Examination of Physical Education and Sports Teachers' Intelligence Areas Based on the Theory of Multiple Intelligence

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Abstract

Whether inherited or acquired, intelligence has always been the subject of debate. Educators have accepted and widely applied Howard Gardner's theory of multiple intelligence. Physical education and sport is one of the most crucial teaching fields for individuals' healthy development and efficient education. The study intended to analyse the relationship among the multiple intelligence areas of physical education teachers and their demographic characteristics. The research universe consists of physical education and sports teachers working in the Turkish Republic of Northern Cyprus (TRNC). By the stratified sampling method in the research, 168 teachers were reached out of 182 physical education teachers working in the 2019-2020 academic year. The Multiple Intelligence Scale adapted into Turkish by Babacan (2012) and the personal information data prepared by the researchers were applied in the research. While evaluating the data, the means and the standard deviations of the demographic characteristics of the research group were extracted. T-test, ANOVA, and MANOVA were used to determine group differences. Tukey and post hoc tests were used to define in which groups the differences were. The outcomes showed that the school teachers graduated from can affect intelligence. The findings also show that different factors can affect teachers in different ways.
Keywords: Physical education and sports teachers, Multiple intelligence theory, Intelligence areas

Beden Eğitimi ve Spor Öğretmenlerinin Çoklu Zekâ Kuramına Göre Zekâ Alanlarının İncelenmesi

Öz

İster kalıtsal ister sonradan kazanılmış olsun zekâ her zaman tartışma konusu olmuştur. Howard Gardner'ın Çoklu Zekâ Kuramı, eğitimdeki çoğu eğitimci tarafından geniş çapta kabul görmüş ve uygulanmıştır. Beden eğitimi ve spor, bireylerin sağlıklı gelişimi ve verimli eğitim için en önemli öğretim alanlarından biridir. Araştırmada beden eğitimi öğretmenlerinin çoklu zekâ alanları ile demografik özellikleri arasındaki ilişkinin belirlenmesi hedeflenmiştir. Araştırma grubu Kuzey Kıbrıs Türk Cumhuriyeti (KKTC)'nde görevli beden eğitimi ve spor öğretmenleridir. Çalışmada tabakalı örnekleme yöntemi ile 2019-2020 eğitim öğretim yılında görev yapan 182 beden eğitimi öğretmeninden 168 öğretmene ulaşılmıştır. Araştırmada Babacan (2012) tarafından Türkçe'ye uyarlanan Çoklu Zekâ Envanteri ve araştırmacılar tarafından hazırlanan kişisel bilgi formu uygulanmıştır. Veriler değerlendirilirken araştırma grubunun demografik özelliklerinin ortalama ve standart sapma değerleri çıkarılmıştır. Grup farklılıklarının tespitinde, t-testi, ANOVA ve MANOVA kullanıldı. Farklılığın hangi gruplarda olduğunu belirlemek için Tukey ve Post-hoc testleri kullanıldı. Sonuçlar, mezun olunan lise öğretmenlerinin türünün zekâ alanını etkileyebileceğini göstermiştir. Bulgular ayrıca farklı faktörlerin öğretmenleri farklı şekillerde etkileyebileceğini göstermektedir. araştırma grubunun demografik özelliklerinin ve yüzdelik dağılımları çıkarılmıştır. Gruplar arasındaki farklılıkları belirlemek için T-testi, ANOVA ve MANOVA kullanıldı. Farklılığın hangi gruplarda olduğunu belirlemek için Tukey ve Post-hoc testleri kullanıldı. Sonuçlar, mezun olunan lise türünün öğretmenlerin zekâ alanını etkileyebileceğini göstermiştir. Bulgular ayrıca farklı faktörlerin öğretmenleri farklı şekillerde etkileyebileceğini göstermektedir.
Anahtar kelimeler: Beden eğitimi ve spor öğretmenleri, Çoklu zekâ kuramı, Zekâ alanları

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INTRODUCTION

The 21st Century has experienced many new applications in all areas, especially in education, where innovations and different practices are emphasized in the teaching process. This change has brought about a new system that focuses on the learner by adopting the concept of modern education. The contemporary education approach eliminates the learner's negativities by defending the learner-centered approach's importance. The fact that each individual has different points of development, intelligence, interest, readiness, and ability increases the importance of individual differences in education (Bağçeci & Demir, 2011; Serrat, 2017; Septiera et al., 2021). The teaching profession finds practical solutions to problems related to educational activities and requires some field-specific skills. Students' cognitive and associative skills are the main focus and assessment in the traditional education system (Sahay, 2019). In the conventional understanding of education, since the teaching environments are organized according to teacher-centered teaching, the inability to carry out teaching activities according to learner characteristics has revealed some negativities. Therefore, teachers should be aware of the educational value of knowledge and provide practical guidance on how to reach it (Numanoğlu, 1999).

In this changing system, students' interests, needs, and abilities have an essential role, so teachers need to be competent and equipped to meet the different needs of their pupils (Tschannen Moran & Woolfolk Hoy, 2001). Also, teachers should know the strengths and characteristics of each student and should appreciate all individual situations to build learning confidence (Moncada & Mire, 2017). Although many of the elements taught are objective subjects, the teacher's main job is related to student and student behavior and requires observing mostly abstract facts. Teachers' multiple intelligence domains received less attention than emotional intelligence and other variables (Chan, 2004; Moafian & Ghanizadeh, 2009; Rastegar & Memarpour, 2009). For this reason, teachers who organize learning-teaching environments should recognize students' learning styles and different intelligence areas (Güven, 2005; Prayitno et al., 2020).

Psychologist Alfred Binet, who stated that intelligence is undeveloped, introduced the "multiple intelligence theory" approximately 85 years after developing the first intelligence test. According to Gardner (2006), intelligence is the capacity of people to produce a product that finds value in one or more cultures, deliver effective and efficient solutions to the problems they encounter in real life, and discover complex issues they need to solve. This theory, emerging from cognitive research, has "documented that students have different types of minds and therefore learn, remember, notice, and understand in different ways." (Peariso & Jamon, 2008). The theory argues that all individuals have several autonomous intelligences that they apply in various combinations to find solutions for problems or be creative to find valuable products in more cultures (Kornhaber, 2022). Multiple intelligence theory consists of verbal-linguistic, logical-mathematical, visual (shape-spatial), musical-rhythmic, bodily-kinesthetic, interpersonal-social, personal (internal, self-directed), and natural. It consists of 8 types of intelligence that work independently but together (Campbell, 1992). In addition, Gardner (2011) mentioned that spiritual intelligence (or existential intelligence) is the ninth possible intelligence but still needs to include it officially in his theory (Temiz, 2007). The nine intelligence areas constantly interact, and each has sufficient competence.

According to Gardner, each individual has more than one independently functioning knowledge area. These are Existentialist, Naturalistic, Intrinsic, Interpersonal, Visual, Kinesthetic, Musical, Mathematical-Logical, and Linguistic (Mangal, 2002). However, intelligence works within a system that is different in every human.

The purpose of the multiple intelligence theory is about what can be done in education rather than what individuals can do. In multiple intelligence theory, students actively participate in their learning. This theory allows us to move away from rote learning, increases the success rate, makes the lessons exciting and fun, and provides meaningful learning. Students can become aware of their intelligence characteristics and develop the ability, skill, and sense of self-confidence. Minnier et al., (2019) stated that multiple intelligence differs from traditional teaching practice, indicating the effectiveness of instructional strategies with multiple intelligences. Lei et al., (2021) noted that multiple intelligences can be used to reveal gifted students and provide them with appropriate development opportunities to grow. Kornhaber (2019) stated that applying multiple intelligence helps increase test scores, positively changes student and parent behaviours, and means improvement for students with disabilities. Multiple intelligence can also support students with problems and adopt more appropriate learning methods. According to Flynn (2007), skills are not a designated list. Those who have them often create new performances and discover unknown problems that have just been known. In this context, many issues related to learning (distraction, undesirable behavior, cooling off from learning, thinking that one has failed) can be eliminated if daily plans and practices in physical education courses are made with the field of intelligence in mind (Selçuk & Kayılı, 2002).

Within the context, the study aimed to investigate the relationship among the multiple intelligence areas of physical education and sports teachers and their demographic characteristics; the main problem of the study was determined as the relationship between the multiple intelligence areas of physical education teachers and their demographic characteristics. Depending on the main problem identified, the study aimed to investigate the relationship between physical education and sports teachers' multiple intelligences and their demographic characteristics.

METHODS

Research Model
In this study, questionnaires were used to collect data. The study is a descriptive survey model that questions the multiple intelligence areas of physical education teachers.

Research Group
The research universe comprises physical education and sports teachers working in the Turkish Republic of Northern Cyprus (TRNC). By the stratified sampling method in the research, 168 teachers were reached out of 182 physical education teachers working in the 2019-2020 academic year.

Data Collection Instruments
As an instrument for data collection, a personal data form consisting of 18 items was prepared by the researcher, and the Multiple Intelligence Scale was designed by McClellan and Conti (2008) and validated by Babacan and Dilci (2012) and adapted into Turkish. Babacan and Dilci (2012) point out that the scale consists of 27 items covering the nine areas of intelligence (Verbal Intelligence, Mathematical-Logical Intelligence, Bodily Intelligence, Rythmic-Musical Intelligence, Visual Intelligence, Social-Interpersonal Intelligence, Inner-personal intelligence, Natural intelligence, and Existential intelligence) that Gardner has covered. Scale is aimed at determining which intelligence students dominate. The fact that substances on the scale represent areas of intelligence is as follows (McClellan & Conti, 2008):
Article 1.-10.-19: Bodily intelligence
Article 2.-11.-20: Existential intelligence
Article 3.-12.-21: Interpersonal intelligence
Article 4.-13.-22: Inner intelligence
Article 5.-14.-23: Logical intelligence
Article 6.-15.-24: Musical intelligence
Article 7.-16.-25: Natural intelligence
Article 8.-17.-26: Verbal intelligence
Article 9.-18.-27: Visual intelligence

Low scores indicate tending to multiple intelligence, and highest scores indicate that this area of multiple intelligences does not apply to the participant. The area with the lowest score was determined to be the area of multiple intelligence. The Multiple Intelligence Scale's reliability coefficient (Cronbach alpha) in this study is 0.70.

Ethical Approval
The local ethics committee (Girne American University Ethics Committee) approved (Ethics committee approval ID 5/20-70) all experimental procedures, and all data were collected following the Helsinki Declaration.

Data Collection

The study group is teachers in schools affiliated with the TRNC Ministry of National Education (MNE). Therefore, necessary approvals were obtained from the Girne American University Ethics Committee and TRNC MNE to apply the scales. After the application approvals, the scale was sent to the teachers via "Google Forms" since the research was carried out during the pandemic.

Analysis of Data

Data were evaluated with the IBM SPSS (Ver.25) statistical program. While evaluating the data, the means and the standard deviations of the demographic characteristics of the study group were extracted. T-test, ANOVA, and MANOVA were the usual methods of analysis. Tukey and post hoc tests were used to determine in which groups the differences were. Before parametric tests, the Shapiro-Wilk test verified the normality assumption. The alpha level was set at 0.05. Since the study is based on quantitative data, it does not include any other analysis other than statistical analysis.

RESULTS

Table 1. Mean and standard deviation of intelligence

Intelligence	Mean	SD
Verbal	**12.94**	5.58
Logical	6.85	5.80
Visual	10.07	5.72
Musical	10.71	6.18
Natural	7.96	5.60
Interpersonal	6.48	5.86
Intrapersonal	8.01	6.27
Bodily	7.38	6.48
Existential	7.80	5.85

When the intelligence areas of physical education and sports teachers are analyzed, it is seen that their average verbal/linguistic intelligence is the highest (12,94) and their average interpersonal intelligence is the lowest (6,48). According to the data, teachers are also predisposed to visual(10,07), musical (10,71), and intrapersonal (8,01) intelligence. According to the scores that can be obtained from the scale, it can be stated that teachers are at an advanced level in all intelligence areas.

Table 2. Independent sample t-test for gender and multiple intelligence comparison

	Gender	N	Mean	Std. Deviation	t	Sig.
Bodily	**Female**	96	7.84	6.883	1.084	.280
	Male	72	6.75	5.881		
Existential	**Female**	96	7.78	5.903	-.057	.955
	Male	72	7.83	5.826		
Interpersonal	**Female**	96	8.59	6.470	1.379	.170
	Male	72	7.25	5.938		
Intrapersonal	**Female**	96	6.63	5.773	.364	.717
	Male	72	6.29	6.017		
Logical	**Female**	96	6.53	5.958	-.841	.402
	Male	72	7.29	5.588		
Musical	**Female**	96	12.50	6.160	-3.338	**.001***
	Male	72	9.38	5.792		
Nature	**Female**	96	7.53	6.202	-1.158	.249
	Male	72	8.54	4.669		
Verbal	**Female**	96	13.44	5.719	1.320	.189
	Male	72	12.29	5.356		
Visual	**Female**	96	10.03	6.340	-.105	.917
	Male	72	10.13	4.823		

Table 2 shows the t-test results of 96 female and 72 male physical education and sport teachers related to multiple intelligence fields. Results showed that only musical intelligence varies significantly by gender. Depending on gender, a differentiation is observed in the field of musical intelligence in favor of female teachers. Therefore, we can say that female teachers are more developed in the field of musical intelligence than male teachers.

Table 3. Multiple intelligence averages according to high school type

	School Type	N	Mean	Std. Deviation	Sig.
Bodily	Vocational	27	4.22	2.136	
	General	105	7.63	6.000	
	Sport	15	3.80	1.014	.395
	Anatolian/Science	15	15.60	10.649	
	College	6	5.50	2.739	
Existential	Vocational	27	4.22	1.908	
	General	105	7.37	4.987	
	Sport	15	10.20	1.014	.190
	Anatolian/Science	15	15.60	10.649	
	College	6	6.00	3.286	
Interpersonal	Vocational	27	6.56	2.636	
	General	105	7.60	6.063	
	Sport	15	6.00	.000	.946
	Anatolian/Science	15	16.00	10.163	
	College	6	7.00	1.095	
Intrapersonal	Vocational	27	4.11	1.948	
	General	105	6.03	4.890	
	Sport	15	4.80	1.521	.721
	Anatolian/Science	15	15.60	10.649	
	College	6	6.50	3.834	
Logical	Vocational	27	4.33	1.861	
	General	105	6.11	4.838	
	Sport	15	8.00	2.535	.302
	Anatolian/Science	15	15.60	10.649	
	College	6	6.50	1.643	

Table 3 (Continued). Multiple intelligence averages according to high school type

	School Type	N	Mean	Std. Deviation	Sig.
Musical	Vocational	27	8.44	4.108	
	General	105	10.77	5.430	
	Sport	15	10.00	7.606	.290
	Anatolian/Science	15	16.80	9.221	
	College	6	6.50	3.834	
Nature	Vocational	27	5.67	2.253	
	General	105	7.20	4.408	
	Sport	15	10.00	5.071	.129
	Anatolian/Science	15	16.20	9.894	
	College	6	6.00	3.286	
Verbal	Vocational	27	12.00	4.899	
	General	105	12.11	5.083	
	Sport	15	17.20	1.014	.064
	Anatolian/Science	15	17.40	8.870	
	College	6	10.00	3.286	
Visual	Vocational	27	8.33	4.377	
	General	105	9.31	4.950	
	Sport	15	14.00	.000	.113
	Anatolian/Science	15	16.40	9.723	
	College	6	5.50	.548	

Table 3 shows the relationship between multiple intelligences and the type of school graduated from. The results show that there is no significant relationship between multiple intelligences and the type of school graduated from, but anatolian/science high school graduates are less developed in intelligence areas compared to other high school graduates. Since each school provides education in line with its objectives, it is thought that the fact that it reveals its dominance in certain intelligence areas and that the school distribution is not homogeneous may have affected the possible result.

Table 4. Average of multiple intelligence areas by sport type

	Sport	N	Mean	Std. Deviation	Sig.
Bodily	Individual	72	10.50	8.619	
	Team	33	5.82	3.206	**.001***
	Both	60	4.70	1.499	
Existential	Individual	72	8.46	8.370	
	Team	33	8.18	3.432	.445
	Both	60	6.85	2.169	
Interpersonal	Individual	72	10.58	8.682	
	Team	33	5.91	1.958	**.001***
	Both	60	6.35	1.921	
Intrapersonal	Individual	72	8.63	8.364	
	Team	33	5.82	1.424	**.002***
	Both	60	4.45	1.171	
Logical	Individual	72	8.83	8.023	
	Team	33	5.73	1.989	**.001***
	Both	60	5.30	2.612	
Musical	Individual	72	11.29	6.931	
	Team	33	8.18	4.216	**.002***
	Both	60	10.90	5.605	
Nature	Individual	72	9.13	7,593	
	Team	33	5.91	2.006	**.048***
	Both	60	7.65	3.626	
Verbal	Individual	72	12.67	6.697	
	Team	33	13.27	3.994	.431
	Both	60	12.85	4.902	
Visual	Individual	72	10.83	7.375	
	Team	33	9.18	3.770	.329
	Both	60	9.50	4.200	

In Table 4, ANOVA results according to sport type showed that there were significant differences in the areas of physical, interpersonal, intrapersonal, logical, musical, and naturalistic intelligence.

The fact that multiple intelligences differ according to the type of sport shows that teachers who do individual sports are more prone to existential and visual intelligence.

Table 5. Independent samples t-test for having a physical education and sports teacher family member and multiple intelligences comparison

	Physical Education and Sport Teacher Family Member	N	Mean	Std. Deviation	t	Sig.
Bodily	No	126	7.36	6.098		
	Yes	42	7.43	7.581	-.062	.951
Existential	No	126	7.17	5.253		
	Yes	42	9.71	7.100	-2.480	**.014***
Interpersonal	No	126	7.95	5.817		
	Yes	42	8.21	7.527	-.234	.815
Intrapersonal	No	126	6.05	5.217		
	Yes	42	7.79	7.400	-1.673	**.004***
Logical	No	126	6.50	5.417		
	Yes	42	7.93	6.773	-1.387	.167
Musical	No	126	11.00	6.281		
	Yes	42	9.86	5.875	1.037	.301
Nature	No	126	8.00	5.726		
	Yes	42	7.86	5.285	.143	.887
Verbal	No	126	13.29	5.638		
	Yes	42	11.93	5.335	1.369	.173
Visual	No	126	9.57	5.797		
	Yes	42	11.57	5.283	-1.978	**.042***

Table 5 illustrates the T-test results related to becoming a physical education and sports teacher in the family. According to these results, it was determined that there was a differentiation in the fields of existentialist, intrapersonal, and visual intelligence. Accordingly, we can say that the existential, social, and visual intelligence field scores of the teachers who have physical education and sports teachers in their families are higher than the other teachers.

DISCUSSION

One of the main aims of this study is to compare the multiple intelligence areas of physical education and sports teachers according to gender, school type, sport type, and whether there is a physical education teacher in the family or not and to reveal whether there is any difference in intelligence areas. Most of the studies were on applying multiple intelligences in teaching environments and were conducted with students studying in teaching departments. The data obtained from the multiple intelligences scale were collected to express each intelligence domain. The findings showed that all pre-service teachers' scores on the multiple intelligence subscales were moderate. Working with a sample of pre-service teachers, Yenice and Aktamış (2010) as well as Durmaz and Özyıldırım (2005) both arrived at comparable conclusions. Although the teachers scored moderately in the intelligence domains, their weakest areas were the intrapersonal and logical domains.

The findings of the correlation between gender and multiple intelligences demonstrate that female educators exhibit a greater inclination towards musical intelligence compared to their male peers. There was a significant difference in favour of female teachers in the field of musical-rhythmic intelligence that gender affects intelligence areas, as stated by Gardner (1983). This result aligns with the conclusions of Loori (2005), Ahanbor and Sadighi (2014), Çeliköz (2017) and Sahay (2019), Erdem and Keklik (2020), who found that male participants tend to outperform female participants on certain types of intelligence tests, while female participants tend to exhibit superior performance on others. The underdevelopment of physical education teachers regarding physical intelligence based on gender is attributed to the education system's lack of encouragement towards successful women in physical education and sport, particularly in their tertiary education specialisation. This lack of encouragement results in women having a less favourable attitude towards sports and underperformance.

Therefore, girls do not see a future in physical education and sports and lose their motivation towards sports. This phenomenon may be due to the lack of female teachers who are role models for girls in middle and high schools and the fact that girls are in the same class as boys who receive more constructive feedback. This phenomenon is rarely, if ever, observed in sex-segregated systems concerning the cultural structure. The literature reviewed in this study provides us with some explanation as to the differences between the genders in their preferences for physical education and sports.

Although we initially hypothesized a potential link between multiple intelligence fields and graduation from different types of schools, our findings demonstrate no significant correlation between multiple intelligence and type of school. This result aligns with Ersoy and Malkoç's (2021) study on music teachers. We analyzed the predisposition to high school types and multiple intelligence fields to test our hypothesis using the MANOVA test. Data gathered from physical education teachers revealed that anatolian or science high school graduates had lower inclinations in several areas of intelligence than other teachers. Although this situation is fascinating, it can be

attributed to the fact that the education in anatolian high schools is multifaceted. When examining the literature on physical education and sports students and the secondary education institutions they attend (Karademir et al., 2010; Kayisoglu et al., 2014), it is notable that, despite varying rates, the majority of students tend to be graduates from general state high schools. In their study, Akkaya and Memnun (2015) showed that the mean scores of prospective elementary mathematics teachers related to only bodily-kinesthetic intelligence areas among multiple intelligence areas differed significantly according to the high school types they graduated from. Yenice and Aktamış (2010) identified variations in musical-rhythmic intelligence among Anatolian high school graduates in their research with potential primary school teachers. In their study, Güllü and Tekin (2009) supported the finding that we wanted to reach in the study but could not determine due to the lack of sports high schools in TRNC by determining that the physical-kinesthetic intelligence of sports high school graduates was higher than other areas. The areas of intelligence of students graduating from different types of schools may develop differently according to the education they receive, so the intelligence area to which they are predisposed will change accordingly. In this case, analyzing the types of upper secondary schools may give more clues as to the reasons for the differentiation.

ANOVA analysis has been the subject of whether intelligence areas of physical education teachers differ according to sports branches. Results revealed a significant difference in physical/bodily, interpersonal, intrapersonal, logical, natural, and musical intelligence domains. There was no significant difference in verbal, existential, and visual intelligence. It was found that the multiple intelligence areas were significantly different according to the type of sport; teachers who do individual sports have higher internal and physical intelligence scores than those who participate in team sports.

Sevinç and Şıktar (2016) investigated the relationship between intelligence and different sports branches, including swimming, badminton, taekwondo, and soccer. The highest scores were obtained in personal intelligence in football and badminton and logical intelligence in swimming and taekwondo. Nikolaenko and Kolosova (2020) investigated team and individual athletes between the ages of 12-15; while social intelligence areas of judo and wrestling players were higher, physical kinesthetic intelligence areas of football and basketball players were higher. Şentürk and Yazıcı (2020) found that the verbal, logical, and visual intelligence scores of judo athletes were the highest, while musical and intrapersonal intelligence were the highest in basketball players. In this case, it can be said that there may be a relationship between the type and practice of the sport and the difference in intelligence areas. It can be noted that physical and social intelligence levels are positively affected in individuals who do sports. It is thought that it will be helpful to benefit from sports activities to increase physical intelligence.

The t-test results examine whether having a teacher in the family significantly affects multiple intelligences. A statistically significant difference was found between those who had another physical education teacher in their family and those who did not in the areas of existential, intrapersonal, and visual intelligence. Since no study examined the relationship between being a

teacher in the family and the intelligence field to support our findings, a negative or positive interpretation could not be made. However, having a physical education teacher in the family ensures that children are interested and talented in physical education and sports. Although different areas of intelligence are dominant in every person, the development of these areas also depends on some variables. Armstrong (2006) states that environmental factors create advantages or disadvantages in intelligence development. Instead of classical teaching, it is left to the learning in which the students act with their talent, skill, and intelligence. The fact that it has an advanced structure in all dimensions in all areas of education and training requires questioning and raising the teacher's qualifications, which has the most critical role in this process when doing his profession (Hamari et al., 2016).

CONCLUSIONS

The apparent detection of factors affecting multiple intelligence areas will effectively guide students and accurately update educational methods. Those who carry out teaching should teach subjects with multiple intelligence adaptations (Kezar, 2001). The fact that multiple intelligence areas affect individuals' behavior and approach patterns reveals the importance of planning the teaching process by considering individual differences and the importance of intelligence areas used by teachers.

In this study, physical education and sports teachers working in TRNC aimed to determine multiple intelligence areas and whether some variables have a meaningful relationship. The study's findings demonstrate that teachers achieved advanced scores on the multiple intelligence subscales, with their weakest areas being the interpersonal and logical domains. Given that teaching relies heavily on communication and problem-solving, the study's findings indicate lower scores in the interpersonal and logical fields and higher scores in the interpersonal/linguistic domain. This situation raises concerns for teacher training programs, and intervention programs should be developed to enhance this domain. Therefore, faculties of education must integrate current research findings (including those of the present study) to improve the quality of teacher training programs. Ultimately, the quality of future education in the country will rely on the excellence of teacher education. Results indicated a significant difference between teachers in musical intelligence by gender. In this field of intelligence, the predispositions of female teachers were higher. A certain rhythm and harmony accompany movements that require skill. Women's sense of rhythm may develop more than men's, leading to higher musical/rhythmic intelligence. As a result of the analyses for another sub-problem, it was concluded that physical education teachers who graduated from anatolian or science high schools were more disadvantaged in many areas of intelligence than other teachers. The data collected from teachers showed that teachers who do individual sports are more prone to existential and visual intelligence than others. Still, their tendency toward inner intelligence is lower than that of other teachers.

With the idea that having a teacher in the family may differ in the tendency towards the fields of intelligence, the scale scores of individuals in multiple intelligence fields and whether they are teachers in their families were analyzed. The results are that a teacher's presence in the family leads to meaningful differentiation in logical, musical, natural, bodily, existential, intrapersonal, and interpersonal intelligence. Future studies in this field can contribute to the education system by illuminating that the types of high school graduates lead to a difference in the multiple intelligence fields of existing teachers. The apparent detection of factors affecting multiple intelligence areas will effectively guide students and make accurate updates to the education system. It was demonstrated in this study that sporting activities carried out outside of physical education make a meaningful difference in multiple intelligence areas. Future studies will reveal the mechanism of influence of the types of sports operating on multiple intelligence fields, enabling athletes to develop more versatilely. In this way, students, teachers, and athletes can develop themselves and their students more effectively.

Although the multiple intelligence theory is familiar, applying it in kindergartens, high schools, and universities would be helpful. Accordingly, it could be a starting point for further research into using multiple intelligences in teaching in schools, high schools, and universities. Sahay (2019) stated that multiple intelligence is also a meaningful contributor to teacher competence. Knowing the types of our multiple intelligences, our interests, and our and students' dominant intelligence styles adapts our teaching techniques so that students learn in the most valuable ways. Identifying the areas of intelligence of the teachers who raised future generations and presenting them in these areas will ensure that they are professionally successful. If a nation desires high education standards, teacher competencies should be developed under a specified professional development portfolio identified by proper needs analysis (Lakshminarayanan et al., 2016). It should be noted that intelligence and intelligence fields are determining factors in the development of individuals in all aspects. As Robinson (2009) points out, we must promote the importance of developing each individual's ability and understand that this is expressed differently in each individual.

Although there have been numerous results on applying multiple intelligence in educational settings, more studies are needed to consolidate the findings related to teachers and pre-service teachers and translate this knowledge into practice.

RECOMMENDATIONS

This study has some limitations due to pandemic conditions. Firstly, it cannot establish any causal relationships as a non-experimental study. Secondly, only self-report measures were used, which may not accurately represent functional intelligence domains. It may be more informative to conduct separate activities for each intelligence domain. Thirdly, the sample was comprised solely of TRNC teachers. Future research should utilize a larger sample to enhance the generalizability of the findings.

Extended longitudinal studies involving teachers could offer in-depth insights into potential adaptations in multiple intelligence profiles. For this reason, the following recommendations are presented on some issues. Teachers should realize their multiple intelligences and use them in teaching. Teachers should know the intelligence areas of their students and give them equal importance. Teachers must use multiple intelligence theories in lesson plans. It is essential to inform teachers about multiple intelligences. Future studies should examine the issue with larger samples. Studies in education, sports science, multiple intelligences, or related fields may focus on revealing the reasons for the differences. Finally, in the future, the hypotheses examined in this study can be re-examined with different tools, methods, examples, and possibilities, some of which have not been investigated before.

Ethical Approval
Ethics Committee: Girne American University Ethics Committee
Date/Protocol number: 25.09.2020 / 5/20-70

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