic means can be interpreted as "always" for the task performance and adaptive performance and the total scale while it can be interpreted as "sometimes" for the contextual performance.

Table 8

Descriptive Statistics of Teacher Job Performance Scale

Dimension / Scale	*N*	$\bar{X}$	*ss*
Task performance	1935	4.53	.36
Contextual performance	1935	3.97	.62
Adaptive performance	1935	4.30	.46
Job performance	1935	4.32	.39

Conclusions and Discussion

This study aimed to develop a valid and reliable measure of teachers' self-reported job performance and use it for the first time on a target group. The TJPS was based on the framework proposed by Koopmans et al. (2013). Items were prepared based on the assumption that the scale would consist of four dimensions. However, the 40-item "counter-productive job behavior" dimension was excluded in line with expert opinion and as recommended in the literature. Therefore, three dimensions which are task, contextual and adaptive performance were included in item pool before statistical analyses. There were 45 candidate items in the first draft of the scale. EFA and CFA yielded a three-factor structure. There are 16 items in task performance, 9 items in contextual performance and 12 items in adaptive performance which means that the scale consisted of 37 items. On the other hand, reliability and item analyses yielded satisfactory results. In other words, they showed that TJPS is a valid and reliable measure of teachers' self-reported job performance.

After validity and reliability testing, the TJPS was applied to 1935 teachers in Sakarya. The results showed that participants had an "always" level of task performance. This finding is consistent with the literature (Amin et al., 2013; Bakker & Bal, 2010; Bashir et al., 2017; Cerit, 2012, 2015; Chughtai, 2008; Cohen & Liu, 2011; Duyar et al., 2015; Guan et al., 2014; Kalay, 2016; Lauermann, 2013; Lev & Koslowsky, 2012; Shen, Benson, & Huang, 2014; Torun & Okumuş, 2016; Zlatković, Stojiljković, Djigić, & Todorović, 2012). On the other hand, participants' contextual performance level was found to be "sometimes" which is also consistent with previous findings (Amin et al., 2013; Bakker & Bal, 2010; Bashir et al., 2017; Busso, 2003; Castilho, 2015; Cohen & Liu, 2011; Delgado-Rodríguez et al., 2018; Duyar et al., 2015; Ekinci, 2018; Findley, Giles, & Mossholder, 2000; Hamidizadeh, Baramond, & Latifi, 2012; Lev & Koslowsky, 2012; Shen et al., 2014; Somech & Drach-Zahavy, 2000; Torun & Okumuş, 2016). Additionally, participants' adaptive performance level was "always". Studies on educational organizations have reported similar findings (Bashir et al., 2017; Collie & Martin, 2017; Dilekçi & Sezgin Nartgün, 2019). Lastly, participants' job performance level was "always". Literature has conflicting findings on teachers' job

performance level. While some studies have reported similar findings (Akman, 2018; Alkış & Güngörmez, 2015; Altaş & Çekmecelioğlu, 2015; Bakker & Bal, 2010; Büyükgöze & Özdemir, 2017; Hanif, 2004; Koç, Yazıcıoğlu, & Hatipoğlu, 2009; Özdemir & Gören, 2017; Özdemir & Yirmibeş, 2016; Raza, 2010; Shaffril & Uli, 2010; Shalmani & Praveena, 2013; Töre, 2018; Usop, Askandar, Langguyuan-Kadtong, & Usop, 2013; Yazıcıoğlu, 2010) while some others have reported lower teacher job performance (Adeyemi, 2011; Arthi & Sumathi, 2016; Shaikh, 2015; Shaikh et al., 2012). However, those studies were conducted in countries with limited opportunities such as Nigeria and Pakistan, and teachers' performance was evaluated by school principals, which might explain low job performance results.

Limitations and Future Research

The applicability of the TJPS is limited to the cultural context of Turkey. It is, therefore, recommended that the TJPS be adapted to different cultures. On the other hand, findings on the level of teachers' job performance are limited to Sakarya province. In this sense, further studies can be carried out on different samples. Being a valid and reliable scale, TJPS can be used to compare job performance level of teachers based on demographics.

Statement of Responsibility

İbrahim Limon; conceptualization, methodology, validation, formal analysis, investigation, resources, data curation, writing - original draft, writing - review & editing, visualization, supervision, project administration Şenay Sezgin Nartgün; conceptualization, methodology, validation, writing - review & editing, supervision, project administration.

References

Adejumobi, F. T., & Ojikutu, R. K. (2013). School climate and teacher job performance in Lagos state Nigeria. *Discourse Journal of Educational Research, 1*(2), 26-36.

Adeyemi, T. (2008). Organizational climate and teachers' job performance in primary schools in Ondo State, Nigeria: An analytical survey. *Asian Journal of Information Technology, 7*(4), 138-145.

Akbulut, Y. (2015). Predictors of inconsistent responding in web surveys. *Internet Research, 25*(1), 131-147. https://doi.org/10.1108/IntR-01-2014-0017

Akman, Y. (2018). Investigating the relationship between organizational justice, work motivation and teacher performance. *Çukurova Üniversitesi Eğitim Fakültesi Dergisi, 47*(1), 164-187. https://doi.org/10.14812/cuefd.371642

Akyüz, A. N. (2013). *Örgütsel adalet algısının örgütsel bağlılık ve iş performansı üzerindeki etkisi: öğretmenler üzerine ampirik bir çalışma* (Yayımlanmamış yüksek lisans tezi). Gebze Yüksek Teknoloji Enstitüsü, Sosyal Bilimler Enstitüsü, Kocaeli.

Akyüz, B. (2012). *Hizmetkar liderlik davranışlarının örgütsel adalet, örgütsel vatandaşlık davranışları ve performans üzerine etkisi: eğitim sektörü üzerine bir araştırma* (Yayımlanmamış doktora tezi). Gebze Yüksek Teknoloji Enstitüsü, Sosyal Bilimler Enstitüsü, Kocaeli.

Ali, A., & Haider, S. Z. (2017). Developing a validated instrument to measure teachers' job performance: analyzing the role of background variables. *Journal of Educational Research, 20*(1), 21-35.

Alkış, H., & Güngörmez, E. (2015). Örgütsel adalet algısı ile performans arasındaki ilişki: Adıyaman ili örneği. *Adıyaman Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 8*(21), 937-967. https://doi.org/10.14520/adyusbd.67320

Allworth, E., & Hesketh, B. (1999). Construct-oriented biodata: capturing change-related and contextually relevant future performance. *International Journal of Selection and Assessment, 7*(2), 97-111. http://dx.doi.org/10.1111/1468-2389.00110

Altaş, S. S., & Çekmecelioğlu, H. G. (2015). Örgütsel adalet algısının iş tatmini, örgütsel bağlılık ve iş performansı üzerindeki etkileri: Okul öncesi öğretmenleri üzerinde bir araştırma. *İktisadi ve İdari Bilimler Dergisi, 29*(3), 421-439.

Amin, M., Shah, R., Ayaz, M., & Atta, M. A. (2013). Teachers' job performance at secondary level in Khyber Pakhyunkhwa, Pakistan. *Gomal University Journal of Research, 29*(2), 100-104.

Argon, T., Sezgin-Nartgün, Ş., & Göksoy, S. (2013). Views of education inspectors regarding loneliness at work and employee performance. *Energy Education Science and Technology Part B: Social and Educational Studies, 5*(3), 575-584.

Arthi, R., & Sumathi, G. (2016). Emotional intelligence and job performance among school teachers-an empirical approach. *Sona Global Management Review, 10*(3), 13-25. http://dx.doi.org/10.5539/ass.v11n13p227.

Avcıoğlu, G. Ş. (2014). Internet survey applications in social sciences: response rate, data quality, sample problems and solutions. *International Journal of Social Sciences, 11*(2), 89-113.

Baard, S. K., Rench, T. A., & Kozlowski, S. W. (2013). Performance adaptation: A theoretical integration and review. *Journal of Management, 40*(1), 48-99. https://doi.org/10.1177/0149206313488210

Bakker, A. B., & Bal, P. M. (2010). Weekly work engagement and performance: a study among starting teachers. *Journal of Occupational and Organizational Psychology, 83*, 189-206. https://doi.org/10.1348/096317909X402596

Balkar, B. (2015). The relationships between organizational climate, innovative behavior and job performance of teachers. *International Online Journal of Educational Sciences, 7*(2), 81-92. http://dx.doi.org/10.15345/iojes.2015.02.007

Bashir, H., Alias, M., Saleh, K. M., & Halizah, A. (2017). Students' perceptions of their teachers' performance in teaching engineering drawing in Nigerian tertiary institutions. *Path of Science, 3*(10), 3001-3012. https://doi.org/10.22178/pos.27-4

Bhat, S. A., & Beri, A. (2016). Development and validation of teachers perceived job performance scale (TPJP) in higher education. *Man in India, 96*(4), 935-944.

Brief, A. P., & Motowidlo, S. J. (1986). Prosocial organizational behaviors. *The Academy of Management Review, 11*(4), 710-725. http://dx.doi.org/10.2307/258391.

Brown, T. A. (2015). *Confirmatory Factor Analysis for Applied Research.* New York: The Guilford Press.

Busso, L. (2003). *The relationship between emotional intelligence and contextual performance as influenced by job satisfaction and locus of control orientation* (Unpublished doctoral dissertation). Alliant International University, San Diego.

Büyükgöze, H., & Özdemir, M. (2017). Examining job satisfaction and teacher performance within affective events theory. *İnönü University Journal of the Faculty of Education, 18*(1), 311-325. http://dx.doi.org/10.17679/inuefd.307041

Büyüköztürk, Ş. (2005). Anket geliştirme. *Türk Eğitim Bilimleri Dergisi, 3*(2), 133-151.

Büyüköztürk, Ş. (2011). *Sosyal bilimler için veri analizi el kitabı.* Ankara: PegemA Akademi.

Byrne, B. M. (2016). S*tructural equation modeling with Amos: Basic concepts, applications and programming.* New York: Routledge.

Çakıroğlu, Ü. (2008). Eğitim araştırmaları için internet tabanlı veri toplama aracı tasarımı ve uygulaması. *Sosyal Bilimler Arastırmaları Dergisi, 1*, 56-68.

Campbell, C. H., Ford, P., Rumsey, M. G., Pulakos, E. D., Borman, W. C., Falker, D. B., et al. (1990). Development of multiple job performance measures in a representative sample of jobs. *Personnel Psychology, 43*, 277-300. https://doi.org/10.1111/j.1744-6570.1990.tb01559.x

Campbell, J. B., Mchenry, J. J., & Wise, L. L. (1990). Modeling job performance in a population of jobs. *Personnel Psychology, 43*, 313-333. https://doi.org/10.1111/j.1744-6570.1990.tb01561.x

Campbell, J. P. (2012). Behavior, performance, and effectiveness – in the 21st century. In S. W. Kozlowski (Ed.), *The Oxford Handbook of Organizational Psychology Volume 1* (pp. 159-198). New York: Oxford University Press.

Carlos, V. S., & Rodrigues, R. G. (2016). Development and validation of a self-reported measure of job performance. *Social Indicators Research: An International and Interdisciplinary Journal for Quality-of-Life Measurement, 126*(1), 279-307. https://doi.org/10.1007/s11205-015-0883-z

Castilho, A. F. (2015). *The relationship of learning culture with contextual performance and negative emotions at work: the mediator role of job satisfaction and P-O fit* (Unpublished master thesis). University of Coimbra, Faculty of Psychology and Educational Sciences, Coimbra.

Cerit, Y. (2012). Lider üye etkileşimi ile öğretmenlerin performansları arasındaki ilişki. *Balıkesir Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 15*(28), 33-46.

Cerit, Y. (2015). Mekanik okul yapısı ile öğretmenlerin performansları arasındaki ilişki: Rol belirsizliğinin arabulucu etkisi. *International Periodical for The Languages, Literature and History of Turkish or Turkic, 10*(3), 237-250. http://dx.doi.org/10.7827/TurkishStudies.7378

Chamundeswari, S. (2013). Job satisfaction and performance of school teachers. *International Journal of Academic Research in Business and Social Sciences, 3*(5), 420-428.

Charbonnier-Voirin, A., Akremi, A. E., & Vandenberghe, C. (2010). A multilevel model of transformational leadership and adaptive performance and the moderating role of climate for innovation. *Group & Organization Management, 35*(6), 699-726. https://doi.org/10.1177/1059601110390833

Charbonnier-Voirin, A., & Roussel, P. (2012). Adaptive performance: a new scale to measure ındividual performance in organizations. *Canadian Journal of Administrative Sciences, 29*, 280-293. https://doi.org/10.1002/cjas.232

Chughtai, A. A. (2008). Impact of job involvement on in-role job performance and organizational citizenship behaviour. *Journal of Behavioral and Applied Management, 9*(2), 169-183.

Cohen, A., & Liu, Y. (2011). Relationships between in-role performance and individual values, commitment, and organizational citizenship behavior among Israeli teachers. *International Journal of Psychology, 46*(4), 271-287. https://doi.org/10.1080/00207594.2010.539613

Coleman, V. I., & Borman, W. C. (2000). Investigating the underlying structure of the citizenship performance domain. *Human Resource Management Review, 10*(1), 25-44. https://doi.org/10.1016/S1053-4822(99)00037-6

Collie, R. J., & Martin, A. J. (2017). Teachers' sense of adaptability: examining links with perceived autonomy support, teachers' psychological functioning, and students' numeracy achievement. *Learning and Individual Differences, 55*(2017), 29-39. https://doi.org/10.1016/j.lindif.2017.03.003

Comrey, A. L., & Lee, H. B. (1992). *A first course in factor analysis.* New Jersey: Lawrence Erlbaum.

Çokluk, Ö., Şekercioğlu, G., & Büyüköztürk, Ş. (2018). *Sosyal bilimler için çok degiskenli istatistik SPSS ve Lisrel uygulamaları.* Ankara: Pegem A Akademi.

Çöl, G. (2008). Algılanan güçlendirmenin işgören performansı üzerine etkileri. *Doğuş Üniversitesi Dergisi, 9*(1), 35-46.

Delgado-Rodríguez, N., Hernández-Fernaud, E., Rosales, C., Díaz-Vilela, L., Isla-Díaz, R., & Díaz-Cabrera, D. (2018). Contextual performance in academic settings: the role of personality, self-efficacy, and impression management. *Journal of Work and Organizational Psychology, 34*(2), 63-68. https://doi.org/10.5093/jwop2018a8.

Demir, A. (2008). *Ortaöğretim okullarında okul iklimi ile öğretmen performansı arasındaki ilişki* (Yayımlanmamış yüksek lisans tezi). Yeditepe Üniversitesi, İstanbul.

De Vellis, R. F. (2017). *Scale development theory and applications.* Thousand Oaks, CA: Sage Publications.

Dilekçi, Ü., & Sezgin Nartgün, Ş. (2019). Öğretmenlerin algıladıkları uyumsal performans ölçeği'nin Türk kültürüne uyarlanması: Geçerlik-güvenirlik ve betimsel analiz. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, Erken Görünüm* (Mayıs 2019), 1-22. https://doi.org/10.16986/HUJE.2019052615

Dilekçi, Ü., & Sezgin Nartgün, Ş. (2020). İş performansının bir boyutu olarak uyumsal performans: Kuramsal bir çerçeve. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi, 53(1), 301-328.* https://doi.org/10.30964/auebfd.560443

Doğan, S., & Kılıç, S. (2014). Üretkenlik karşıtı iş davranışlarının türleri, boyutları ve benzer kavramlarla ilişkilerine yönelik bir yazın incelemesi. *H.Ü. İktisadi ve İdari Bilimler Fakültesi Dergisi, 32*(2), 103-132. https://doi.org/10.17065/huiibf.92053

Duyar, I., Ras, N., & Pearson, C. L. (2015). Analysis of teachers' task and extra-role performance under different autonomy regimes. *International Journal of Productivity and Performance Management, 64*(4), 499-522. https://doi.org/10.1108/IJPPM-06-2013-0103

Ekinci, S. (2018). *Profesyonel öğrenme topluluğu, psikolojik sahiplenme ve bağlamsal performans arasındaki ilişki* (Yayımlanmamış doktora tezi). Abant İzzet Baysal Üniversitesi, Bolu.

Erdem, H., Gökmen, Y., & Türen, U. (2016). Psikolojik güçlendirme boyutlarının iş performansı üzerine etkisinde örgütsel bağlılığın aracılık rolü: Görgül bir araştırma. *Doğuş Üniversitesi Dergisi, 17*(2), 161-176.

Fadeyi, V. T., Sofoluwe, A. O., & Gbadeyan, R. A. (2015). Influence of teachers' welfare scheme on job performance in selected Kwara State Secondary Schools. *Asia Pacific Journal of Education, Arts and Sciences, 2*(4), 89-93.

Field, A. (2009). *Discovering statistics using SPSS.* Sage Publications: Los Angeles.

Findley, H. M., Giles, W. F., & Mossholder, K. W. (2000). Performance appraisal process and system facets: relationships with contextual performance. *Journal of Applied Psychology, 85*(4), 634-640. https://doi.org/10.1037/0021-9010.85.4.634

Griffin, M. A., Neal, A., & Neale, M. (2000). The contribution of task performance and contextual performance to effectiveness: investigating the role of constraints. *Applied Psychology: An International Review, 49*(3), 517-533. https://doi.org/10.1111/1464-0597.00029

Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance: positive behavior in uncertain and interdependent contexts. *Academy of Management Journal, 50*(2), 327-347. https://doi.org/10.5465/amj.2007.24634438

Guan, X., Sun, T., Hou, Y., Zhao, L., Luan, Y.-Z., & Fan, L.-H. (2014). The relationship between job performance and perceived organizational support in faculty members at Chinese universities: a questionnaire survey. *BMC Med Education, 14*(50), 1-10. https://doi.org/10.1186/1472-6920-14-50

Hamidizadeh, M. R., Baramond, S., & Latifi, M. M. (2012). Empowerment and contextual performance with job utility's model. *Interdisciplinary Journal of Contemporary Research in Business, 3*(9), 1199-1218.

Hanif, R. (2004). *Teacher stress, job performance and self efficiacy of women school teachers*. (Unpublished doctoral dissertation), Quaid-i-Azam University, Islamabad.

Hanif, R., & Pervez, S. (2004). Development and validation of teachers' job performance scale. *Pakistan Journal of Psychological Research, 19*(3-4), 89-104.

Hanif, R., Tariq, S., & Nadeem, M. (2011). Personal and job-related predictors of teacher stress and job performance among school teachers. *JO - Pakistan Journal of Commerce and Social Sciences, 5*(2), 319-329.

Hatipoğlu, A., & Kavas, E. (2016). Veli yaklaşımlarının öğretmen performansına etkisi. *İnsan ve Toplum Bilimleri Araştırmaları Dergisi, 5*(4), 1012-1034.

Huck, S. W. (2012). *Reading statistics and research.* Boston: Pearson Education.

Jamal, M. (2007). Job stress and job performance controversy revisited: An empirical examination in two countries. *International Journal of Stress Management, 14*(2), 175-187. https://doi.org/10.1037/1072-5245.14.2.175

Jex, S. M., & Britt, T. W. (2008). *Organizational psychology: A scientist-practitioner approach.* New Jersey: John Wiley & Sons.

Johari, J., & Yahya, K. K. (2009). Linking organizational structure, job characteristics, and job performance constructs: a proposed framework. *International Journal of Business and Management, 4*(3), 145-152. https://doi.org/10.5539/ijbm.v4n3p145

Jundt, D. K., Shoss, M. K., & Huang, J. L. (2015). Individual adaptive performance in organizations: A review. *Journal of Organizational Behavior, 36*, 53-71. https://doi.org/10.1002/job.1955

Kalay, F. (2016). The impact of organizational justice on employee performance: A survey in Turkey and Turkish context. *International Journal of Human Resource Studies, 6*(1), 1-20. https://doi.org/10.5296/ijhrs.v6i1.8854

Karakulakoğlu, S. E. (2014). İnternet araştırmalarında yöntem sorunu. *Erciyes İletişim Dergisi, 3*(4), 122-134. https://doi.org/10.17680/akademia.v3i4.5000013908

Khan, A., Shah, I. M., Khan, S., & Gul, S. (2012). Teachers' stress, performance & resources the moderating effects of resources on stress & performance. *International Review of Social Sciences and Humanities, 12*(2), 21-29.

Kılınç, H., & Fırat, M. (2017). Opinions of expert academicians on online data collection and voluntary participation in social sciences research. *Kuram ve Uygulamada Eğitim Bilimleri, 17*(5), 1461-1486. https://doi.org/10.12738/estp.2017.5.0261

Kline, R. B. (2009). *Principles and practice of structural equation modeling*. New York: The Guilford Press.

Kluge, A., Sauer, J., Burkolter, D., & Ritzmann, S. (2010). Designing training for temporal and adaptive transfer: a comparative evaluation of three training methods

for process control tasks. *Journal of Educational Computing Research, 43*(3), 327-353. https://doi.org/10.2190/EC.43.3.d

Koç, H., Yazıcıoğlu, İ., & Hatipoğlu, H. (2009). Öğretmenlerin iş doyum algıları ile performansları arasındaki ilişkinin belirlenmesine yönelik bir araştırma. *Ondokuz Mayıs Üniversitesi Eğitim Fakültesi Dergisi, 28*, 13-22.

Koopmans, L., Bernaards, C. M., Hildebrandt, V. H., Vet, H. C., & Beek, A. J. (2013). Measuring individual work performance - identifying and selecting indicators. *A Journal of Prevention, Assessment & Rehabilitation, 45*(3), 61-81. https://doi.org/10.3233/WOR-131659

Korkmaz, M. (2005). Duyguların ve liderlik stillerinin öğretmenlerin performansı üzerinde etkisi. *Kuram ve Uygulamada Eğitim Yönetimi, 43*, 401-422.

Lauermann, F. V. (2013). *Teacher responsibility* (Unpublished doctoral dissertation). The University of Michigan, Michigan.

Lawshe, C.H., (1975). A quantitative approach to content validity. *Personnel Psychology, 28,* 563-575.

Lev, S., & Koslowsky, M. (2012). On-the-job embeddedness as a mediator between conscientiousness and school teachers' contextual performance. *European Journal of Work and Organizational Psychology, 21*(1), 57-83. https://doi.org/10.1080/1359432X.2010.535656.

Loomis, D. K., & Paterson, S. (2018). A comparison of data collection methods: Mail versus online surveys. *Journal of Leisure Research, 49*(2), 133-149. https://doi.org/10.1080/00222216.2018.1494418.

Lynch, P. D., Eisenberger, R., & Armeli, S. (1999). Perceived organizational support: Inferior versus superior performance by wary employees. *Journal of Applied Psychology, 84*(4), 467–483. https://doi.org/10.1037/0021-9010.84.4.467

McCloy, R. A., Campbell, J. P., & Cudeck, R. (1994). A confirmatory test of a model of performance determinants. *Journal of Applied Psychology, 79*(4), 493-505. https://doi.org/10.1037/0021-9010.79.4.493

Mehmood, T., Qasim, S., & Azam, R. (2013). Impact of emotional intelligence on the performance of university teachers. *International Journal of Humanities and Social Science, 3*(18), 300-307.

Motowidlo, S. J. (2003). Job performance. In W.C. Borman, Daniel R. Ilgen & R.J. Klimoski (Eds.), *Handbook of psychology* (pp.39-53). New Jersey: John Wiley & Sons.

Motowidlo, S. J., Borman, W. C., & Schmit, M. J. (1997). A theory of individual differences in task and contextual performance. *Human Performance, 10*(2), 71-83. https://doi.org/10.1207/s15327043hup1002_1

OECD. (2005). *Teachers matter: Attracting, developing and retaining effective teachers.* Paris: OECD Publishing.

Organ, D. W. (1990). The motivational basis of organizational citizenship behavior. *Research in Organizational Behavior, 12*, 43-72.

Özdemir, O. (2017). *Lider desteği ve örgütsel adalet algısının iş performansına etkisinde kişi-örgüt uyumunun aracılık rolü: eğitim sektöründe bir araştırma*.

(*Yayımlanmamış yüksek lisans tezi).* Türk Hava Kurumu Üniversitesi, Sosyal Bilimler Enstitüsü, Ankara.

Özdemir, M., & Gören, S. Ç. (2017). Psikolojik güçlendirme, liderlik uyumu ve öğretmen performansı ilişkisinde örgütsel bağlılığın aracı rolü. *İlköğretim Online, 16*(1), 342-353. http://dx.doi.org/10.17051/io.2017.47449

Özdemir, M., & Yirmibeş, A. (2016). Okullarda liderlik ekibi uyumu ve öğretmen performansı ilişkisinde iş doyumunun aracı etkisi. *GEFAD, 36*(2), 323-348.

Pallant, J. (2007). *SPSS survival manual a step by step guide to data analysis using SPSS for windows.* Berkshire: McGraw Hill.

Payne, J., & Barnfather, N. (2012). Online data collection in developing nations: an investigation into sample bias in a sample of South African University Students. *Social Science Computer Review, 30*(3), 389-397. https://doi.org/10.1177/0894439311407419

Ployhart, R. E., & Bliese, P. D. (2006). Individual adaptability (I-Adapt) theory: Conceptualizing the antecedents, consequences, and measurement of individual differences in adaptability. In C. S. Burke, L. G. Pierce, & E. Salas (Eds.), *Understanding adaptability: A prerequisite for effective performance within complex environments* (pp. 3-39). Amsterdam: Elsevier.

Pradhan, R. K., & Jena, L. K. (2017). Employee performance at workplace: conceptual model and empirical validation. *Business Perspectives and Research, 5*(1), 69-85. https://doi.org/10.1177/2278533716671630

Pulakos, E. D., Arad, S., Donovan, M. A., & Plamondon, K. E. (2000). Adaptability in the workplace: development of a taxonomy of adaptive performance. *Journal of Applied Psychology, 85*(4), 612-624. https://doi.org/10.1037//0021-9010.85.4.612

Pulakos, E. D., Dorsey, D. W., & White, S. S. (2006). Adaptability in the workplace: Selecting an adaptive workforce. In C. S. Burke, L. G. Pierce, & E. Salas (Eds.), *Understanding adaptability: A prerequisite for effective performance within complex environments* (pp. 41-71). Amsterdam: Elsevier.

Pulakos, E. D., Schmitt, N., Dorsey, D. W., Arad, S., Borman, W. C., & Hedge, J. W. (2002). Predicting adaptive performance: further tests of a model of adaptability. *Human Performance, 15*(4), 299-323. https://doi.org/10.1207/S15327043HUP1504_01

Ramawickrama, J., Opatha, H. H., & Pushpakumari, D. (2017). A synthesis towards the construct of job performance. *International Business Research, 10*(10), 66-81. https://doi.org/ 10.5539/ibr.v10n10p66

Raza, S. A. (2010). *Relationship between organizational climate and performance of teachers in public and private colleges of Punjab* (Unpublished doctoral dissertation). Arid Agriculture University, Rawalpindi.

Robbins, S. P., & Judge, T. A. (2012). *Organizational behavior.* Essex: Pearson.

Russo, R. (2004). *Statistics for the behavioral sciences: An introduction*. Essex, UK:

Scotter, J. R., & Motowidlo, S. J. (1996). Interpersonal facilitation and job dedication as separate facets of contextual performance. *Journal of Applied Psychology, 81*(5), 525-531. https://doi.org/10.1037/0021-9010.81.5.525

Scotter, J. R., Motowildo, S. J., & Cross, T. C. (2000). Effects of task performance and contextual performance on systematic rewards. *Journal of Applied Psychology, 85*(4), 526-535. https://doi.org/10.1037//0021-9010.85.4.526.

Shaffril, H. A., & Uli, J. (2010). The influence of sociodemographic factors on work performance among employees of employees of government agriculture agencies in Malaysia. *The Journal of International Social Research, 3*(10), 459-469.

Shaikh, F. (2015). *Effect of primary school teachers perceived motivation on their performance in Sindh* (Unpublished doctoral dissertation). Iqra University, Faculty of Education and Learning Sciences, Sindh.

Shaikh, F., Saad, M. I., & Bhutto, M. I. (2012). Level of primary school teachers' ıntrinsic and extrinsic motivation and their performance in Sindh. *Pakistan Journal of Education, XXIX*(I-II), 1-13.

Shalmani, R. S., & Praveena, K. (2013). Influence of gender and type of school on job performance among school teachers. *Indian Streams Research Journal, 3*(8). https://doi.org/10.9780/22307850

Shen, J., Benson, J., & Huang, B. (2014). High performance work systems and teachers' work performance: the mediating role of quality of working life. *Human Resource Management, 53*(5), 817-833. https://doi.org/10.1002/hrm.21614

Shoss, M. K., Witt, L., & Vera, D. (2011). When does adaptive performance lead to higher task performance? *Journal of Organizational Behavior, 33*(7), 910-924. https://doi.org/10.1002/job.780

Singh, K. (2007). *Quantitative social research methods.* New Delhi: Sage Publications.

Somech, A., & Drach-Zahavy, A. (2000). Understanding extra-role behavior in schools: the relationships between job satisfaction, sense of efficacy, and teachers' extra-role behavior. *Teaching and Teacher Education, 16*(2000), 649-659. https://doi.org/10.1016/s0742-051x(00)00012-3

Stanton, J. M. (1998). An empirical assessment of data collection using the internet. *Personnel Psychology, 51*(3), 709-725. https://doi.org/10.1111/j.1744-6570.1998.tb00259.x.

Stanton, J. M., & Rogelberg, S. G. (2001). Using internet/intranet web pages to collect organizational research data. *Organizational Research Methods, 4*(3), 200-217. https://doi.org/10.1177/109442810143002

Stout, R. J., Salas, E., & Carson, R. (1994). Individual task proficiency and team process behavior: what's important for team functioning? *Military Psychology, 6*(3), 177-192. https://doi.org/10.1207/s15327876mp0603_3.

Şehitoğlu, Y. (2010). *Örgütsel sessizlik, örgütsel vatandaşlık davranışı ve algılanan çalışan performansı ilişkisi* (Yayımlanmamış doktora tezi). Gebze Yüksek Teknoloji Enstitüsü, Sosyal Bilimler Enstitüsü, Kocaeli.

Şimşek, A. (2012). Bilimsel gelişme ve paradigma değişimi. *Sosyal bilimlerde araştırma yöntemleri* içinde (Ed. Ali Şimşek). Eskişehir: AÖF Yayınları.

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics.* New Jersey: Pearson Education.

Torun, Y., & Okumuş, D. (2016). Akademisyenlerin algıladıkları kurumsal imaj ile iş performansı arasındaki ilişkide örgütsel sinizmin düzenleyici rolü. Ö. Demirel, & S. Biçer (Ed.) içinde *Eğitim bilimlerinde yenilikler ve nitelik arayışı* (ss. 873-892). Ankara: Pegem Akademi.

Töre, E. (2018). An examination of the mediating role of organizational citizenship behaviour on the effect of intrinsic motivation on job performance of teachers. *International Journal of Interdisciplinary Social Science Studies, 4*(2), 4-12.

Ullman, J. B. (2013). Structural equation modeling. In B. G. Tabachnick, & L. S. Fidell (Eds.), *Using multivariate statistics* (pp. 681-785). Boston: Pearson.

Usop, A. M., Askandar, K., Langguyuan-Kadtong, M., & Usop, D. A. (2013). Work performance and job satisfaction among teachers. *International Journal of Humanities and Social Science, 3*(5), 245-252.

Van Dyne, L., & LePine, J. A. (1998). Helping and voice extra-role behaviors: evidence of construct and predictive validity. *The Academy of Management Journal, 41*(1), 108-119.

Viswesvaran, C., & Ones, D. S. (2000). Perspectives on models of job performance. *International Journal of Selection and Assessment, 8*(4), 216-226. https://doi.org/10.1111/1468-2389.00151

Wade, M., & Parent, M. (2002). Relationships between job skills and performance: a study of webmasters. *Journal of Management Information Systems, 18*(3), 71-96. https://doi.org/10.1080/07421222.2002.11045694

Welbourne, T. M., Johnson, D. E., & Erez, A. (1998). The role-based performance scale: validity analysis of a theory-based measure. *Academy of Management Journal, 41*, 540-555. https://doi.org/10.2307/256941

Wetzel, A. P., Arment, S. T., & Reed, E. (2015). Building teacher candidates' adaptive expertise: engaging experienced teachers in prompting reflection. *Reflective Practice, 16*(4), 546-558. https://doi.org/10.1080/14623943.2015.1064380

Williams, L. J., & Anderson, S. E. (1991). Job satisfaction and organizational commitment as predictors of organizational citizenship and in-role behaviors. *Journal of Management, 17*(3), 601-617. https://doi.org/10.1177/014920639101700305

Witt, L., Kacmar, K. M., Carlson, D. S., & Zivnuska, S. (2002). Interactive effects of personality and organizational politics on contextual performance. *Journal of Organizational Behavior, 23*, 911-926. https://doi.org/10.1002/job.172

Worthington, R. L., & Whittaker, T. A. (2006). Scale development research a content analysis and recommendations for best practices. *The Counseling Psychologist, 34*(6), 806-838. https://doi.org/10.1177/0011000006288127.

Yazıcıoğlu, İ. (2010). Örgütlerde iş tatmini ve işgören performansı ilişkisi: Türkiye ve Kazakistan karşılaştırması. *Bilig, Güz*(55), 243-264.

Yusoff, R. B., Ali, A. M., & Khan, A. (2014). Assessing reliability and validity of job performance scale among university teachers. *Journal of Basic and Applied Scientific Research, 4*(1), 35-41.

Zhu, Y. (2013). Individual behavior: in-role and extra-role. *International Journal of Business Administration, 4*(1), 23-27. https://doi.org/10.5430/ijba.v4n1p23.

Zlatković, B., Stojiljković, S., Djigić, G., & Todorović, J. (2012). Self-concept and teachers' professional roles. *Procedia - Social and Behavioral Sciences, 69*(December), 377-384. https://doi.org/10.1016/j.sbspro.2012.11.423

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Do Gender Differences Affect Foreign Language Anxiety and Preferences for Oral Corrective Feedback?*

Cinsiyet Farklılıkları Yabancı Dil Kaygısını ve Sözlü Düzeltici Geribildirim Tercihlerini Etkiler Mi?

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ABSTRACT: This paper explores the extent gender differences affect foreign language anxiety and student beliefs about spoken corrective feedback. A random sample of 100 Turkish students (50 males, 50 females) who were pre-intermediate level learners of English as a foreign language at a state preparatory school in Turkey completed two questionnaires which measured their level of anxiety and beliefs. The female participants differed from the male participants in that they exhibited higher levels of anxiety, valued delayed feedback and preferred repetition more as the main error correction method. The males, on the other hand, rated elicitation as their favored method of correction and preferred to be given time to correct their errors themselves more than the females did. Both males and females viewed feedback, especially to their serious and individual errors, as a necessary component of the learning process and rated feedback given by the teacher more positively. As the take-home message, teachers need to be selective in their feedback choices and activities in reducing anxiety by taking gender differences in consideration.

Keywords: Foreign language anxiety, corrective feedback in speaking, gender effect.

ÖZ: Bu çalışma, cinsiyet farklılıklarının yabancı dil kaygı düzeyi ve öğrencilerin sözlü düzeltici geri bildirim inanışları üzerindeki etkisinin boyutunu araştırmaktadır. Türkiye'deki bir devlet hazırlık okulunda yabancı dil olarak İngilizce öğrenen ön orta düzeydeki örneklemden rastgele seçilmiş 100 öğrenci (50 kadın, 50 erkek) kaygı düzeylerini ve inanışlarını ölçen iki anket cevaplamışlardır. Kadın katılımcılar, erkek katılımcılardan daha yüksek kaygı düzeyi göstermeleri, geciktirilmiş geri bildirime değer vermeleri ve tekrarlamayı ana düzeltici geri bildirim yöntemi olarak tercih etmeleri açısından ayrışmışlardır. Erkekler, öte yandan, söyletimi en çok istenen düzeltme yöntemi olarak değerlendirmişler ve kadınlara kıyasla hatalarını kendilerinin düzeltebilmeleri için zaman verilmesini tercih etmişlerdir. Hem erkek hem de kadın katılımcılar, geribildirimi, özellikle ciddi ve bireysel hatalarına verilen geribildirimi, öğrenme süreçleri için gerekli bir bileşen olarak görmüşler ve öğretmenin verdiği geri bildirimi daha olumlu değerlendirmişlerdir. Bu çalışmadan çıkarılacak ders, öğretmenlerin geribildirim ve kaygı azaltıcı etkinlik tercihlerinde cinsiyet farklılıklarını göz önünde bulundurarak seçici olmalarıdır.

Anahtar kelimeler: Yabancı dil kaygısı, konuşmada sözlü düzeltici geribildirim, cinsiyet etkisi.

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This paper aims to uncover the effect of gender on foreign language anxiety and student preferences behind oral corrective feedback. The motivation for studying gender, anxiety and learner beliefs is at least twofold. First, the role of gender in learning a second or foreign language has not been a thoroughly explored area of research (Sunderland, 2010). Second, existing research on the role gender plays in foreign language anxiety (Azizifar, Faryadian, & Gowhary, 2014) and student corrective feedback (CF) preferences (Khorshidi & Rassaei, 2013) has revealed inconclusive and debatable results. Some research (Çağatay, 2015; Yih, Chin, & Ling, 2017) suggests that female students display higher levels of anxiety while learning a second language whereas others (Kitano, 2001 among others) report that male students are more anxious throughout the process. There is also research indicating no significant difference between the language anxiety levels of male and female students (Yiang & Dewaele, 2019). These results have been attributed to males' unwillingness to express their true feelings and experiences about learning a foreign language (Ahmed, Pathan, & Khan, 2017; Batiha, Noor, & Mustaffa, 2016). The higher levels of anxiety experienced by females originate from a fear of negative evaluation especially when teachers give corrective feedback in front of the other students (Mersi, 2012). Anxiety related to test performance and communication apprehension also contributes to higher levels of female foreign language anxiety (Arnaiz & Guillen, 2012). This study complements the findings in the literature in the sense that the data come from one of the top state universities which hosts high-achievers and in which the medium of instruction is English.

Not many studies investigated the role of gender on the necessity and timing of student corrective feedback beliefs in oral practice. Katayama (2017) suggests that foreign language learners believe in the necessity of feedback. More specifically, female students believe in the necessity of corrective feedback (CF) more than the males do (Zarei, 2011). As for its timing, CF can be provided immediately after an error is committed, during a task performance or after the task is completed. For example, Park (2010) reports that gender makes no difference with respect to immediate or delayed feedback, but Li, Zhu, and Ellis (2016) found immediate feedback to be more effective than delayed feedback. Most students prefer to be given some time to think about their mistakes and correct their own errors before teachers feed them with the correct forms through recasts (Ölmezer-Öztürk & Öztürk, 2016; Yoshida, 2008).

In terms of preference for the feedback providing agent, learners value teacher correction and self-correction over peer correction. Second language learners interpret feedback given by the teacher to be more reliable and effective (Gielen, Tops, Dochy, Onhema, & Smeets, 2010). Feedback obtained from peers, on the other hand, is considered to be less authoritarian and beneficial than feedback from the other agents (Rollinson, 2005). It is worth to note that peer feedback is valued for subsequent learning (Tseng & Tsai, 2007).

Gender is reported not to play a role in the type of errors to be corrected or the methods of feedback treatment to be given; yet, research findings in this area come with multiple results. For instance, explicit correction and recasts stand out as the most favored feedback correction types among the others (Öztürk, 2016). Explicit correction and metalinguistic feedback are favored by the students more since these forms of CF are reported to decrease their level of anxiety (Renko, 2012) and contribute to learner

uptake (Lyster & Ranta, 1997). Some students perceive elicitation, implicit correction and recasts as the most effective CF methods regardless of the anxiety level (Abedi, Mahadavi, & Hassaskhah, 2015). Repetition is also considered to significantly improve learner uptake (Büyükbay, 2007). Some studies (Sheen, 2011; Surakka, 2007) report that high-anxiety learners benefit less from recasts; however, Martin and Valdivia (2017) claim that students with high levels of anxiety rate recasts and metalinguistic feedback more positively. Rassaei (2015) reports that high-anxiety learners find recasts more effective than metalinguistic feedback, while low-anxiety learners believe that recasts and metalinguistic feedback are equally effective in treating spoken errors.

The aim of this study is to contribute to the ongoing discussion in the field on the roots of foreign language anxiety and student beliefs on corrective feedback in oral communication with a specific focus on gender in an EFL setting. The research questions addressed are (i) whether gender differences play a role in the anxiety levels of pre-intermediate level Turkish students learning English, (ii) what the causes behind language anxiety across genders are and (iii) whether gender plays a role in the beliefs EFL students hold about corrective feedback in oral communication. Next, the methodology of the study is presented, followed by the results. Finally, the main findings and implications for foreign language classes are discussed.

Method

Research Design

This paper adopted a purely quantitative design. The data were obtained using the structured questionnaire approach. The instrument used in this study was a single questionnaire comprising of The Foreign Language Classroom Anxiety Scale (FLCAS) and Corrective Feedback Belief Scale (CFBS), which have been successfully used in different contexts to measure gender-related beliefs (e.g., Genç, 2014; Zhang & Rahimi, 2014). The variable studied is gender with respect to foreign language anxiety and the components of oral corrective feedback.

Participants

Convenience sampling, which allows one to have access to basic data and trends without further complications, was employed in this study (Mackey & Gass, 2005). A total of 112 students participated in the study. 12 incomplete questionnaires were excluded from the analysis due to missing data. The data were analyzed out of the remaining 100 respondents (50 females, 50 males) who learned English at Boğaziçi University School of Foreign Languages, in Turkey. The participants were all pre-intermediate level foreign language learners of English as determined by the institutional English language placement test given at the beginning of the year. They had no working knowledge of a third language. The students majored in natural and applied sciences at the Faculty of Education (female n=21, male n=2), Engineering (female n=5, male n=22), Arts and Sciences (female n=12, male n=11), Economics and Administrative Sciences (female n=7, male n=13) and the School of Applied Disciplines (female n=5, male n=2). The participants took the questionnaires at the end of the second semester after completing an intensive program offering instruction in English where they improved their academic listening, reading, writing and speaking skills. As a part of the program, the students were required to give an oral presentation

each semester. Passing an institutional language proficiency test (BUEPT) or receiving a score of 101 from TOEFL (IBT) or a score of 6.5 from IELTS (academic) is a prerequisite to start undergraduate courses at this English-medium university. The female participants were aged between 18 and 25 (*M*=18.98, *SD*=1.45) and their first exposure to English ranged from age 1 to age 11 (*M*=8.62, *SD*=2.26). The male participants were aged between 18 and 21 (*M*=18.70, *SD*=.71) and their first exposure to English ranged from age 5 to age 12 (*M*=9.42, *SD*=1.51). These groups were not statistically different age wise (F (98) =1.77, *p*=.22). Yet, the female students were first exposed to English at a younger age than their male peers (F (98) =11, *p*=.04).

Data Collection Tools

To collect data, a mini demographic survey and two questionnaires were used. The Foreign Language Classroom Anxiety Scale (FLCAS) has 33 items and assesses the degree of anxiety experienced by foreign language learners of English (adapted from Horwitz, Horwitz, & Cope, 1986). FLCAS measures four components of possible causes of language anxiety; namely, (i) fear of negative evaluation, (ii) communication apprehension (iii) test anxiety and (iv) anxiety in class, which are cited as individual factors determining anxiety levels among tertiary level students who have to master a foreign language to pursue their academic studies (Aida, 1994). *Fear of negative evaluation* arises when the learner worries about not leaving a good impression on others and avoids situations where one is to be evaluated personally or academically. It also includes the fear of not understanding the teacher or the fear of doing worse than the others. *Communication apprehension* is associated with the uncomfortable feeling when expressing yourself in front of native or non-native speakers of that language. It is often observed as shyness and social anxiety. *Test anxiety* is a performance-related fear of failing tests. This type of anxiety develops when one dwells on negative and irrelevant thoughts about the test especially after a poor performance. *In-class anxiety* mostly depends on teacher expectations, peer pressure and the difficulty of the tasks. It also includes students' worries about making mistakes, mispronouncing words and having inadequate wait time to respond quickly. The questionnaire is designed on a five-point Likert-type scale. The scale for the FLACS ranged from 1 to 5 where 1 referred to strongly disagree, 2- disagree, 3- neither agree nor disagree, 4- agree, and 5- strongly agree.

Corrective Feedback Belief Scale (CFBS) is a 21-item questionnaire which focuses on student beliefs on the necessity, frequency, timing (delayed vs immediate) of feedback, type of errors ((less) serious, (in)frequent, individual) to be corrected, methods of feedback and feedback providing agents (peers, teacher, students themselves) (Fukuda, 2004). Clarification requests, repetitions, explicit corrections, elicitations, metalinguistic feedback and recasts can be listed as the six main methods of CF (Lyster & Ranta, 1997). To exemplify, the error in the tense use in the utterance "She take the bus to school every day" can be treated by *a clarification request* where the teacher prompts a reformulation and makes the learner become aware of the problematic nature of the utterance by saying: 'Sorry?'. The instructor can use *repetition* by simply repeating the wrong part or the whole sentence to alert the learner to the presence of an error: 'She take'? *Explicit feedback* can be given by providing the correct form directly: 'Not "take"—takes'. The student can be made to realize that there

is an error in the utterance through *elicitation* where the instructor prompts a complete sentence: 'She ...?' The instructor may also provide *a recast*, by reformulating all or part of the student's utterance minus the error: 'she takes', or *a meta-linguistic comment* about the erroneous utterance: 'You need the present tense'. CFBS is also designed based on a 5-point-Likert-scale ranking in "strongly disagree, disagree, neutral, agree, strongly agree" together with "never, occasionally, sometimes, usually, always" and, "very ineffective, ineffective, neutral, effective, very effective".

Both FLCAS and CFBS were translated into Turkish and were successfully used in the Turkish context with internal consistencies higher than .90 (e.g., Çetinkaya & Hamzadayı, 2015; Öztürk & Gürbüz, 2013). For this study, the questionnaires were given in English. The alpha reliabilities for the FLCAS and the CFBS in the present study were .77 and .71 respectively, indicating acceptable internal consistency for the instrument.

Data Collection

Necessary ethics permission was taken from Boğaziçi University Institutional Review Board for Research with Human Subjects (no: 2019/15). Participation in the study was on voluntary basis. Prior to the questionnaire, the written consent of each participant was taken. First, student demographics were elicited and then the FLCAS and the CFBS were administered with the assistance of several instructors of English, who were given a training on how to conduct the questionnaires during regular class time in the 15th week of the second semester. The training about data collection was given by the researcher who also entered and analyzed the obtained data. The respondents were instructed to read the items on the questionnaires carefully and circle the choice which appealed to them the best. Choosing the appropriate number would indicate the degree of agreement implied in each item. Each participant took about 25 minutes to complete the questionnaires.

Data Analysis

All the completed questionnaires were numbered, and the data were entered anonymously. After the scores of the negatively worded items in each scale were reversed, a higher score on the FLCAS corresponded to a high level of foreign language anxiety. A similar procedure was followed for the analysis of the CFBS. Both descriptive and inferential statistics were reported. The difference between genders was determined for each item via a t-test for independent samples by using the statistical software package for social sciences program (SPSS version 25).

Results

The minimum score on the FLCAS was 33 and the maximum was 165. Out of a score of 165, the male participants scored a mean of 90.68 (*SD*=14.05, range=61-130) and the female participants scored a mean of 98.50 (*SD*=12.20, range=72-121). The female students were more anxious about learning English in an EFL context than their male counterparts across the four dimensions investigated (F (98)=.50, *p*=.004) and they especially feared more about receiving negative evaluation and making mistakes in classroom activities (see Table 1).

Table 1

Distribution of Factors Leading to Language Anxiety

Indicator	Group	$\bar{X}$	*sd*	*t-value*	*p*	*Pattern of variation*
Fear of negative evaluation	male	2.55	.71	3.01	.003*	female>male
	female	2.98	.71			
Communication apprehension	male	2.86	.39	1.65	.102	female>male
	female	2.99	.36			
Test anxiety	male	2.81	.52	.83	.40	female>male
	female	2.90	.53			
Anxiety in class	male	2.80	.47	2.68	.009*	female>male
	female	3.03	.40			

*p<.05 *Adapted from* (Horwitz et al., 1986)

An analysis of the breakdown of the items under *fear of negative evaluation* resulted in higher levels of female anxiety especially when the participants did not understand what the teacher was correcting and when they thought that they would be called on in class (see Table 2).

Table 2

Item by Item Analysis of Fear of Negative Evaluation across Genders

Statement	Group	$\bar{X}$	*sd*	*t-value*	*p*
-I tremble when I know that I'm going to be called on in class.	male	2.04	1.21	1.60	.112
	female	2.44	1.28		
-I keep thinking that the other students are better at languages than I am.	male	2.94	1.22	1.56	.122
	female	3.32	1.22		
-It embarrasses me to volunteer answers in class.	male	2.02	1.06	1.61	.111
	female	2.38	1.17		
-I get upset when I don't understand what the teacher is correcting.	male	3.18	1.21	3.88	.000*
	female	3.98	.82		
-I can feel my heart pounding when I'm going to be called on in language classes.	male	2.22	1.15	2.32	.022*
	female	2.80	1.34		
-I always feel that the other students speak the foreign language better than I do.	male	3.00	1.30	.808	.421
	female	3.21	1.18		
-Language class moves so quickly I worry about getting left behind.	male	2.50	1.30	1.36	.177
	female	2.84	1.20		
-I am afraid that the other students will laugh at me when I speak the foreign language.	male	1.96	1.05	1.60	.114
	female	2.32	1.20		

-I get nervous when the language teacher asks questions which I was not prepared for before.	male	3.12	1.19	1.85	.067
	female	3.54	1.07		

*p<.05

With respect to communication apprehension, the male students felt less sure of themselves when speaking in class, but they reported to be more comfortable around native speakers (see Table 3). The female students, on the other hand, felt nervous and confused while indulging in classroom activities.

Table 3

Item by Item Analysis of Communication Apprehension across Genders

Statement	Group	$\bar{X}$	*sd*	*t-value*	*p*
-I never feel quite sure of myself when I am speaking in class.	male	3.12	1.04	2.57	.012*
	female	2.56	1.15		
-I start to panic when I have to speak without preparation in class.	male	3.04	1.43	2.31	.23
	female	3.64	1.16		
-I would not be nervous speaking the foreign language with native speakers.	male	2.58	1.18	2.81	.006*
	female	3.22	1.09		
-I feel confident when I speak in a foreign language class.	male	2.90	.93	1.63	.320
	female	2.58	1.03		
-I feel very self-conscious about speaking the foreign language in front of other students.	male	2.68	1.16	1.83	.071
	female	3.12	1.24		
-I get nervous and confused when I am speaking in my language class.	male	2.62	1.11	2.36	.020*
	female	3.16	1.18		
-I get nervous when I don't understand every word the language teacher says.	male	2.58	1.25	.823	.413
	female	2.78	1.18		
-I would probably feel comfortable around native speakers of the foreign language.	male	3.38	1.19	2.46	.016*
	female	2.82	1.08		

*p<.05

The female students exhibited higher levels of test anxiety by reporting that 'the more they studied, the more confused they got' (see Table 4). The male students usually felt at ease when communicating in a foreign language class.

Table 4

Item by Item Analysis of Fear of Test Anxiety across Genders

Statement	Group	$\bar{X}$	*sd*	*t-value*	*p*
-I don't worry about making mistakes in language class.	male	3.08	1.18	.969	.335
	female	3.30	1.09		

-I am usually at ease while speaking in a foreign language in class.	male	3.04	1.03	3.31	.001*
	female	2.36	1.03		
-I worry about the consequences of failing my foreign language classes.	male	3.70	1.23	.624	.534
	female	3.54	1.33		
-I am afraid that my language teacher is ready to correct every mistake I make.	male	2.18	1.19	1.42	.158
	female	2.52	1.20		
-The more I study for a language test, the more confused I get.	male	2.04	1.07	2.98	.004*
	female	2.76	1.33		

*p<. 05

When in-class anxiety is considered, it appears that the female students got more nervous and tenser even if they were well-prepared and they might forget the things they already knew whereas the male students appeared to be more relaxed (see Table 5).

Table 5

Item by Item Analysis of In-Class Anxiety across Genders

Statement	Group	$\bar{X}$	*sd*	*t-value*	*p*
-It frightens me when I don't understand what the teacher is saying in a foreign language	male	2.42	1.26	.972	.333
	female	2.66	1.21		
-It wouldn't bother me at all to take more foreign language classes.	male	2.44	1.25	.646	.520
	female	2.60	1.23		
-During class, I find myself thinking about things that have nothing to do with the course.	male	3.82	1.06	.753	.453
	female	3.62	1.06		
-I don't understand why some people get so upset over foreign language classes.	male	3.00	1.16	1.62	.109
	female	3.40	1.31		
-In class, I can get so nervous that I forget things I know.	male	2.34	1.19	4.31	.000*
	female	3.30	1.11		
-Even if I am well prepared, I feel anxious about it.	male	2.50	1.36	2.82	.006*
	female	3.26	1.34		
-I often feel like not going to my language classes.	male	2.90	1.42	.441	.660
	female	3.02	1.30		
-I don't feel pressure to prepare very well for language classes.	male	2.78	1.25	.399	.691
	female	2.88	1.26		
-I feel tense and nervous in class.	male	1.88	1.10	2.40	.018*
	female	2.40	1.07		
-When I'm on my way to language class, I feel very sure and relaxed.	male	3.46	.97	3.25	.002*
	female	2.78	1.11		
-I feel overwhelmed by the number of rules you have to	male	3.22	1.28	.555	.580

learn to speak a foreign language.	female	3.36	1.24	

*p<.05

With regard to the necessity of error correction, 89% of the students agreed that CF was necessary (M=4.3, SD=.73) The results clearly indicated that the students in both groups, regardless of their level of anxiety, were in favor of receiving CF (see Table 6).

Table 6

Responses to the Necessity of Corrective Feedback

Group	*n*	$\bar{X}$	*sd*	*t-value*	*p*	*Pattern of variation*
female	50	4.26	.579	1.39	.17	female=male
male	50	4.26	.828			

*p<.05

A breakdown of the responses to the necessity of CF showed that 96% of the female students agreed on the necessity of feedback whereas 88% of the male students thought so. Interestingly 6% of the male students did not agree that getting feedback was indispensable in foreign language classes (see Table 7).

Table 7

A Breakdown of Responses to the Necessity of Corrective Feedback

Group	*n*	*Strongly agree*	*Agree*	*Neutral*	*Disagree*	*Strongly disagree*	*Pattern of variation*
female	50	25(50%)	23(46%)	2(4%)	0	0	female>male
male	50	22(44%)	22(44%)	3(6%)	3(6%)	0	

*p<.05

Frequency of Corrective Feedback

Overall, 61% of these students wanted their errors to be corrected frequently (M=3.69, SD=.83). The female students wanted to be corrected more often than the male students (see Table 8).

Table 8

Responses to the Frequency of Corrective Feedback

Group	*n*	$\bar{X}$	*sd*	*t-value*	*p*	*Pattern of variation*
female	50	3.80	.808	1.31	.19	female>male
male	50	3.58	.859			

*p< .05

A breakdown of the responses to the frequency of CF showed that 64% of the female participants preferred to be corrected frequently, but only 54% of the males opted for frequent correction (see Table 9).

Table 9
A Breakdown of Responses to the Frequency of Corrective Feedback

Group	*n*	*Always*	*Usually*	*Sometimes*	*Occasionally*	*Never*
female	50	10(20%)	22(44%)	16 (32%)	2(4%)	0
male	50	6(12%)	23(46%)	15(30%)	6(12%)	0

Timing of Corrective Feedback

As for the timing of feedback, even though no significant difference existed between the male and the female participants, the male participants favored immediate feedback more as opposed to the females who desired to receive delayed feedback more (see Table 10).

Table 10
Responses to the Timing of CF

Timing of feedback	Group	$\bar{X}$	*sd*	*t-value*	*p*	*Pattern of variation*
Immediate CF	male	3.58	1.05	-.82	.41	male>female
	female	3.40	1.14			
CF after students finish talking	male	3.74	1.04	-.22	.82	male>female
	female	3.70	.67			
CF after the activity	male	2.94	1.13	.35	.72	female>male
	female	3.02	1.09			
CF at the conclusion of class	male	2.22	1.32	.77	.44	female>male
	female	2.42	1.24			

*p<.05

Types of Corrective Feedback

The type of feedback both groups favored were quite different (see Table 11). The female participants favored repetition > metalinguistic feedback > elicitation > clarification requests> explicit correction whereas the male participants preferred elicitation > repetition > explicit correction > metalinguistic feedback > clarification requests. Neither of the groups believed in the effectiveness of no correction. The only significant difference between the male and female participants was observed in their beliefs about the effectiveness of elicitation.

Table 11

Responses to the Types of CF

Timing of feedback	Group	$\bar{X}$	*sd*	*t-value*	*p*	*Pattern of variation*
Clarification request	male	3.36	1.02	.94	.35	female>male
	female	3.56	1.09			
Repetition	male	3.80	1.06	.09	.92	female>male
	female	3.82	.98			
Explicit feedback	male	3.66	1.15	-.56	-.57	male>female
	female	3.54	.97			
Elicitation	male	4.08	.11	-2.50	.014	male>female
	female	3.66	.87			
No Corrective Feedback	male	1.74	.85	.93	.35	female>male
	female	1.94	1.25			
Metalinguistic Feedback	male	3.62	1	.52	.60	female>male
	female	3.72	.90			
Recasts	male	3.14	1.03	.76	.45	female>male
	female	3.30	1.07			

*p<.05

Types of Errors for Corrective Feedback

Both genders believed that the following types of errors needed to be corrected: serious > individual > frequent > less serious > infrequent spoken errors. No statistically meaningful difference was observed between the two groups (see Table 12).

Table 12

Responses to the Types of Errors to be Corrected

Types of Errors	Group	$\bar{X}$	*sd*	*t-value*	*p*	*Pattern of variation*
Serious	male	4.54	.64	-1.41	.16	male>female
	female	4.36	.63			
Less Serious	male	3.14	.83	.81	.42	female>male
	female	3.28	.88			
Frequent	male	3.38	1.14	1.15	.25	female>male
	female	3.62	.85			
Infrequent	male	2.90	1.14	1.19	.23	female>male
	female	3.16	1.01			
Individual	male	4.10	.76	.000	1.00	female=male
	female	4.10	1.09			

*p<.05

Choice of Correctors

Both genders trusted and valued feedback given by the teacher. The female participants were significantly more into teacher feedback than the male participants. Peer feedback was the least preferred one for both groups. Interestingly, the male students wanted to be given the chance to correct their own errors more than the females did (see Table 13).

Table 13

Responses about Choice of Correctors

Choice of Correctors	Group	$\bar{X}$	*sd*	*t-value*	*p*	*Pattern of variation*
Peers	male	2.26	1.04	.28	.77	female>male
	female	2.32	1.03			
Teachers	male	4.18	.66	*2.15*	.03*	female>male
	female	4.44	.54			
Students themselves	male	4.24	-.83	1.15	.40	male>female
	female	4.10	.90			

*p<.05

Discussion and Conclusion

This study investigated whether gender differences had a role on foreign language anxiety and corrective feedback preferences in oral communication. As an answer to the first research question, gender had a role in the anxiety levels of foreign language learners in the Turkish EFL context. The findings of this study are in line with the previous research (e.g., Park & French, 2013) which claims that female participants exhibit greater levels of anxiety than males. As for the second research question, the causes behind the different levels of language anxiety was that females worried the most about receiving a negative evaluation and failing in class activities. This finding lends support to Mersi (2012). More specifically, for the fear of negative evaluation, the females differed from the males in that 'they got upset when they didn't understand what the teacher was correcting' and 'they could feel their hearts pounding when they were going to be called on in a language class'. In terms of communication apprehension, the males differed from the females in that 'they never felt quite sure of themselves when they were speaking in class' and 'they would probably feel comfortable around native speakers of the foreign language'. The females stated that 'they got nervous and confused when they were speaking in a language class and when they were conversing with the native speakers of that language'. The females exhibited higher levels of test anxiety by stating that 'the more they studied for a language test, the more confused they got'. The males, on the other hand, reported that 'they were usually at ease while speaking in a foreign language in class'. The females experienced higher levels of in-class anxiety by agreeing with the statement that 'even if they were well prepared, they got tense and anxious in class'. The males stated that 'they were pretty relaxed on the way to the language class'.

The last research question explored the role of gender in CF preferences. Both genders believed that receiving CF was necessary in an EFL setting as dictated by the previous work (Zarei, 2012; Zhang & Rahimi, 2014). This result can be attributed to learners' awareness of the purpose and effectiveness of CF (Ellis, 2009). That is, by raising learners' awareness about the purpose of the CF, the inhibitive role of anxiety could be decreased. The finding that feedback provided by the teacher is valued the most by both genders validates the previous findings in the literature (Gamlo, 2019; Gielen, Tops, Dochy, Onhema, & Smeets, 2010). Yet, in this study, the difference between the male and female participants is significant. Even though both genders preferred their serious and individual errors to be corrected, there was no significant effect of gender as reported in Khorshidi and Rassaei (2013). Park (2010) states that gender is not a determining factor in terms of the timing of feedback. This study concludes similar findings, too. The female participants favored delayed feedback whereas the male participants preferred immediate feedback. However, this difference in preference was not statistically significant. When the feedback methods were taken into consideration, none of the groups believed in the effectiveness of no corrective feedback. The second least favored correction method was reported to be recasts. This finding contradicts with Rassaei (2015) reporting that learners highly value recasts. The top three most positively rated feedback methods were repetition, metalinguistic feedback and elicitation for the female participants, whereas the males rated elicitation, repetition and explicit correction as the top three most effective CF methods. This finding lends support to Büyükbay (2007) which reported that repetition contributes to learner uptake. The only significant difference between the male and female participants is that the males rated elicitation as a more effective method of correction than the females did. Metalinguistic feedback did not make the top three most positively rated corrective feedback method for the males; yet, it was highly valued by the females. The reason why metalinguistic feedback was rated as quite effective by the females could be that it is cited to decrease anxiety levels of learners (Renko, 2012). In this case, metalinguistic comments on spoken errors might decrease higher levels of language anxiety that the female participants experience.

Implications

The findings of this study suggest that foreign language teachers need to be cautious about gender differences in their lesson planning and teaching practices. Instructors at schools of foreign languages can increase the learning outcomes in their classes by providing the right kind of spoken corrective feedback to relieve the high anxiety female students experience in oral communication classes. Integrating anxiety relieving activities into their lesson plans could motive the learners to take risks, overcome their shyness and become more confident communicators in the target language.

Limitations and Suggestions for Further Research

The current study is limited to tertiary level students learning English at an English medium state university in Turkey. More studies of students from different levels and universities are necessary to generalize from the results. Including different methodologies such as interviews and observations would allow triangulation of the data to reach more dependable, reliable and generalizable results.

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References

Aida, Y. (1994). Examination of Horwitz & Cope's construct of foreign language anxiety: The case of students of Japanese. *Modern Language Journal, 78*, 155-168. http://dx.doi.org/10.2307/329005

Abedi, Z., Mahadavi, A., & Hassaskhah, J. (2015). Iranian EFL learners' preferred oral corrective feedback: High anxious learners vs. low anxious learners. *International Journal of Research Studies in Language Learning, 5*(2), 75-86. http://dx.doi.org/10.5861/ijrsll.2015.1121

Ahmed, N., Pathan, Z. H., & Khan, F. S. (2017). Exploring the causes of English language speaking anxiety among postgraduate students of University of Balochistan, Pakistan. *International Journal of English Linguistics, 7*, 99-105. http://dx.doi.org/0.5539/ijel.v7n2p99

Arnaiz, P., & Guillen, F. (2012). Foreign language anxiety in a Spanish university setting: Interpersonal differences. *Revista de Psicodidáctica, 17*(1), 5-26. Retrieved from https://pdfs.semanticscholar.org/b86f/ef0bbcb05520ec862d174430eb2b49c2f9e1.pdf

Azizifar, A., Faryadian, E., & Gowhary, H. (2014). The Effect of anxiety on Iranian EFL learners speaking skill. *International Research Journal of Applied and Basic Sciences*, *8*(10), 1747-1754. http://dx.doi.org/10.30762/jeels.v4i2.358

Batiha, J. M., Noor, N. M., & Mustaffa, R. (2016). Speaking anxiety among English as a foreign language learner in Jordan: Quantitative research. *International Journal of Education and Research*, *4*(10), 63-82. Retrieved from https://www.researchgate.net/profile/Jafar_Batiha/publication/312283876_Speaking_Anxiety_among_English_as_a_Foreign_Language_Learner_in_Jordan_Quantitative_Research/links/58784d6308ae8fce492ffff9.pdf

Büyükbay, S. (2007). *The effectiveness of repetition as corrective feedback*. (Unpublished MA Thesis). Bilkent University, Ankara, Turkey. Retrieved from http://www.thesis.bilkent.edu.tr/0003458.pdf

Çağatay, S. (2015). Examining EFL students' foreign language speaking anxiety: The case at a Turkish state university. *Procedia- Social and Behavioral Sciences 199*, 648-656. http://dx.doi.org/10.1016/j.sbspro.2015.07.594

Çetinkaya, G., & Hamzadayı, E. (2015). Yabancı dil olarak Türkçe öğretim sürecinde sözel düzeltme geribildirimleri: öğretmen ve öğrenci yeğleyişleri [Oral corrective feedbacks in Turkish as a foreign language teaching process: teachers' and students' preferences]. *Turkish Studies- International Periodical for the Languages, Literature and History of Turkish or Turkic, 10*(3), 285-302. http://dx.doi.orf/10.7827/TurkishStudies.7906

Ellis, R. (2009). Corrective feedback and teacher development. *L2 Journal, 1*(1), 3-18.

Fukuda, Y. (2004). *Treatment of spoken errors in Japanese high school oral communication classes*. (Unpublished MA thesis). California State University, San Francisco, USA.

Gamlo, N. (2019). EFL Learners' preferences of corrective feedback in speaking activities. *World Journal of English Language, 9*(2), 28-37. http://dx.doi.org/0.5430/wjel.v9n2p28

Genç, Z. S. (2014). Correcting spoken errors in English language teaching: Preferences of Turkish EFL learners at different proficiency levels. *Eğitim ve Bilim, 39,* 259-271. http://dx.doi.org/10.15390/EB.2014.1438

Gielen, S., Tops, L., Dochy, F., Onhema, P., & Smeets, S. (2010). A comparative study of peer and teacher feedback of various peer feedback forms in a secondary writing curriculum. *British Educational Research Journal, 36*, 143-162. http://dx.doi.org/10.1080/01411920902894070

Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *The Modern Language Journal, 70*, 125-132. https://doi.org/10.1111/j.1540-4781.1986.tb05256.x

Katamaya, A. (2007). Japanese EFL students' preferences toward correction of classroom oral errors. *Asian EFL Journal, 9*(4), 289-305. Retrieved from https://asian-efl-journal.com/December_2007_EBook.pdf

Khorshidi, E., & Rassaei, E. (2013). The effects of learners' gender on their preferences for corrective feedback. *Journal of Studies in Learning and Teaching English, 2*(2), 71-83. Retrieved from

http://jslte.iaushiraz.ac.ir/article_518965_b98e910ab76dc1858f8e8f43b86de9f6.pdf

Kitano, K. (2001). Anxiety in the college Japanese language classroom. *The Modern Language Journal, 85*(4), 549-566. https://doi.org/10.1111/0026-7902.00125

Li, S., Zhu, Y., & Ellis, R. (2016). The effects of the timing of corrective feedback on the acquisition of a new linguistic structure. *Modern Language Journal, 100*, 276-295. http://dx.doi.org/10.1111/modl.12315

Lyster, L., & Ranta, L. (1997). Corrective feedback and learner uptake: Negotiation of form in communicative classrooms. *Studies in Second Language Acquisition, 19*(1), 37-66. https://doi.org/10.1017/S0272263197001034

Mackey, A., & Gass, S. (2005). *Second language research: Methodology and design*. New Jersey: Lawrence Erlbaum Associates, Inc.

Martin, S., & Valdivia, A. I. M. (2017). Students' feedback beliefs and anxiety in online foreign language oral tasks. *International Journal of Educational Technology in Higher Education, 14*(1), 1-15. https://doi.org/10.1186/s41239-017-0056-z

Mersi, F. (2012). The relationship between gender and Iranian EFL learners' foreign language classroom anxiety. *International Journal of Academic Research in Business and Social Sciences, 2*(10), 147-156. Retrieved from https://pdfs.semanticscholar.org/532a/64b96c3095b35f25531a226da55da90038f2.pdf

Ölmezer-Öztürk, E., & Öztürk, G. (2016). Types and timing of oral corrective feedback in EFL classrooms: Voices from students. *Novitas-ROYAL (Research on Youth and Language), 10*(2), 113-133. Retrieved from http://www.Novartisroyal.org/Vol_10_2/2.OlmezerOzturk&Ozturk.pdf

Öztürk, G. (2016). An investigation on the use of oral corrective feedback in Turkish EFL classrooms. *Journal of Language and Linguistic Studies, 12*(2), 22-37. Retrieved from https://www.jlls.org/index.php/jlls/article/view/441/249

Öztürk, G., & Gürbüz, N. (2013). The impact of gender on foreign language speaking anxiety and motivation. *Procedia - Social and Behavioral Sciences, 70*, 654-665. doi: 10.1016/j.sbspro.2013.01.106

Park, G., & French, B. F. (2013). Gender differences in the foreign language classroom Anxiety Scale. *System 41*, 462-471. http://dx.doi.org/10.1016/j.system.2013.04.001

Park, H. S. (2010). *Teachers' and learners' preferences for error correction* (Unpublished MA Thesis). California State University, Sacramento, USA.

Rassaei, E. (2015). Oral corrective feedback, foreign language anxiety and L2 development. *System, 49*, 98-109. https://doi.org/10.1016/j.system.2015.01.002

Renko, K. (2012). *Finnish EFL Learners' perceptions on errors, corrective feedback and foreign language anxiety* (Unpublished MA Thesis). University of Jyväskylä, Finland. Retreived from https://pdfs.semanticscholar.org/b49d/dfe5d43daec6eb792d4d9e5903246e2c0561.pdf

Rollinson, P. (2005). Using peer feedback in the ESL writing class. *ELT Journal, 59*(1), 23-30. https://doi.org/10.1093/elt/cci003

Sheen, Y. (2011). *Corrective feedback, individual differences and second language learning*. New York: Springer.

Sunderland, J. (2010). Theorizing gender perspectives in foreign and second language learning. In R. M. Jiménez Catalán (Ed.), *Gender perspectives on vocabulary in foreign and second languages* (pp. 1-22). Basingstoke: Palgrave MacMillan.

Surakka, K. (2007). *Corrective feedback and learner uptake in an EFL classroom* (Unpublished MA Thesis). University of Jyväskylä, Finland. Retrieved from https://pdfs. semanticscholar.org/19f7/3f2225878d3998f46f4b3b79fe40dd05e255.pdf

Tseng, S. C., & Tsai, C. C. (2007). On-line peer assessment and the role of the peer feedback: A study of high school computer course. *Computers & Education, 49*(4), 1161-1174. http://dx.doi.org/10.1016/j.compedu.2006.01.007

Yiang, Y., & Dewaele, J-M. (2019). How unique is the foreign language classroom enjoyment and anxiety of Chinese EFL learners? *System, 82*, 13-25.

Yih, Y.J., Chin, V., & Ling, T. H. (2017). The role of gender in English Language Learning Anxiety among Tertiary level students. *E-Academia Journal, 6*(2), 14-22. Retrieved from: http://journaleacademiauitmt.uitm.edu.my/v2/index.php/home.html

Yoshida, R. (2008). Teachers' choice and learners' preference of corrective feedback types. *Language Awareness, 17(1)*, 78-93. https://doi.org/10.2167/la429.0

Zarei, N. (2011). The relationship between gender and corrective feedback. *Online Journal of ICT for Language Learning, 5*(11), 59-79.

Zhang, M., & Rahimi, L. J. (2014). EFL learners' anxiety level and their beliefs about corrective feedback in oral communication classes. *System, 42*(1), 429-439. http://dx.doi.org/10.1016/j.system.2014.01.012

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Development of a 'Musical Knowledge Test' for the Sixth Grade Music Lesson of Turkish Primary Education*

İlköğretim Altıncı Sınıf Müzik Dersi İçin Bir 'Müzik Bilgisi Başarı Testi' Geliştirme

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ABSTRACT: As in every lesson, the achievement in music lessons is determined by measurement and assessment procedures. The diversity of the learning outcomes of the music lesson necessitates the multidimensional assessment of student development. Students' learning outcomes regarding musical knowledge and behaviors can be measured through various measurement tools. In this study, it is aimed to develop a multiple-choice *Musical Knowledge Test* for 6th Grade music lesson subjects. In the developing process of the Musical Knowledge Test, firstly the subjects shall be discussed in the test were determined, the learning outcomes were detailed by dividing them into sub-outcomes, and a 25-question multiple-choice questionnaire was created. After obtaining expert opinion for the scope validity, a test draft was prepared and tested by making the necessary arrangements. 220 tests were analyzed using Excel program, after that, five items were excluded from the test. As a result of these corrections and analyzes, 20-item Musical Knowledge Test took its final form. The KR-20 reliability coefficient of the test was 0.77, the mean difficulty value was 0.57, the mean discrimination value was 0.44. The test, which seems valid and reliable, is thought to be an auxiliary and functional tool that music teachers can use.

Keywords: Music lesson, measurement and assessment, 'Musical Knowledge Test'.

ÖZ: Her derste olduğu gibi müzik derslerinde de başarı tayini, ölçme-değerlendirme işlemleri ile yapılmaktadır. Müzik dersinin çeşitlilik içeren kazanımları, öğrenci gelişiminin çok yönlü ölçülüp değerlendirilmesini gerektirmektedir. Öğrencilerin müzik bilgisi içeren kazanımları ve müziksel davranış alanlarındaki kazanımları çeşitli ölçme araçları ile ölçülebilir. Bu çalışmada, ilköğretim 6. sınıf müzik dersi konularına yönelik bir çoktan seçmeli müzik bilgisi başarı testi geliştirmek amaçlanmıştır. *Müzik Bilgisi Başarı Testi* geliştirme sürecinde öncelikle testte ele alınacak konular belirlenmiş, kazanımlar alt kazanımlara ayrılarak detaylandırılmış ve 25 soruluk çoktan seçmeli soru havuzu oluşturulmuştur. Kapsam geçerliği için uzman görüşü alındıktan sonra gerekli düzenlemeler yapılarak test taslağı oluşturulmuştur ve denenmiştir. 220 adet test Excel programı kullanılarak analiz edilmiş, sonuçlara göre beş madde ise testten çıkarılmıştır. Bu düzeltmeler ve analizler sonrasında 20 soruluk *Müzik Bilgisi Başarı Testi* son halini almıştır. Testin KR-20 güvenirlik katsayısı değeri 0.77, ortalama güçlük değeri 0.57, ortalama ayırt edicilik değeri ise 0.44 olarak bulunmuştur. Geçerli ve güvenilir olduğu görülen testin, müzik öğretmenlerinin kullanabilecekleri yardımcı ve işlevsel bir araç olduğu düşünülmektedir.

Anahtar kelimeler: Müzik dersi, ölçme ve değerlendirme, 'Müzik Bilgisi Başarı Testi'.

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In general terms, success is defined as "the positive product of the mental or actual activities of the person depending on his/her abilities and upbringing" (TDK, 2018), and it indicates achievement as well as a satisfactory and desirable outcome (Foulquié, 1994). When viewed from the perspective of education, success is considered to be an indication that individuals can develop according to expectations and realize targeted learning. Although some sources in the literature use the terms 'academic success' and 'academic achievement' interchangeably, the content of academic success is beyond that of academic achievement. The "academic success that is made up of six components: academic achievement, satisfaction, acquisition of skills and competencies, persistence, attainment of learning objectives, and career success" (York, Gibson, & Rankin, 2015, p. 9).

Students' level in achieving the goals defined by the education system and gaining the desired behavior are measured by academic achievement. Academic achievement is a concept which has contents that differ from one another with some variations in literature. It is possible to state that there are two main notions in the definition of this concept and the meaning that has been attributed to the concept of academic achievement has changed according to the basic perspective. The first notion is the approach that does not place the student's knowledge and skill acquisition in its focus separately and points to the general achievement that will be gained from a lesson or program. Academic achievement is explained in the *International Dictionary of Education* as a description of the performance in standard training tests in educational institutions, and, in a more general overview, as the description of the performance of a lesson in the curriculum (Page, Thomas, & Marshall, 1977). In the *Dictionary of Education*, it is defined as the determination of the knowledge or skill levels obtained in the lesson through teacher assessment grades and/or tests in the school (Good, 1973). In the *Family Dictionary of Education Terms*, it is described as "what a student has learned from the teaching in the classroom" (OEO, 2011, p. 10). Demirel (2012) defines the academic achievement as the level of competence of the student in relation to the curriculum objectives as a result of a particular program. According to Silah (2003), student achievement is a concept related to the extent to which the planned activities carried out in the special environments prepared for learning are transformed into action and behavior in the mental, emotional and physical areas by the students in accordance with the goals. Baltaş (2005) defines achievement as reaching the aims that are meaningful for the person through daily programs and step by step. In another definition, academic achievement is described as the student's level of competence of gaining the aimed qualifications at the end of a training program based academic studies arranged on test scores (Shamsuddin, 2007).

The second notion in defining the concept is the approach that considers academic achievement as pure cognitive achievement or competences, keeping it separate from the overall school success or all the competences gained for a lesson. In this context, for example, Ahmann and Marvin (1971) stated that academic achievement "generally refers to behavioral changes in all program areas outside the student's psycho-motor and affective development" (cited in Erdoğdu, 2006, p. 97). Cole (1990), on the other hand, suggests that the concept of achievement changed with time influenced by many factors and it varies according to people's differences, and emphasizes cognitive competence separately. According to this, achievement can be

defined as two main concepts: achievement of skills and facts and achievement of higher-level skills and advanced knowledge.

Academic achievement, regardless of what kind of achievement it involves, is significant in terms of the specific objectives/learning outcomes of the lesson as well as the general objectives of education. The overall achievement of the students in the lessons arranged with the aims of improving the different aspects of the students adequately and arousing their individual potentials determines their school success on the whole. However, when we consider the fact that individuals are equipped with different abilities and competences in terms of cognitive, emotional, psycho-motor, social, and similar, a unidirectional perception of achievement becomes a questionable perspective. In addition, the viewpoint of education in today's world, whether the lessons are mainly cognitive or psycho-motor-based; emphasizes the more holistic support of students from cognitive, affective, psycho-motor or social perspectives (Balay, 2004; Bohl, 2003; MEB, 2018; Peterßen, 2000). Furthermore, in addition to the competence differences of individuals, the fact that some lessons have different types of learning outcome and content rather than a purely cognitive focus requires the orientation of learning areas that are predominantly psycho-motor oriented. For example, by virtue of the fact that achievement is merely measured cognitively in lessons such as Music or Art, which require both natural ability and through education gained qualifications; rather than giving a clue to a branch-specific formation and development, it may not go beyond being an indicator of the results that are important, but -if we approach it from a relative point of view- the ones have peripheral significance for the branch. Therefore, our attitude in our study is more likely to acknowledge the concept of academic achievement as a holistic learning competence or outcome rather than merely to perceive it as a mere cognitive score.

The music lesson consists of lesson processes based on mainly psycho-motor learning outcomes by its nature, but also cognitive, auditory-sensory, affective and social learning outcomes. In the Music Curriculum of Lower Secondary School, which was effectuated in 2018 in Turkey, the expectations from the lesson are various: to enable students to develop their musical perception and knowledge, to participate in different types of singing and listening activities individually and collectively, to express itself through music, to make music in different ways, to improve their aesthetic perception, to development of cognitive skills through music, to acquire musical knowledge and music culture, and to ensure that the students have access to information technologies in music studies (MEB, 2018). It is primarily the duty of the music teachers to fulfill these expectations, which are indicative of the idea of supporting the student in a multi-faceted way. Like every teacher, the music teacher also wants the students to reach the outcomes of the lesson and develop. The most fundamental and central role in achieving this goal is the realization of effective and qualified lesson processes. Moreover, the measurement and assessment of student achievement is of great importance as a complementary phase of this process as well.

Determination of student achievement is possible with 'measurement' and 'assessment' procedures. These two concepts are used together or sometimes interchangeably but with different content. 'Measurement' is the observation of the properties of a variable that are wanted to assess and linking the results with numbers or symbols (Turgut & Baykul, 2011). According to another definition, it is "the process of

determining the amount of a performance or assigning a number to the observed performance" (Kilmen, 2014, p. 30). 'Assessment' is defined as "the process of concluding the results of the measurement by comparing them with a criterion" (Güler, 2015, p. 12). In another definition, it is emphasized that assessment is "a decision-making process on the quality of the student performance" (Kilmen, 2014, p. 30) and that it requires a comparison between the measurement results and the determined criteria. Evaluation, which plays a major role in the teaching-learning process, has a wide variety of functions such as guiding the educational process, reviewing the acquisition status of the originally intended knowledge and skills, evaluating the effectiveness of the teacher and the lesson, measuring student development and providing feedback for student success, offering tips on procedures of selection and supporting or contributing to lesson research (Abel-Struth, 1985; Lohmann, 1982, 1997; Rapp, 1998). As indicated by the definitions and explanations presented here, both measurement and assessment are integral and important parts of the teaching process, informing the teacher and the student about the process.

Measurement and assessment processes include some differences according some variable such as types of school, age and development levels of the students, equipment owned by the teacher and as well as to the branches. An measurement tool that is highly suitable for a particular class for the same age group may not be sufficient in another lesson. In this regard, there are some difficulties in the music lessons in determining the level of change in student behavior and determining achievement, and according to Lohmann (1997, p. 51-52) these difficulties arise from:

> "-The problem of the categorical operationalization in all of the learning objectives/outcomes, especially those of non-cognitive characteristics,
>
> -The deficiencies in the validity and comparability of grade passing grades; the idealization of the school as 'conflict free' and of the music lessons as 'hostile to empiricism' in a controversial manner,
>
> -The fact that the subjective achievement measures in the music lessons continue without any change in spite of the existence of appropriate bio-metric methods due to the deficiencies in teacher training,
>
> -Suspicion against the possibilities of use the science methods in artistic-musical fields, and rejection of the notion of a differential achievement measures in music lessons which are believed 'to be not selective' with the notion of 'average achievement rating'."

The nature of the music lesson requires that student performance should be measured and evaluated in terms of multidimensionality, both in the fields of cognitive, psycho-motor, social and such areas as well as in terms of process and outcome (Lohmann, 1997; Niermann, 2008). Measurement of multiple musical behavior types related to students' singing, playing an instrument, accompaniment, musical transformation, musical creativity and musical knowledge (Kalyoncu, 2005) with one-way perspective and one type of tools would prevent us from achieving realistic and consistent results about their acquisitions. In the Music Curriculum of Lower Secondary School implemented in Turkey (MEB, 2018), the principles that lead to the measurement and evaluation practices have been arranged in order; it has been stated that the curriculum does not put strict limits in terms of measurement tools and methods that can be used in the evaluation process and that it makes guidance, and it has been emphasized that the student's development cannot be evaluated in just one way due to the fact of individual differences. In multi-faceted music lessons, learning outcomes that

include practice such as singing, playing an instrument, musical creativity, perception or musical transformation can be measured through 'observation forms', 'performance tests', 'graded scoring charts', 'peer/partner evaluation' or 'portfolio' etc. to determine the achievement (Gültekin, 2014; Kutlu, Doğan, & Karakaya, 2010; Niermann, 2008; Turgut & Baykul, 2011), and the knowledge oriented learning outcomes can be measured through 'true-false tests', 'short-answer tests', 'paired tests', 'gap-filled tests', 'completed tests' or 'multiple-choice tests' according to the characteristics of the learning objectives and the students' developmental level (Başol, 2018; Güler, 2015; Lohmann, 1982; Meißner, 1987; Turgut & Baykul, 2011).

Studies on the development of cognitive-oriented achievement tests in the field of music education have a long history, and the first examples are belonging to the Anglo-American cultural environment (Jordan, 2014; Knigge, 2011). Achievement tests, that have their roots in the initiatives at the beginning of the 20th century, are developed only for music lessons dependent on a curriculum (Colwell, 2019; Gembris, 1998), unlike other tests such as 'musical ability', 'performance', 'musical preference', 'musical taste', 'judgment' and 'attitude' (Füller, 1974; Knigge, 2011) used in the field of music. Musical achievement tests generally aim to measure knowledge regarding Music Theory, Music History, Notation etc., skills based on auditory perception or knowledge regarding musical composition (Knigge, 2011). One of the earliest known examples of musical achievement tests is the *Beach Music Test*, developed to measure some auditory competences as well as music knowledge (Colwell, 2019). William E. Knuth's *Achievement Tests in Music* was first published in 1936 and then revised in 1966. The basic procedure which should be done in this 40-question test, which contains melodic-rhythmic structures is to listen carefully to the music sentences given and to mark the differences in the notation (Colwell, 1963; Weymuth, 1986).

From the middle of the 20th century, both the number of musical achievement tests increased and they were recognized in other countries. One of the tests of the mid-century period is *The Aliferis Music Achievement Test* developed by James Aliferis to measure musical components. The purpose of this multiple-choice test is to measure three basic skills consist of melody, harmony and rhythm that good musicians should have. In this test containing of 64 questions, there are six chapters consisting of 'Melodic Elements-Melodic Style', 'Harmonic Elements-Harmonic Style', 'Rhythmic Elements-Rhythmic Style'. An average of 40 minutes of testing can be carried out using a recording device or by playing the piano (Kraehenbuehl, 1957; Weymuth, 1986). Swinchoski (1965), in his study, aimed to develop a test that is able to illustrate the various activities in the music curriculum and to be able to distinguish between high or low achievement students in music. He developed a *Music Achievement Test Battery* that consists chapters of 'Rhythmic Activities', 'Listening Activities', 'Musical Reading' and 'Creative Activities' and that measures musical knowledge and practice in an integrated way. Another example is *The Music Achievement Tests*, a four-level test series developed by Richard Colwell. The purpose of these tests, which are called MATs in short, is to determine how much the student has earned from past teaching, the quality of the lesson and how much the students will gain from future lessons (Weymuth, 1986). "MAT is an aural test, for music is aural as an art, skill, and activity" (Colwell, 1970, p. 62). Another example that deserves to be mentioned here is the tests that Edwin E. Gordon developed and applied in a wide range of countries. Gordon's

Iowa Tests of Music Literacy (ITML) is the only nationally standardized music achievement test series published in the United States. These six-grade tests, intended to measure tonal and rhythmic auditory perception, musical literacy ability, and understanding/comprehending of notation, are designed to continually assess students' progress in music, to identify their strengths and weaknesses in music achievement, and to compare their relative stance in musical achievement (Gordon, 2001).

Achievement test development studies for Music lessons were conducted also in Turkey. Kocabaş (1995), in her study, developed and used the *Musical Field Knowledge Test* to determine the effects of Cooperative Learning on music learning strategies. Tunalıoğlu (2004) developed a *Musical Knowledge Test*, and determined the effects of regular vocal and instrumental education practices in the second phase of primary education music lessons using this test. Nacakcı (2006) used the *Cognitive Success Test*, which he developed in order to determine the effect of the learning model prepared for 7th Grade Music lesson based on the Theory of Multiple Intelligences on students' musical learning levels. One of the measurement tools that Şen (2011) used in his study which compared the Programmed Learning with traditional teaching methods in 7th Grade Music lessons is the *Achievement Test*. Güven (2011) used the *Music Lesson Achievement Test* to measure the students' musical learning levels in the music lessons conducted with the Cooperative Learning in the lower secondary schools in which the application of Inclusion was carried out. Varış and Cesur (2012), in their study, developed an *Achievement Test*, which is used to measure basic music knowledge targeted at upper secondary school Music lesson. Gök (2012) developed and used the *Academic Achievement Test* in order to determine the effect of 5E model on the students' musical learning levels in the 7th grade Music lessons. In another study, Akgül (2013) used the *Music Lesson Achievement Test* to determine the effect of instrumental accompany practices on the Music lesson achievement of the 6th grade students. Yegül (2014) developed an *Academic Achievement Test* to measure the knowledge level of the music teacher candidates about Constructivist Learning.

As we have seen in the given examples, many different types of tests have been developed for use in music lessons. 'Multiple-choice tests', which are predominant among them, are used not only in music lessons but also in different branches in various education levels to measure achievement. Common causes of the using of this test type are the possibility of ask many questions in short time periods, apply in large groups, make easy scoring and provide a more objective point of view in evaluating student achievement. Multiple-choice tests can be adapted to different situations, ranging from simple recalling of the knowledge earned to analysis, from adapting the principles to new situations to interpreting tables and graphs, from dedicating from data to interpreting cause-effect relationships (Burton, Sudweeks, Merrill, & Wood, 1991). As these tests are among the most preferred measurement tools, there are many studies in the literature in order to develop multiple-choice achievement tests that measure cognitive achievement for different education levels and different branches. As examples, studies on development of multiple-choice achievement tests in the fields of science (Akbulut & Çepni, 2013; Başer, 1996; Demir, Kızılay, & Bektaş, 2016; Gönen, Kocakaya, & Kocakaya, 2011; Güngörmez & Akgün, 2018; Jayanthi, 2014; Öngören, 2007; Özkan & Muştu, 2018; Singh & Rosengrant, 2003; Şen & Eryılmaz, 2011; Şener & Taş, 2017), mathematics (Duru, 2007; Fidan, 2013; İncebacak & Ersoy, 2017), social

studies (Osadebe & Jessa, 2018; Şan & İbrahimoğlu, 2017) and Turkish language (Belet, 2005) can be given.

Achievement tests are developed for lessons in relation to the curriculum, therefore they are not tools used in very long periods without any change. As the curricula and the learning fields in curricula change, the tests that teachers can use in lessons are developed/redeveloped or the existing tests can be adapted for the needs in learning-teaching situations. For this reason, it is thought that the tests developed in accordance with the learning fields of the Music courses will be among the tools that can contribute to teachers in the evaluation processes as a concrete material. In this context, the aim of this study is to develop a multiple-choice *Musical Knowledge Test*, which can be used to measure the musical knowledge of 6th Grade students in the learning field of 'Musical Perception and Knowledge' in Turkish curriculum.

In the study, we started out from the familiar approach of Plößl and Füller for the development of tests for music lessons. According to this, the test development process consists of the main steps such as the operationalization of the objectives/learning outcomes selected from the curriculum, defining the duties of the teacher in the lesson process, the teaching-learning process and the implementation of the tests (Abel-Struth, 1985; Füller, 1974; Plößl, 1983). In this context, the test was developed based on the analysis of the learning outcomes in the related learning field, and the process of obtaining the test is presented in the next section based on the test development stages of Grotjahn (2000).

Development Process of 'Musical Knowledge Test'

Preparation of the Test Draft

In the preparation stage of the test, first of all, the topics in the learning field 'Musical Perception and Knowledge' of the 6th Grade Music Lesson were examined. The learning contents included in the test were selected to be limited in order to ensure that the number of questions was reasonable and that the students would not have any problems in the response process. The selected contents were divided into sub-themes (learning units). The learning contents/subjects[1] which were decided to include of the test are as follows:

1. Dotted Rhythm[2]
2. Tie
3. Let's Dance with Different Rhythms (6/8 Compound Measure)
4. Let's Dance with Different Rhythms (5/8 Asymmetric Measure)
5. How Does My Voice Occur?
6. I'm Growing

[1] This test was prepared for the 6th Grade based on the learning contents of the 2007 Music Curriculum of Primary Education, which consist of Elementary School (Grades 1-4) and Lower Secondary School (Grades 5-8). The Music Curriculum of Lower Secondary School was revised in 2018 (MEB, 2018). Five of the learning contents selected for this test were included in the revised curriculum again under the 6th Grade subjects, and only the subject 'Dot / Dotted Rhythm' was transferred to the contents of 7th Grade Music Lesson (MEB, 2007, 2018).

[2]Although this term is called in the curriculum the "Increase Dot" (MEB, 2007, p. 55), but the concept was called in the Music Theory literature as "Extension Point" (Gurlitt & Eggebrecht, 1996, p. 759; Kocabaş, 2003, p. 2; Michels, 2001, p. 66; Özgür & Aydoğan, 1999, p. 117) or "Dotted Rhythm" (Apel, 2000, p. 243; Breslauer, 1988, p.14; McPherson, 2019, p. 588).

Subsequently, the learning outcomes in the music lesson curriculum, which include more general expressions, have been detailed and divided (operationalized) into measurable sub-outcomes by researchers (see Table 1). These detailed learning objectives are guiding the Musical Knowledge Test.

Table 1

Learning Contents, Learning Outcomes and Sub-Outcomes of the 6th Grade Learning Field 'Musical Perception and Knowledge'

Learning Contents	Learning Outcomes	Sub-Outcomes
1. Dotted Rhythm	Uses basic music notation and elements.	1. Expresses that the point placed on the right of the note is the Dotted Rhythm. 2. Expresses that the extension point has a value of half that of the note. 3. Beats up simple rhythm patterns containing the dotted time values. 4. Writes simple rhythm patterns containing dotted time values.
2. Tie		1. Indicates that the sign connecting the two notes with the same name is the tie. 2. Expresses that the tie extend the time of the first note by placing their names and sounds under or above the same notes. 3. Beats up simple rhythm patterns containing tie note time values. 4. Writes simple rhythm patterns containing tie note time values.
3. Let's Dance with Different Rhythms *(6/8 compound measure)*	Uses basic music notation and elements.	1. Explains the structure of 6/8 compound measure. 2. Selects a 6/8 compound measure from the given different measures. 3. S/he performs songs and other music in 6/8 measure. 4. Accompanies to music in 6/8 measure with appropriate movements. 5. Forms rhythmic phrases in 6/8 measure.
4. Let's Dance with Different Rhythms *(5/8 asymmetric measure)*	Uses basic music notation and elements.	1. Explains the structure of 5/8 asymmetric measure. 2. Selects a 5/8 asymmetric measure from the given different measures. 3. S/he performs songs and other music in 5/8 measure. 4. Accompanies to music in 5/8 measure with appropriate movements. 5. Forms rhythmic phrases in 5/8 measure.
5. How Does My Voice Occur?	Explains how the human voice is formed, its use in music and the importance of the voice-breathing elements.	1. Tells how the human voice is formed. 2. Explains the importance of sound and breath elements in speech and singing. 3. Uses voice and breathe correctly when sings the learned songs. 4. Breathes in the right places when sings the learned songs.

6. I am Growing	Recognizes the characteristics of breaking of the voice (mutation) in adolescence.	1. Explains how the voice is affected by changes in adolescence. 2. Tells what ages contain the period of voice breaking is between. 3. Expresses the change in the voices of boys and girls in the period of breaking of the voice (mutation). 4. Knows that the vocal cords are sensitive during breaking of the voice (mutation), and expresses the ways to protect the voice health.

Based on these learning outcomes and sub-outcomes, a 25-question multiple-choice questionnaire was created. Expert opinion[1] was taken for the scope validity of the questions, and necessary corrections were made in accordance with the feedback received, and a draft *Musical Knowledge Test* was prepared for use in the trial application.

Application of the Test Draft

After the necessary permissions[2] were obtained for the application of the *Musical Knowledge Test*, the test draft was applied to students of five lower secondary schools in the Black Sea Region in Turkey during the 2010-2011 Academic Year Fall Semester. The test draft was applied to a total of 261 students, who studied the selected learning contents in the music classes in the previous academic year/years, who were currently studying in the seventh and eighth grades. Schools visited by students are located in the city center. The students' musical learning is almost limited to music lessons at school. There are few students, who receive instrument training outside of school, but their lessons are not regularly and contained not high-level skills. Therefore, the scorings the students acquired in the applied tests are due to the school music lessons. During the implementation of the test, the first author was personally present to the students and provided the necessary support for the ununderstanding points. 41 of the tests completed by the students were considered invalid because of inappropriate marking, and the remaining 220 tests were used for the validity and reliability analysis.

Analysis of Data obtained from Application

The items in the test were analyzed using the Excel program. "Item analysis is the computation and examination of any statistical property of an item response distribution" (Crocker & Algina, 2008, p. 335). The difficulty of a test item is the ratio of the number of correct responders to the total number of students in the practice (Tekin, 2000; Turgut & Baykul, 2011). The discrimination function (substance validity) of a test substance relates to the extent to which the substance is able to distinguish between those accessing the related outcome and those who do not (ibid.; ibid.). This analysis program shows the discrimination and difficulty levels of the substances, but also gives the average statistical values.

[1]We would like to thank Prof. Dr. Ali UÇAN, who contributed to the study by examining the test draft and giving feedbacks.

[2]Research permission of the relevant Provincial Directorate of National Education in the Black Sea Region/Turkey, dated 24 November 2010, numbered B.08.4.MEM.4.14.00.02.121/19397.

As a result of the analysis, the KR-20 reliability coefficient value was found to be 0.76, the mean difficulty index value was 0.56, and the mean discrimination value was 0.54. After examining the values of each items one by one, questions 11, 13, 17, 21 and 23 were excluded from the test because the difficulty and discrimination index values were not sufficient (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2011). As a result of the analysis made once again, the KR-20 reliability coefficient value was found to be 0.77, the mean difficulty index value was 0.57, and the mean discriminant value was 0.44 (see Table 2).

Table 2

Difficulty and discrimination index values of the Musical Knowledge Test items

Item No	Difficulty value *(p)*	Discrimination value *(d)*
1	.65	.64
2	.64	.58
3	.72	.58
4	.53	.36
5	.33	.24
6	.41	.46
7	.46	.43
8	.38	.39
9	.85	.50
10	.58	.39
11	.85	.43
12	.71	.42
13	.47	.44
14	.38	.46
15	.41	.38
16	.32	.45
17	.30	.35
18	.87	.42
19	.79	.43
20	.74	.35
KR-20: 0.77	*Mean:* 0.57	*Mean:* 0.44

Final Form of the 'Musical Knowledge Test'

As a result of the item removal, reorganization, correction and analysis, the 20-item *Musical Knowledge Test* has been finalized (see Appendix 1). The distribution of the questions in the test according to the topics in the learning field 'Musical Perception and Knowledge' are as follows: 1., 2., 3. and 4. questions *Dotted Rhythm*; 5., 6., 7. and 8. questions *Tie*; 9., 10. and 11. questions *How Does My Voice Occur?*; 12, 13 and 14.

questions *Let's Dance with Different Rhythms (6/8)*; 15., 16. and 17. questions *Let's Dance with Different Rhythms (5/8)*; 18., 19. and 20. questions *I am Growing*.

Musical Knowledge Test is evaluated over 100 points. Teachers can determine the achievement score by multiplying the number of correct answers given by the students by the coefficient 5.

Conclusion and Discussion

As a result of this study, a multiple-choice *Musical Knowledge Test* consisting of 20 questions has been developed, which can be used to measure the knowledge-oriented achievement of the students in the learning contents within the learning field 'Musical Perception and Knowledge' of the 6th Grade Music Lesson. The KR-20 reliability coefficient value of the test was calculated as 0.77, the mean difficulty index value was 0.57, and the mean discrimination value was 0.44. Since the majority of Turkish tests available cover different grades of Music lessons, and there is not high number of tests for 6th Grade, this test can contribute to measurement tools for this class. Also, the few tests developed for the 6th Grade are also extensive, therefore the proposed test can be a helpful tool that teachers can use in a short period during the lesson. However, this test represents only one of the various measuring tools that can be used in the course. When used in conjunction with other measurement instruments to enable students to participate interactively, a one-way assessment can be avoided.

Although, for music teachers, measuring the learning products, in other words whether the learning outcomes have taken place in their lessons, in different ways and implementing their ideas on this issue is possible with knowing the assessment and evaluation tools well and integrating them into the music lessons, this may not always be achieved in the desired way. One of the main reasons for this is the duration of music lessons in the weekly school program as frequently mentioned in the literature (Kılıç, 2009; Meißner, 1987; Nacakcı, 2006; Öztürk, 2006; Sualp, 2002; Tanyeli, 2007; Türkmen, 2009). The fact that music lessons in Lower Secondary School are one lesson per week can limit the teachers' ability to develop and use different assessment and evaluation tools. Another reason is that the teachers have not recognized the various approaches and methods of measurement end assessment for the evaluation within the teacher trainings process and in-service period (Lohmann, 1997). In this context; ready-made concrete measurement tools like multiple-choice achievement tests are among the useful tools that can be functional to music teachers.

Multiple-choice tests are economic and logical choices when it comes knowledge and measurement of many cognitive skills. While some learning products are directly observable, multiple-choice tests play a role that we can define functionally the areas of knowledge and skill, especially if skills are cognitive (Haladyna, 2004). The advantages of such achievement tests in music lessons are not limited to this. The such features as; compliance with crowded classes; usefulness; avoiding evaluation based solely on the subjective perspective of the teacher; testing each student under the same conditions; being comparable; the ability to be easily applied and relatively easy to score without the need for special skills; objectivity and reliability of results; the time-consuming economy etc. (Gembris, 1998; Lohmann, 1982, 1997; Roediger & Mash, 2005) support the use of these tests in music lessons.

These tests undoubtedly have disadvantages, too. The such expressions are frequently emphasized negativity; the preparation of the test is difficult and takes a long time; limited to cognitive domain; less favorable in measuring behavior above the level of knowledge; not develop written expression; the possibility that the correct answer is found with luck; the fact that the different structures of the learning types are not sufficiently measured in this format etc. (Klufa, 2015; Lohmann, 1997; Roediger & Mash, 2005; Tekindal, 2014; Turgut & Baykul, 2011). Although such criticisms are brought, it is emphasized that multiple-choice tests play a vital role in measuring many important aspects of most structures (Haladyna, 2004). At this issue, it is important to act with the awareness that "a single test should not be the starting or finishing [result indicator] point of a lesson" (Lohmann, 1982, p. 258), and to make those measuring instruments useful for a lesson by using them at the appropriate time and contents.

The *Musical Knowledge Test* obtained in this research will provide information only about students' cognitive acquisitions in the learning field of 'Musical Perception and Knowledge', in other words it will serve as a cross-sectional measurement process. Therefore, it is recommended to use the test upon need alone or together with the other measuring instruments that can also measure students' auditory-sensory, psycho-motor, social and similar learning output. It is thought that the test will be a beneficial tool in determining the students' achievement or in defining the learning deficiencies by informing the students regarding the results. As it is known, it is aimed that individuals gain general music skills, music knowledge and music appreciation etc. in general school music education. For this reason, it is suggested and recommended in current music curriculum that music teachers will act with the utmost diversity and flexibility in assessment and evaluation processes (MEB, 2018).

Statement of Responsibility

Özlem Öztürk; conceptualisation, design of research process, the methods, investigation, data curation, writing, reviewing & editing, and visualisation. Nesrin Kalyoncu; conceptualization, design of research process, the methods, writing-reviewing & editing, and supervision.

References

Abel-Struth, S. (1985). *Grundriss der musikpädagogik*. Mainz: Schott.

Akbulut, H. İ., & Çepni, S. (2013). Bir üniteye yönelik başarı testi nasıl geliştirilir? İlköğretim 7. sınıf kuvvet ve hareket ünitesi. *Amasya Üniversitesi Eğitim Fakültesi Dergisi, 2*(1), 8-44.

Akgül, A. (2013). *Enstrüman eşlikli uygulamaların ilköğretim 6. sınıf öğrencilerinin müzik dersine yönelik başarı ve tutumlarına etkisi* (Yayımlanmamış doktora tezi). Marmara Üniversitesi, Eğitim Bilimleri Enstitüsü, İstanbul.

Apel, W. (2000). *Harward dictionary of music* (2nd ed.). Cambridge: The Belknap Press of Harward University Press.

Balay, R. (2004). Küreselleşme, bilgi toplumu ve eğitim. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi, 37*(2), 61-82.

Baltaş, A. (2005). *Öğrenme ve sınavlarda üstün başarı* (22. baskı). İstanbul: Remzi Kitabevi.

Başer, N. (1996). *Ders geçme ve kredi sisteminde lise öğrencileri için bir matematik başarı testi tasarımı ve uygulanabilirliğinin araştırılması* (Yayımlanmamış doktora tezi). Dokuz Eylül Üniversitesi, Sosyal Bilimler Enstitüsü, İzmir.

Başol, G. (2018). *Eğitimde ölçme ve değerlendirme* (5. baskı). Ankara: Pegem Akademi.

Belet, D. (2005). *Öğrenme stratejilerinin okuduğunu anlama ve yazma becerileri ile Türkçe dersine ilişkin tutumlara etkisi* (Yayımlanmamış doktora tezi). Anadolu Üniversitesi, Eğitim Bilimleri Enstitüsü, Eskişehir.

Bohl, T. (2003). Neuer unterricht-neue leistungsbewertung. Grundlagen und kontextbedingungen eines veränderten bewertungsverständnisses. In O. Vorndran & D. Schnoor (Eds.), *Schulen für die wissensgesellschaft. Ergebnisse des netzwerkes medienschulen* (pp. 211-231). Gütersloh: Verlag Bertelmann Stiftung.

Breslauer, P. (1988). Diminutional rhythm and melodic structure. *Journal of Music Theory, 32*(1), 1-21.

Burton, S. J., Sudweeks, R. E., Merrill, P. F., & Wood, B. (1991). *How to prepare better multiple-choice test items: Guidelines for university faculty*. Retrieved from https://sites.educ.ualberta.ca/staff/ldelia/How-to-prp-MC-Tests=UK'University.pdf

Büyüköztürk, Ş., Çakmak, E. K., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2011) *Bilimsel araştırma yöntemleri* (10. baskı). Ankara: Pegem Akademi.

Cole, N. S. (1990). Conceptions of educational achievement. *Educational Researcher, 19*(3), 2-7.

Colwell, R. (1963). An investigation of musical achievement among vocal students, vocal-instrumental students, and instrumental students. *Journal of Research in Music Education, 11*(2), 123-130.

Colwell, R. (1970). The development of the music achievement test series. *Bulletin of the Council for Research in Music Education, 20,* 57-73.

Colwell, R. (2019). An overview of music tests and their uses. In T. S. Brophy (Ed.), *The Oxford handbook of assessment policy and practice in music education* (pp. 537-574). New York: Oxford University Press.

Crocker, L., & Algina, J. (2008). *Introduction to classical and modern test theory*. Ohio: Cengage Learning.

Demir, N., Kızılay, E., & Bektaş, O. (2016). 7. Sınıf çözeltiler konusunda başarı testi geliştirme: Geçerlik ve güvenirlik çalışması. *Necatibey Eğitim Fakültesi Elektronik Fen ve Matematik Eğitimi Dergisi (EFMED), 10*(1), 209-237. https://doi.org/10.17522/nefefmed.52947

Demirel, Ö. (2012). *Eğitim sözlüğü* (5. baskı). Ankara: Pegem Akademi.

Duru, E. D. (2007). *Oluşturmacı yaklaşıma göre tasarlanmış bir ders paketinin uygulanmasıyla ulaşılan başarının geliştirilen başarı testi ile değerlendirilmesi* (Yayımlanmamış yüksek lisans tezi). Dokuz Eylül Üniversitesi, Eğitim Bilimleri Enstitüsü, İzmir.

Erdoğdu, Y. (2006). Yaratıcılık ile öğretmen davranışları ve akademik başarı arasındaki ilişkiler. *Elektronik Sosyal Bilimler Dergisi, 5*(17), 95-106.

Fidan, E. (2013). *İlkokul öğrencileri için matematik dersi sayılar öğrenme alanında başarı testi geliştirilmesi* (Yayımlanmamış yüksek lisans tezi). Ankara Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.

Foulquié, P. (1994). *Pedagoji sözlüğü* (Çev. C. Karakaya). İstanbul: Sosyal Yayınlar.

Füller, K. (1974). *Standardisierte musikalitätstests.* Frankfurt: Diesterweg.

Gembris, H. (1998). *Grundlagen musikalischer begabung und entwicklung*. Augsburg: Wiβner.

Good, C. V. (1973). *Dictionary of education* (3rd ed.). USA: McGraw-Hill Book Company.

Gordon, E. E. (2001). *Music aptitude and related tests: An introduction*. Chicago: GIA.

Gök, M. (2012). *Müzik eğitiminde 5E modeli'nin akademik başarı, tutum ve kalıcılığa etkisi* (Yayımlanmamış doktora tezi). Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.

Gönen, S., Kocakaya, S., & Kocakaya, F. (2011). Dinamik konusunda geçerliliği ve güvenilirliği sağlanmış bir başarı testi geliştirme çalışması. *Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi, 8*(1), 40-57.

Grotjahn, R. (2000). Sprachlehrforschung. In M. Byram (Ed.), *Routledge Encyclopedia of Language Teaching and Learning* (1st ed.) (pp. 569-572). London: Routledge.

Gurlitt, W., & Eggebrecht, H. H. (1996). *Riemann sachlexikon musik* (12th ed.). Mainz: Schott Musik.

Güler, N. (2015). *Eğitimde ölçme ve değerlendirme* (5. baskı). Ankara: Pegem Akademi.

Gültekin, S. (2014). Performans dayanaklı değerlendirme. R. N. Demirtaşlı (Ed.) *Eğitimde Ölçme ve Değerlendirme* (3. baskı) içinde (ss. 241-274). Ankara: Edge Akademi Yayınları.

Güngörmez, H. G., & Akgün, A. (2018). Ortaokul öğrencilerinin fen bilimleri dersindeki kuvvet ve enerji ünitesine yönelik akademik başarı testi geliştirme çalışması. *Diyalektolog Ulusal Sosyal Bilimler Dergisi, 18*, 85-99.

Güven, E. (2011). *Kaynaştırma uygulamasının yapıldığı sınıflarda işbirlikli öğrenmenin müzik öğretimi üzerindeki etkileri* (Yayımlanmamış doktora tezi). Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.

Haladyna, T. M. (2004). *Developing and validating multiple-choice test items* (3rd ed.) New Jersey: Lawrence Erlbaum Associates Publishers.

İncebacak, B. B., & Ersoy, E. (2017). Developing an achievement test for fraction teaching: Validity and reliability analysis. *2nd International Conference on Computational Mathematics and Engineering Sciences*, 1-14.

Jayanthi, J. (2014). Development and validation of an achievement test in mathematics. *International Journal of Mathematics and Statistics Invention, 2*(4), 40-46.

Jordan, A.-K. (2014). *Empirische validierung eines kompetenzmodells für das fach musik.* Münster, New York: Waxmann.

Kalyoncu, N. (2005). Eğitim fakültelerinde uygulanan müzik öğretmenliği lisans programının revizyon gerekçeleriyle tutarlılığı. *Gazi Eğitim Fakültesi Dergisi, 25*(3), 207-220.

Kılıç, I. (2009). İlköğretim okullarındaki müzik derslerinde karşılaşılan araç-gereç sorunu. S. Tarman (Ed.), *8. Ulusal Müzik Eğitimi Sempozyumu Bildiriler Kitabı* (ss. 314-327). Samsun: Ondokuz Mayıs Üniversitesi Yayınları.

Kilmen, S. (2014). Ölçme ve değerlendirmede temel kavramlar. R. N. Demirtaşlı (Ed.), *Eğitimde Ölçme ve Değerlendirme* (3. baskı) içinde (ss. 30-64). Ankara: Edge Akademi Yayınları.

Klufa, J. (2015). Multiple choice question tests-advantages and disadvantages mathematics and computers in sciences and industry. *Proceedings of the 2nd International Conference on Mathematical Sciences and Computer Engineering*, 91-94.

Knigge, J. (2011). *Modellbasierte entwicklung und analyse von testaufgaben zur erfassung der kompetenz 'musik wahrnehmen und kontextualisieren'*. Berlin: LIT Verlag.

Kocabaş, A. (1995). *İşbirlikli öğrenmenin blokflüt öğretimi ve öğrenme stratejileri üzerine etkileri* (Yayımlanmamış doktora tezi). Dokuz Eylül Üniversitesi, Sosyal Bilimler Enstitüsü, İzmir.

Kocabaş, A. (2003). *Müzik öğretiminin temelleri* (2. baskı). İzmir: Egetan Basım.

Kraehenbuehl, D. (1957). Re: The Aliferis music achievement tests. *Journal of Music Theory, 1*(2), 208-211.

Kutlu, Ö., Doğan, C. D., & Karakaya, İ. (2010). *Öğrenci başarısının belirlenmesi* (3. baskı). Ankara: Pegem Akademi.

Lohmann, W. (1982). Diagnostische und didaktisch-methodische funktion von tests im unterricht. In K.-E. Behne (Ed.), *Gefühl als erlebnis-ausdruck als sinn* (pp. 250-269). Laaber: Laaber Verlag.

Lohmann, W. (1997). Leistungserfassung-leistungsbeurteilung/leistungsbewertung. In S. Helms, R. Schneider & R. Weber (Eds.), *Handbuch des musikunterrichts. B. 2: Sekundarstufe I.* (pp. 49-55). Kassel: Gustav Bosse Verlag.

McPherson, G. E. (2019). Developing tests of music performance improvisation. In T. S. Brophy (Ed.), *The Oxford handbook of assessment policy and practice in music education* (pp. 575-606). New York: Oxford University Press.

Meißner, R. (1987). Informelle tests: Die bewertung der schülerleistung. In H. de la Motte-Haber (Ed.), *Handbuch der musikpädagogik. B.4: Psychologische grundlagen des musiklernens* (pp. 431-469). Kassel: Bärenreiter.

Michels, U. (2001). *Dtv-Atlas musik.* München: Deutscher Taschenbuch Verlag.

Millî Eğitim Bakanlığı [MEB] (2007). *İlköğretim müzik dersi öğretim programı.* Ankara: MEB Yayınları.

Millî Eğitim Bakanlığı [MEB] (2018). *Müzik dersi öğretim programı (İlkokul ve ortaokul)*. Ankara: MEB Yayınları.

Nacakcı, Z. (2006). *Çoklu zeka kuramı dayanaklı ders işleme modelinin ilköğretim 7. sınıf müzik dersinde öğrencilerin müziksel öğrenme düzeylerine etkisi* (Yayımlanmamış doktora tezi). Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.

Niermann, F. (2008). Leistungen gehören kommuniziert. In H.-U. Schäfer-Lembeck (Ed.), *Leistung im musikunterricht. Beiträge der münchner tagung* (pp. 15-31). München: Allitera Verlag.

Office of the Education Ombudsman [OEO] (2011). *Family dictionary of education terms* (2nd ed.). Retrieved from https://www.digitalarchives.wa.gov/governorgregoire/oeo/publications/dictionary.pdf.

Osadebe, P. U., & Jessa, M. O. (2018). Development of social studies achievement test for assessment of secondary school students. *European Journal of Open Education and E-learning Studies, 3*(1), 104-124. Doi: 0.5281/zenodo.1302023.

Öngören, H. (2007). *İlköğretim yedinci sınıf fen bilgisi dersi kuvvet, hareket ve enerji ünitesinde çoklu zeka kuramı tabanlı öğretimin öğrenci başarısı ve tutumları üzerindeki etkileri* (Yayımlanmamış yüksek lisans tezi). Pamukkale Üniversitesi, Fen Bilimleri Enstitüsü, Denizli.

Özgür, Ü., & Aydoğan, S. (1999). *Müziksel işitme okuma (1. kitap)*. Ankara: Sözkesen Matbaası.

Özkan, E. B., & Muştu, Ö. E. (2018). 8. Sınıf basit makineler ünitesine yönelik başarı testi geliştirme: Geçerlik ve güvenirlik çalışması. *Hitit Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 11*(1), 737-754. http://dx.doi.org/10.17218/hititsosbil.332294.

Öztürk, E. (2006). *İlköğretim okullarındaki ikinci kademe müzik eğitimi ve sorunları* (Yayımlanmamış yüksek lisans tezi). Afyon Kocatepe Üniversitesi, Sosyal Bilimler Enstitüsü, Afyon.

Page, G. T., Thomas, J. B., & Marshall, A. R. (1977). *International dictionary of education.* London: Nichols Publishing Company.

Peterßen, W. H. (2000). *Handbuch unterrichtsplanung* (9th ed.). Oldenbourg: Schulbuchverlag.

Plößl, W. (1983). *Lernziele-lernerfahrungen-leistungsmessung. Aspekte einer effektiven unterrichtsgestaltung.* Augsburg: Auer Verlag.

Rapp, G. (1998). *Messung und evaluierung von lernergebnissen in der schule*. Bad Heilbrunn: Klinkhardt.

Roediger, H. L., & Mash, E. J. (2005). The positive and negative consequences of multiple-choice testing. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 31*(5), 1155-1159. http://dx.doi.org/10.1037/0278-7393.31.5.1155.

Shamsuddin, S. (2007). *Values and academic achievement.* New Delhi: Discovery Publishing House.

Silah, M. (2003). Üniversite öğrencilerinin akademik başarılarını etkileyen çeşitli nedenler arasından süreksiz durumluk kaygısının yeri ve önemi. *Eğitim Araştırmaları Dergisi, 10*, 102-115.

Singh, C., & Rosengrant, D. (2003). Multiple-choice test of energy and momentum concepts. *American Journal of Physics, 71*(6), 607-617.

Sualp, B. G. (2002). *İlköğretim okulları üçüncü devre müzik programının uygulamasında karşılaşılan sorunlar* (Yayımlanmamış yüksek lisans tezi). Marmara Üniversitesi, Eğitim Bilimleri Enstitüsü, İstanbul.

Swinchoski, A. A. (1965). A standardized music achievement test battery for the intermediate grades. *Journal of Research in Music Education, 13*(3), 159-168.

Şan, S., & İbrahimoğlu, Z. (2017). Sosyal bilgiler dersinde öğrenci merkezli etkinlik kullanımının öğrencilerin akademik başarısına etkisi ve bu etkinliklere yönelik öğrenci görüşleri. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 17*(4), 2142-2159.

Şen, H. C., & Eryılmaz, A. (2011). Bir başarı testi geliştirme çalışması: Basit elektrik devreleri başarı testi geçerlik ve güvenirlik araştırması. *Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi, 8*(1), 1-39.

Şen, Ü. S. (2011). *Müzik öğretiminde bilgisayar destekli programlı öğretim yönteminin etkililiği* (Yayımlanmamış doktora tezi). Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.

Şener, N., & Taş, E. (2017). Developing achievement test: A research for assessment of 5th grade biology subject. *Journal of Education and Learning, 6*(2), 254-271. http://dx.doi.org/10.5539/jel.v6n2p254.

Tanyeli, D. (2007). *İlköğretim okullarında görev yapan müzik öğretmenlerinin müzik derslerinde karşılaştıkları sorunlar ve nedenlerine ilişkin görüşleri (Güneydoğu Anadolu Bölgesi örneği) (*Yayımlanmamış yüksek lisans tezi). Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ankara.

Tekin, H. (2000). *Eğitimde ölçme ve değerlendirme* (26. baskı). Ankara: Yargı Yayınevi.

Tekindal, S. (2014). *Okullarda ölçme ve değerlendirme yöntemleri* (4. baskı). Ankara: Nobel Akademik Yayıncılık.

Tunalıoğlu, Ş. (2004). *İlköğretim okullarının ikinci kademe (6. 7. 8.) sınıflarında okutulan müzik derslerinde yapılan düzenli çalgı ve ses eğitimi uygulamalarının, öğrencilerin müziğe ilişkin bilişsel, duyuşsal, psiko-motor davranışları, müzik yaşantısı ve benlik saygısı üzerindeki etkisi* (Yayımlanmamış doktora tezi). Marmara Üniversitesi, Eğitim Bilimleri Enstitüsü, İstanbul.

Turgut, M. F., & Baykul, Y. (2011). *Eğitimde ölçme ve değerlendirme* (3. baskı). Ankara: Pegem Akademi.

Türk Dil Kurumu [TDK] (2018). *Türk Dil Kurumu büyük sözlüğü*. http://www.tdk.gov.tr/index.php adresinden alınmıştır.

Türkmen, E. F. (2009). Yeni öğretim programına uyum sürecinde müzik öğretmenlerinin yaşadığı sorunlar. S. Tarman (Ed.), *8. Ulusal Müzik Eğitimi Sempozyumu Bildiriler Kitabı* (ss. 184-193). Samsun: Ondokuz Mayıs Üniversitesi Yayınları.

Varış, A., & Cesur, D. (2012). Ortaöğretim müzik dersine yönelik başarı testinin geliştirilmesi. *Turkish Studies, 7*(4), 3189-3198.

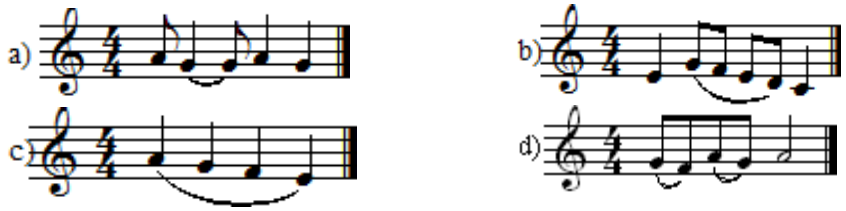
Weymuth, R. W. (1986). *The development and evaluation of a cognitive music achievement test to evaluate Missouri high school choral music students* (Unpublished doctoral dissertation). University of Miami, USA.

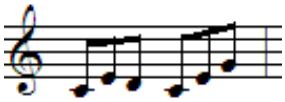
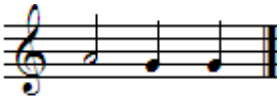
Yegül, B. U. (2014). Yapılandırmacı yaklaşıma yönelik akademik başarı testi geliştirme çalışması. T. Tuncer & Y. Çakıcı (Eds.), *9. Uluslararası Balkan eğitim ve bilim kongresi bildiriler kitabi* (ss. 352-357). Edirne: Trakya Üniversitesi Yayınları.

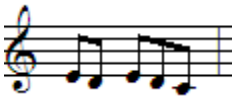
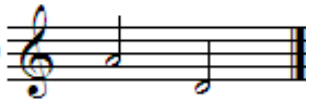
York, T. T., Gibson, C., & Rankin, S. (2015). Defining and measuring academic success. *Practical Assessment, Research & Evaluation, 20*(1), 1-20.

APPENDIX-1: Musical Knowledge Test

MUSICAL KNOWLEDGE TEST	
Name and Surname:	**Class:**
Dear students, You are asked the following questions about your learning outcomes in the music lesson. Your answers to the questions will be used to evaluate your achievement. **Please answer all questions carefully. Good Luck!**	

1	**Circle the correct definition of the rhythm dot!** **a)** The point placed under the left key is called the rhythm dot. **b)** The point placed on the right of a note is called the rhythm dot. **c)** The point placed in a note is called a rhythm dot. **d)** The point placed on the two notes is called the rhythm dot.
2	**Circle the option for which rhythm dot is used correctly!** a) b) c) d) 
3	**Circle the correct option in which the task of the rhythm dot is explained!** **a)** It decreases the duration of the belonging note to half of its value. **b)** It connects the notes. **c)** The rhythm dot extends the belonging note by half of its duration. **d)** It is useless.
4	 **How many beats did the total time of the note with the rhythm dot used in the following example?** **a)** 2 beats **b)** 1 beat + half beat **c)** half beat + quarter beat **d)** 3 beats
5	**Which of the following definitions describes the tie correctly?** **a)** The bond that connects two notes of the same name is called the tie. **b)** The bond that connects two notes with different names is called the tie. **c)** The tie is a term used to link lyrics together. **d)** The bond that changes the names of the notes is called a tie.
6	**Circle the option for which the tie is used correctly!** a) b) c) d) 
7	**Circle the option in which the task of the tie is described correctly!** **a)** It extends syllables. **b)** It bonds two same named and sounded notes to each other, and the duration of the second shall be added to the first note. **c)** It decreases the duration of the note on the above or on the below half of its value. **d)** It changes the names of two different sounded notes on the above or on the below.

8	 **How many beats did the total time of the note with the tie used in the following example?** **a)** 2 beats **b)** half beat **c)** quarter beat **d)** 3 beats
9	**How does human voice occur? Circle the correct option!** **a)** Human voice occurs as a result of taking a breath. **b)** Human voice occurs as a result of breathing out. **c)** Human voice occurs through the vibration of vocal cords by breathing out and by shaping the resonance cavities. **d)** Human voice is the result of holding the breath in the lungs.
10	**Which organ <u>does not</u> help the generation of human voice?** **a)** Vocal cords **b)** Ears **c)** Sinuses **d)** Lungs
11	**In which option the importance of breath for the generation of human voice is explained correctly?** **a)** Breathing is necessary for the ears to hear. **b)** A breath is needed to understand what you are reading. **c)** Breath vibrates the vocal cords; it provides the necessary sound to speak and sing. **d)** Breathing is necessary for blood circulation.
12	**Circle the rhythm in the 6/8 compound measure!** a)  b)  c)  d) 
13	**Circle the melody in the 6/8 compound measure!** a)  b)  c)  d) 
14	 **Which of the followings is the continuation of the short melody given?** a)  b)  c)  d) 
15	**Circle the rhythm in the 5/8 asymmetric measure!** a)  b)  c)  d) 

16	**Circle the melody in the 5/8 asymmetric measure!** a)  b)  c)  d) 
17	 **Which of the followings is the continuation of the short melody given?** a)  b)  c)  d) 
18	**What is the age interval of voice breaking (mutation) during adolescence?** **a)** 4-6 **b)** 11-15 **c)** 18 and upper **d)** 9-11
19	**Why should human voice be protected during the voice breaking (mutation) period?** **a)** During this period, the vocal cords should be protected because they are sensitive. **b)** During this period, the vocal cords should be protected because they are very strong. **c)** During this period, the vocal cords should be protected because they are very healthy. **d)** During this period, the vocal cords should be protected because they are too large.
20	**Which of the following options is one of the behaviours we need to exhibit to protect our voice?** **a)** We should not shout while singing and talking. **b)** We should sing songs with very higher and lower tones to compel our voice. **c)** We should shout while talking and singing. **d)** We must eat and drink hot-cold things.