PROFESSIONAL EXPERIENCE, TOLERANCE, EMPATHY AND READING INTERESTS AS VARIABLES PREDICTING COGNITIVE FLEXIBILITIES OF PHYSICAL EDUCATION TEACHERS

Assist. Prof. Dr. Zehra Certel
Akdeniz University, Faculty of Sport Sciences - TURKEY

Assoc. Prof. Dr. Ziya Bahadır
Erciyes University, School of Physical Education and Sport- TURKEY

Hatice Ece Kabaca
Akdeniz University, Faculty of Sport Sciences- TURKEY

Ali Sercan Seraki
Akdeniz University, Faculty of Sport Sciences- TURKEY

Abstract

The purpose of this study was to investigate the role of professional experience, tolerance, emphaty and reading interests in predicting cognitive flexibilities of physical education teachers. The participants of this study were 397 physical education teachers working at secondary and high schools in Antalya (n=200) and Kayseri (n=197) in 2017-18 school year. The data were collected by "Cognitive Flexibility Inventory", which was developed by Dennis & Vander Wal (2010) and adapted to Turkish by Sapmaz & Doğan (2013), "Tolerance Scale" developed by Demirci (2017), "Empathy Quotient", which was developed by Lawrence et al. (2004) and adapted to Turkish by Kaya & Çolakoğlu (2015), and "Reading Interests Scale (RIS)" developed by Dökmen (1994). In data analysis, Pearson correlation coefficient was applied to determine relationship between variables and, multiple regression analysis was applied to state the role of professional experience, tolerance, empathy and reading interests with regard to prediction of cognitive flexibility. The results indicate that professional experience, tolerance and empathy predict cognitive flexibility significantly while reading interests do not.

Keywords: Cognitive flexibility, tolerance, empathy, reading interest, professional experience.

INTRODUCTION

In order for an individual to be able to maintain his/her life, to protect his/her psychological health; s/he has several criteria such as self-direction, acceptance of uncertainty, tolerance, participation, self-acceptance, taking risks, realistic expectations, being flexible and carrying own responsibility (Ellis & Dryden, 2007). The flexibility, one of these criteria, is considered to be the most important component of communication competence (Bochner & Kelly, 1974; Martin & Rubin, 1994; Richmond & McCroskey, 1990; Rubin & Martin, 1994; Spitzberg & Cupach, 1984; Wiemann, 1977). Cognitive flexibility is defined as the individual's awareness of communication options, his/her willingness to adapt to the new situation and his/her self-efficacy in being flexible (Martin and Rubin, 1995). Cognitive flexibility is also the ability of individuals to change their cognition according to changing environmental conditions (Dennis & Vander Wal, 2010). Canas et al. (2003) define cognitive flexibility as the ability of one to arrange information processing strategies to face new and unexpected situations occurred in his/her environment, while at the same time indicating that it is a skill that expresses learning processes, that is, it can be gained with experience. As the individual grows and develops, they can learn to cope with an ever-expanding environment and increasing stimulus and make the necessary adjustments, which is called cognitive flexibility or requires

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cognitive flexibility (Crone et al, 2004). Those with this skill can put more balanced and harmonious thoughts, produce alternatives, and evaluate difficult situations as more manageable rather than those that challenge and discord them (Gülüm & Dağ, 2012). These people also have a higher level of competence and self-observation skills than those with low levels of cognitive flexibility (Martin & Rubin, 1995) and are willing to try different ways to engage in communication, struggle with unexpected situations, and adapt their behavior according to the type of the situation (Martin et al., 2003).

By these definitions, it can be considered that cognitive flexibility and probabilistic thinking are quite similar. Probabilistic thinking can be explained as the ability to think of all kinds of possibilities at all stages from the beginning to the final phase of an event. While probabilistic thinking can arise when an individual encounters each new problem, cognitive flexibility only makes itself necessary only when the situation changes, that is, when the routine course ends up unexpectedly and an uncertainty situation arises. In other words, when the individual is faced with a problem, s/he first considers his/her experiences and thinks about possible causes and possible solutions for each reason. S/he will apply the best one among them. But, in spite of all experiences and probabilistic thinking skills, if an unexpected situation, an uncertainty, a chaos situation arises, it is expected from the individual to find the best way to get rid of this chaos situation by showing cognitive flexibility (Çuhadaroğlu, 2013).

However, in studies on cognitive flexibility show that as the individual's professional experience increases, a decrease in cognitive flexibility occurs. (Frensch & Strenberg 1989; Anzai & Yokoyama 1984). Of course, being specialized in the profession requires flexibility, but as the person is more automated, s/he is less inclined to change his/her strategy. Once specialists rely on automated performance routines, they tend to analyze less any crash in the system (Canas et al, 2003; Edland et al. 2000; Frensch & Sternberg, 1989). As the individual becomes specialized with the reduction of cognitive flexibility due to the automation, it is seen as an important point for educators. Because, while educators perform their professions that they are specialized, their cognitive flexibility may decrease at the same time, which is an undesired situation.

There have been many studies on cognitive flexibility in the international and national literature screening (Matthew & Anderson, 1998; Dennis & Vander Wal, 2010; Canas et al. 2003, Hillier et al., 2006; Çuhadaroğlu 2013; Akçay Özcan & Kıran Esen, 2016; Zahal, 2014; Asıcı & İkiz, 2015; Çelikkaleli, 2014; Bilgiç & Bilgin, 2016; Alper & Deryakulu, 2008; Yücel, 2011). When the studies made are examined, the common point of these studies is that; it can be said that cognitive flexibility gives positive relations with positive emotions (communication, open for improvement, adaptation, problem solving skills, communication flexibility, attention, self-efficacy, understanding, willingness, happiness, social and emotional competence, critical, creative thinking, etc.) in healthy personality development and negative relations with negative emotions (anger, anxiety, stress, aggression, etc.) in healthy personality development. In addition, Gündüz (2013) conducted a study on attachment styles and irrational beliefs and the power to predict the cognitive flexibility of psychological symptoms. Dağ & Gülüm (2013) have studied on cognitive flexibility as a mediating role of cognitive traits between adult attachment patterns and psychopathological symptoms. Zahal (2014), on the other hand, has prepared a doctoral dissertation on the relationship between learning styles, cognitive flexibility and test success of students in the music teaching program. In this study, unlike other researchers, the variables of tolerance, empathy, interest in reading and professional experience, which are considered to be the predictors of cognitive flexibility, have been discussed.

Variables to be Considered to Predict Cognitive Flexibility

Tolerance
It can be said that tolerance is one of the most important concepts of communication as it is in cognitive flexibility. Büyükkaragöz (1995) defines tolerance as "a functional communication process established by feeling unrelenting love, respect, trust and understanding to people in order to

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recognize and accept all kinds of feelings, thoughts and behaviors of them we find close to or far from ourselves". Not every person may think the same way and share the same feelings and beliefs. Kavcar (1995) states that prerequisites for the realization of tolerance are; to react normally against different feelings and thoughts, to allow these feelings and thoughts to be freely expressed, to tolerate differences without applying to force and pressure, and, to love people. Ferrar (1976) emphasizes that three basic dimensions must be considered in order to talk about tolerance: "1) A flexible and understanding perspective that does not subject other groups, beliefs and practices to any categorical assessment, 2) Allowing diversity of rights and differences, 3) Accepting that beliefs, practices and cultures can be diverse, and refusing any belief or culture" (as cited in Dağlı, 1995). As can be seen, it is expected that the individual will have a flexible perspective in order to be tolerant. In this context, it can be considered that there can be a clear relationship between tolerance and cognitive flexibility and they can directly affect each other.

Empathy

Empathy is considered to be a multidimensional competence that has emerged to facilitate the adaptation of the individual to social life and revealed with the contribution of both the emotional and cognitive processes (Davis 1980, Bora & Baysan 2009). Emerged at the beginning of the century, empathy, according to Eisenberg & Strayer (1987), is defined as "a reaction that emerges in response to the emotional and cognitive status of another and is parallel to these situations", and according to Mindes (2006), it is defined as "the capacity to understand a problem or situation from the perspective of other people". It is stated that people with different levels of empathy exhibit behavioral patterns in different forms (Kaukiainen et al., 1999). According to Hoffman (1984), in order for the one to be able to empathize with the person opposite, s/he must first be able to cognitively distinguish the person opposite him/her and make a cognitive distinction to determine the emotional state of the person opposite him/her. In this case, it can be said that the individuals using the cognitive flexibility ability are more advantageous. In order to be able to do this, the individual needs to be able to use cognitive flexibility skills in full. In this context, it is considered that the variable is related with cognitive flexibility.

Interest in reading

Another variable considered to be predictive of cognitive flexibility is interest in reading. According to Özçelebi & Cebecioglu (1990); "Reading is an action that makes life meaningful, offers many possibilities and options to the person". There are a number of general needs that enable people to become interested in the book and reading. Those needs and motivators are listed as follows; "having fun, developing from the spiritual side, realizing oneself, strengthening attitudes, acquiring new information, organizing old information and using psychological defense mechanisms" (Dökmen, 1990). The most important traits that individual acquires from reading are; to contribute to the mental development of the individual, to develop his/her ability of understanding, to enable him/her to criticize and synthesize, and to help develop his/her language skills (Aksaçlıoglu, 2005). If the individual does not have a thinking system to criticize and synthesize, s/he will internalize a situation he or she is in without thinking about its alternatives, and have difficulty adapting to the new situation if he or she encounters a situation that is completely different. In this context, it is considered that individuals who are not interested in reading and habits will be uninformed, non-investigative, non-questioning and unable to express oneself and therefore will not exhibit cognitive flexibility skills.

Objective

The objective of this research is to determine to what extent tolerance, empathy, interest in reading and professional experience variables, that are considered to predict cognitive flexibility, predict cognitive flexibility.

METHOD

Research Model

This study, which examines the contributions of tolerance, empathy, interest in reading and professional experience in predicting the levels of cognitive flexibility of physical education and sport teachers, is a descriptive study carried out in the relational survey model. The dependent variable of research is cognitive flexibility; and its independent variables are tolerance, empathy, interest in reading and professional experience.

Research Sample

The research group constitutes a total of 397 physical education teachers working in secondary and high schools in Antalya (n=200) and Kayseri (n=197) in 2017-2018 school year. Participants' ages range from 21 to 62. The average age of the teachers is =38.10±9.63 and the average of their professional experience is 13.72±9.54. 34.3% (n=156) of the participants are female and 65.7% (n=241) are male. 51.9% (n=206) of the teachers are working in secondary school, 38% (n=151) are in high school and 10.1% (n=40) are in both secondary and high school.

Data Collection Tools

Data were collected through cognitive flexibility inventory, tolerance scale, empathy scale, interest in reading scale and personal information form.

Cognitive Flexibility Inventory (CFI): The CFI, developed by Dennis & Vander Wal (2010) and conducted by Sapmaz & Doğan (2013) on the reliability and validity studies of the Turkish version, was prepared to measure the ability of people to produce alternative, coherent, appropriate, balanced thoughts in difficult situations. The scale, which is comprised of twenty items and five-point Likert Scale, consists of two subscales including alternatives and control subscales. The Cronbach alpha reliability coefficient of CFI was found as .90 for the whole scale, .90 for the "alternatives" subscale and .84 for the "control" subscale. Test-retest reliability coefficient was found as .75 for the whole scale, .78 for the "alternatives" subscale and .73 for the "control" subscale. It is thought that as the score on the scale increases, the cognitive flexibility increases. In this study, the internal consistency coefficient was found as .81 for the whole scale, .84 for the "alternatives" subscale and .78 for the "control" subscale.

Tolerance Scale: As a result of explanatory factor analysis made to evaluate the construct validity of "Tolerance Scale" developed by Demirci (2017), it was found that it has a one-dimensional structure consisting of 6 items with an eigenvalue of 2.511 which explains 41.854% of the total variance. The factor loadings of the scale items range from .57 to .70. For the criterion-related validity of the Tolerance Scale, the relationships between the Portrait Values Questionnaire and universalism, benevolence, tradition and conformity subscales were examined with the data collected from 45 participants. The Tolerance Scale was positively associated with universalism (.38), benevolence (.50), tradition (.36) and conformity (.48). The Cronbach alpha internal consistency coefficient of the scale was found as .72. The test-retest reliability coefficient obtained from re-application of study to the participants at intervals of three weeks was found as .79. In this study, the Cronbach alpha internal consistency coefficient of the scale was found as .82.

Empathy Quotient (EQ) Scale: Kaya & Çolakoğlu (2015) conducted the adaptation studies of the three-factor Empathy Quotient (EQ) Scale, developed by Lawrence, Shaw, Baker, Baron-Cohen & David (2004), into Turkish. Exploratory Factor Analysis and Confirmatory Factor Analysis were used for validity analysis and internal consistency coefficients were calculated for reliability. As a result of the exploratory factor analysis made for construct validity, it is understood that the scale is comprised of 13 items. It has been determined that the model tested in accordance with the results obtained has very good compliance indices. The dimensions obtained correspond to the original shape of the scale. Dimensions obtained are named as follows; Social Skills, Emotional Response and Cognitive

Empathy. In this study, the Cronbach alpha internal consistency coefficient of the scale was found as .77.

Interest in reading Scale: Participants' interest in reading in the research was measured by the tool developed by Dökmen (1994). The test-retest reliability of the five-point Likert Scale that consists of 20 items was found as .78. The sum of the scores of a participant from all the items of the scale is the total score that such individual has received from the interest in reading scale. In the original research, the reliability coefficient was calculated as .76 for teachers. In this research, it was found as .78.

Data Collection and Analysis

Each of the tests used in the research was applied to the participants individually by the researcher. The data obtained before going through the planned statistical analyzes were tested in terms of normality, linearity, homogeneity of the variances which are the basic assumptions of the multivariate statistic and the analyzes were continued after it was found that the dataset met those assumptions. In this context, multiple regression analysis was used in addition to descriptive statistics in the analysis of data.

FINDINGS

Mean scores, standard deviations and correlation coefficients between cognitive flexibility, tolerance, empathy, interest in reading and professional experience are given in Table 1.

Table 1: Mean Scores, Standard Deviations and Correlation Relationships Between Variables

	Mean	Std. D.	1	2	3	4	5
1. Cognitive flexibility	4.04	.57	1				
2. Tolerance	4.28	.59	.380**	1			
3. Empathy	3.92	.44	.420**	.415**	1		
4. Interest in reading	2.66	.61	.042	.091	.205**	1	
5. Professional experience	13.72	9.54	.162**	.150**	.119*	.063	1

*p< .05; **p< .01

As shown in Table 1, the mean score of cognitive flexibility scale was found as (X =4.04±.57), tolerance was (X =4.28±.59), empathy was (X =3.92±.44) and interest in reading was (X =2.66±.61). When the correlation relationships between variables were examined, significant positive correlations were found between cognitive flexibility and independent variables that are tolerance (r=.380), empathy (r=.420) and professional experience (r=.162). On the other hand, there was no statistically significant relationship with interest in reading (r=.042). The results of multiple regression analysis of cognitive flexibility predictions are given in Table 2.

Table 2: Results of Multiple Regression Analysis of Cognitive Flexibility Predictions

Variable	B	Standard error	Beta	t	p
Constant	1.494	.253		5.907	.000
Tolerance	.229	.047	.238	4.877	.000
Empathy	.412	.064	.320	6.489	.000
Interest in reading	-.048	.042	-.051	-1.126	.261
Professional experience	.005	.003	.091	2.040	.042

R=.487,   R2=.237
Adj R2=.230,   F (4-392)=30.519,   p=.000.
*p< .05; **p< .01

As shown in Table 2, it is understood that the modeled independent variables predict cognitive flexibility significantly (R= .49, R2= .24, p< .01).Tolerance, empathy, interest in reading and professional experience explain about 24% of the total variance in cognitive flexibility. Relative importance order of predictive variables on cognitive flexibility, compared to the standardized regression coefficient (beta) is; empathy, tolerance, professional experience and interest in reading. When the results of the t-test for the meaningfulness of the regression coefficients are examined, it is seen that the variable of empathy, tolerance and professional experience is a significant predictor on cognitive flexibility and the interest in reading variable does not have a significant effect on cognitive flexibility.

The regression equation for predicting cognitive flexibility according to the results of regression analysis is given below:
Cognitive Flexibility = 1.494+.229 Tolerance +.412 Empathy -.048 Interest in reading +.005 Professional experience

DISCUSSION AND CONCLUSION

In this research, which aims to reveal the role of the physical education and sports teachers in predicting the cognitive flexibility of tolerance, empathy, interest in reading and professional experience, the following conclusions are reached:

The levels of cognitive flexibility, tolerance and empathy of physical education and sport teachers are quite high, but their interest in reading is moderate. When the coefficients of correlation between the variables were examined, there was a meaningful relationship between cognitive flexibility and empathy, tolerance and professional experience in a positive way, but no significant relationship with the interest in reading. As a result, empathy, tolerance and professional experience are found as predictors of cognitive flexibility, whereas the interest in reading is not a predictor variable.

The teacher is the most important element of the education system. It can be said that the possibility of encountering different people, personality, temperaments and different human behaviors is very high in the profession of teaching. Teachers should be aware of how they will behave when they encounter such different situations and how they can develop different solutions in case of problems. In particular, their ability to adapt in situations of unexpected uncertainty is necessary both for the students to have a great importance in terms of their personal development and to be an impressive and influential teacher in the future.

As mentioned above, one of the most important factors negatively affecting the cognitive flexibility ability in the literature is the automation. This is especially evident when the level of specialization and professional experience of the individual increases. However, the same situation may not apply to the profession of teaching. In particular, the physical education teacher, unlike other teachers or occupational groups, has to provide education with qualitatively and quantitatively inadequate teaching tools in different environments within the framework of the school facilities such as sports facilities, school garden, empty classroom and etc. In this context, they have to deal with various situations throughout their professional career. As the professional experience of the physical education teacher increases, the potential to cope with such situations is expected to increase. In contrast with many professions, this will require the development of cognitive flexibility skills of physical education teachers. As a matter of fact, in our research, the level of cognitive flexibility of the physical education teachers was very high and a positive relationship was found with their professional experience.

In this research, the interest in reading is not a predictor variable of cognitive flexibility. In literature; there are many studies about the lack of interest in reading for the university students and teachers. (Saracaloğlu, 1992; Esgin & Karadağ, 2000, Yamaner & Kartal, 2001; Semerci, 2002). In this study, the interest in reading of physical education teachers was found to be very low. As habits are

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acquired at an early age, it may be useful to organize activities that encourage reading for students by parents and educational institutions. Teachers must make individual efforts to spare time for reading and to make reading a part of their lives in order to be able to acquire reading habit.

According to the results of the research, empathy and tolerance are also variables that significantly predict cognitive flexibility. Studies show that there is a positive relationship between cognitive flexibility and adaptation. Martin et al. (1998) found positive relationships between cognitive flexibility and adaptation and tolerance dimensions in a study that they conducted. Öz (2012) points out that the level of cognitive flexibility increases as the level of adaptation in the research that he conducted. In his study conducted together with the students of secondary school, Erden (2009) emphasized that students with higher levels of empathy skill are more tolerant of those around and others' mistakes as well as preferences and display more sympathetic behaviors of those around. This research has also shown that empathy and tolerance have a meaningful relationship in a positive way and predict cognitive flexibility. These studies support our research.

In conclusion, the following suggestions can be made in this research that predictive variables of cognitive flexibility are empathy, tolerance and professional experience:

The development of the individual's cognitive flexibility, especially empathy and tolerance, may increase their ability to cope with other negative factors. When faced with several problems; psychological counseling and guidance studies can be suggested, aiming to give an individual the ability to think alternatively, to produce harmonious, appropriate and balanced thoughts. It is important to determine the levels of cognitive flexibility especially while acquiring teaching profession at university and provide lessons, courses and seminars in terms of early elimination of deficiencies of candidates who will be future teachers. For individuals with low levels of cognitive flexibility, counseling services on variables such as empathy and tolerance can be provided to contribute to improving corrective relationships.

As a suggestion by this research; when literature is examined, it is seen that studies are often conducted on university students. In this context, it is possible to compare the cognitive flexibility of teachers from different branches, individuals in other occupations and individuals in different occupational groups. Studies can also be conducted with other predictive variables that are considered to be predictive of cognitive flexibility.

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BIODATA AND CONTACT ADDRESSES OF AUTHORS

Dr. Zehra Certel was born in İzmir, Turkey in 1960. She started her academic career as a lecturer at Department of Physical Education and Sports in Atatürk University in 1986 and appointed to Akdeniz Üniversity as Assistant Professor in 2011. She has been working at this position for almost seven years.

Zehra Certel
Akdeniz University
Faculty of Sport Sciences
Antalya- Turkey
E. Mail: zcertel@akdeniz.edu.tr
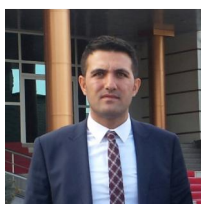
He was born in Kütahya, Turkey in 1978. He is married and has a son. He started his academic career as a lecturer on Physical Education and Sports College, Erciyes University in 2012 and appointed Associate Professor degree in 2015. He has been working this task for almost three years.

Ziya Bahadir
Erciyes University
Physical Education and Sport School
Kayseri-Turkey
E. Mail: zbahadir@erciyes.edu.tr

I was born in Marmaris, Turkey in 1989. I have studied economy at Selçuk University from 2006 to 2011. Now I am studying Physical Education and Sports Education at Akdeniz Universty. I will be finished this summer. Besides this, I am playing volleyball professionally since I was 13 years old.

Hatice Ece Kabaca
Akdeniz University
Faculty of Sport Sciences
Antalya-Turkey
E. Mail: haticecekabaca@gmail.com

I was born in Antalya, Turkey in 1995. I live in Antalya, Turkey. Currently I am a senior student at the department of physical education and sports education in the Faculty of Sport Sciences at Akdeniz University.

Ali Sercan Seraki
Akdeniz University
Faculty of Sport Sciences
Antalya- Turkey
E. Mail: alisercan.seraki@gmail.com

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