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Full Length Research Paper

Anger expression styles of hearing impaired individuals doing sport and those not doing sport

Mehmet ALTIN

Selcuk University, Faculty of Sport Sciences, Recreation Department, Konya-Turkey.

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The aim of this research was to determine the anger expression styles between the sportive hearing impaired individuals and the sedentary hearing impaired individuals. In the sportive hearing impaired group, there were 170 participants: 62 females and 108 males doing basketball, volleyball and football teams as licensed sportmen in various clubs and 162 participants: 59 females and 103 males of sedentary individuals. In data collection a personal information form developed for socio-demographical characteristics and "Continuous Anger and Anger Expression Style Scale" developed for determining changes in the anger expression styles by Spielberger et al. and adapted into Turkish by Özer were used. After the normality and variance homogeneity of data from the questionnaires were tested, in the determination of statistical differences t-test, One Way Anova and inter-group differences Tukey test were performed and the significance level was regarded to be $P < 0.05$. A significant difference was observed in the continuous anger expression styles between the hearing impaired ones doing sport and not doing sport ($P < 0.05$), statistically significant differences were determined in the anger expression style sub-dimensions between the sportive and sedentary hearing impaired ones ($P < 0.05$). When the changes between the groups were examined, any significant difference was not found depending on the factors like educational backgrounds, age, marital status and gender. When compared to the sedentary hearing impaired individuals, the sportive hearing impaired individuals' continuous anger levels were low; their anger control levels were high. Again, their external anger and internal anger levels were high. This study showed that the anger expression style values were more positive in the sportive hearing impaired individuals rather than the sedentary hearing impaired individuals; whatever disability type and situation all disabled individuals must be guided to sportive activities and their life quality and anger tendencies would be taken under control.

Key words: Sport, sedentary, hearing impaired, anger.

INTRODUCTION

The world is not a living place only designed for people who can see, hear, think and physically and mentally healthy. The main difficulty for disabled people is

viewpoints of society rather than their obstacles. Depending on the structure and type of disability, even if the effects of disability on life quality change, when we adjust our life fields to everybody, even it will be not

E-mail: mealtin@selcuk.edu.tr. Tel: +(90) 0538 076 98 18.

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necessary to use the concept disabled.

In the report published by the World Health Organisation (WHO) in 2011, the disability situation was defined as negative situations occurred when individuals (negative attitudes, non-reachable transport and public buildings, limited social support, etc.) interacted with personal and environmental factors. At the same report, it was informed that people more than 1 billion as being equivalent to almost 15 percentage of the world population experienced any disability type. About disabled children UNICEF (2013) declared that approximately 93 millions of children, that is, one out of every 20 children aged 14 or below had any type of disability at a medium and advanced level, one society would be never equal when all children were not included, disabled children would not be included when healthy data collection and analysis did not make them visible. Instead of structural, environmental arrangements and legal changes, it will be possible to sweep obstacles in our conscience with a small change.

In the literature, many definitions about the disabled and disability are mentioned. Doğru and Saltalı (2009) stated that disability situation could be generally analyzed in the three main titles including physiological, mental and physical disability. Since individuals with hearing impairments fulfill their self-care and physiological needs, show a structure adequate for themselves in their normal lives, they are included in mild disability group. Any difference is not observed in people with hearing disability compared to normal individuals except for the hearing impairment situation. Pitetti and Yarmer (2002) said that children with hearing impairments were not so different from children who can hear in terms of physical feasibility. So individuals with hearing impairments can do many sportive activities like normal individuals. Considering the registered data until now, WHO (2011) reports that there are 600 millions of individuals with hearing impairments in the world and 2 thousand of 1 million 300 thousand babies who come to the world in Turkey each year, are born with hearing impairments.

Lack of hearing may lead to some negative effects on children's emotional development. The most important effect of hearing deficiency is seen in the development of language and speech, thus, in communication. Having difficulties in understanding other people's sayings and telling demands affects in a negative way (Bee, 1992). Bolton (1986) explained that deficiencies in inter-personal relations caused many life problems such as loneliness, family problems, professional incompetency, dissatisfaction, stress and physical diseases. If a sense of hearing does not exist, other sense organs try to replace this sense and individuals have difficulty in closing the gap. When there is no positive discrimination, individuals have great disadvantages in interaction with the outer world. Like in other disabled groups, disabled ones with hearing try to destroy social inequality available in society

via sportive activities. Hearing impaired ones do not have social and cultural opportunities at an equal level to other individuals due to their sensitive losses. One of the basic reasons for this is that they particularly and often prefer to communicate with each other, avoid from interactions with other individuals in society (Gür, 2001). This limitation in their life fields bring a communication problem to the outer world and non-disabled individuals, thus, anxiety and fear as well.

According to Turkish Language Institution (2015); anger was defined as obstructiveness, offense or aggressive reaction to threat, furiousness, relative, rage, wrath. Joy, sadness, fear and anger are regarded as four basic senses (Oatley, 2004). Kassinove and Sukhodolsky (1995) see the feeling of anger as an internal situation depending on some cognitive and perceptual distortions. In literature anger is defined as a global feeling which comes from people's birth, develops in the first years of their lives, often occurs in children or young people's daily lives and is given to unfulfilled desires, unwanted results and unfulfilled expectations (Avcı, 2006; Balkaya, 2006; Erkek et al., 2006; Eşiyok et al., 2007; Modrcin-McCarthy et al., 1998; Özmen, 2006; Strayer and Roberts 2004).

Anger shows how a person generally feels (Özer, 1994); Serin and Genç (2011) claimed that internal anger is the tendency to suppress opinions and emotions and external anger is the tendency to show aggressive behaviors aimed at people or object in environment.

Starner and Peter (2004) and Lerner (2007) stated that one of the emotional expressions in teenagers is anger like in other age groups. If anger is not expressed in appropriate ways, it leads to physical, psychological and social problems in teenagers. A sense of anger which occurs in all beings in different ways and can be observed, can give damage to both source and environment when this is not taken under control.

İnanç (2010) claimed that when physically disabled children cannot do many activities expected of themselves; they do their daily life activities dependently, they become dependent on their parents, their social lives become limited and they feel incapable, have negative emotions such as anxiety, depression, loneliness. Sport has a more different importance for disabled individuals, sport represents a new window to disabled individuals who have already experienced many obstacles in their lives and lived in stress resulting from these obstacles (Özer, 2001). Anger control carries great importance in sportive activities, when physical movements are organized as planned experiences, emotions such as pleasure, share, self-expression replace anger emotions. Starner and Peters (2004) presented anger control as a situation which shows how an individual controls his anger in his relations with other individuals or how he has a tendency to calm down, control experiences stating individual reactions and anger. Biaggio (1980) suggested

that when anger was expressed in a “constructive way, inter-personal emotions such as trust, closeness and empathy developed, it created a base for communication by giving a personal control feeling. In addition to the obstacles experienced by disabled people with hearing, it will be possible to omit a new and more difficult obstacle from their lives when they minimize anger feeling.

MATERIAL AND METHOD

Aim

This study is a descriptive study aimed at determining changes in anger expression styles between hearing impaired individuals doing sport and sedentary hearing impaired individuals.

Data collection

In data collection, a personal information form developed by socio-demographical characteristics and “Continuous Anger and Anger Style Scale” developed by Spielberger et al. (1983) for finding out changes in anger expression styles, adapted into Turkish by Özer (1994), consisting of 34 items, aimed at measuring anger emotion and expression were used. In order to determine the socio-demographic structure, the personal information form was given to the disabled participants with hearing in a quiet environment, and required them to fill in the questionnaire and scale in necessary time and data were transferred into electronic environment.

Universe and sample

The research universe consisted of hearing impaired individuals doing sport and being sedentary, living in the cities İstanbul, Kütahya, Sivas, Aksaray, Van, Şanlı Urfa, Konya, Karaman, Sakarya and İzmir. The sample group included total 332 hearing impaired individuals including 62 females, 108 males interested in basketball, volleyball and football sports and 59 females, 103 males being sedentary, living in these cities.

Continuous anger and anger expression style scale

The scale adapted into Turkish by Özer (1994) involves 4 sub-scales including continuous anger, internal anger, external anger and anger control. In the questionnaire applied to teenagers and adults, the participant can sign as "1" defines, "2" less defines, "3" fairly defines and "4" wholly defines for the question how the expressions describe himself. The survey consists of 34 questions in total, including; 10 questions in trait anger sub-dimension (1, 2, 3, 4, 5, 6, 7, 8, 9, 10), 8 questions in anger control sub-dimension article (11, 14, 18, 21, 25, 28, 30, 34), 8 questions in external anger dimension (12, 17, 19, 22, 24, 29, 32, 33), 8 questions in internal anger dimension (13, 15, 16, 20, 23, 26, 27, 31) (Spielberger et al., 1983). The Cronbach Alpha value was found to be 0.77 and 0.88. In this study, the Cronbach Alpha value for the continuous anger expression style was registered to be 0.75, the revealed anger was 0.76, the controlled anger was 0.79, the hidden anger was 0.81. In unlimited time scale, the expressions were evaluated as Never (1 point), Some (2 points), Quite (3 points) and Completely (4 points). Scale point was separately done for the continuous anger level and the anger expression ways. A point

between 10 and 40 was obtained from the Continuous Anger Scale with 10 items. And a point between 8 and 32 was obtained from each dimension with 8 items in the Anger Expression Style Scale. Within the Continuous Anger, the low points from the hidden anger and the revealed anger were positive, as the high points from the controlled anger were positive. A total point was not taken from the scale (Özer, 1994). The lowest and highest point intervals in the responses to the scale were given as; Never "1,00-1,75", Some "1,76-2,50", Quite "2,51-3,25" and Completely "3, 26- 4,00".

Data analysis

After the normality and variance homogeneity of data from the questionnaires were tested, in determination of statistical differences, t-test, One Way Anova and inter-group differences Tukey test were used and the significance level was regarded to be $P < 0.05$.

FINDINGS

In Table 1, when considered all groups, the age average was $23,92 \pm 2,76$. It was determined that all groups had a normal distribution in terms of age variable and the sportive and sedentary hearing impaired groups were homogenous.

In Table 2, numbers and percentages regarding socio-demographic features of all individuals included in the research were seen. Depending on the sportive and sedentary hearing impaired individuals' gender, education level, marital status and profession factors, a significant difference was found in their anger expression style sub-dimensions.

In Table 3, the average of continuous anger expression style sub-dimension in the sedentary hearing impaired individuals ($2,19 \pm 0,23$) was high rather than other groups and this change was statistically significant ($P < 0,05$). The averages of sedentary hearing impaired individuals in the anger control sub-dimension ($2,14 \pm 0,29$) was low rather than other groups and this change was statistically significant as well ($P < 0,05$). Meanwhile, in the anger control sub-dimension the average of sedentary hearing impaired females ($2,22 \pm 0,34$) was low rather than other two groups and there was a significant difference ($P < 0,05$). Although the external anger average ($2,03 \pm 0,34$) of sedentary hearing impaired participants was higher than the other groups, this difference was not found statistically significant. A significant difference ($P < 0,05$) was determined between the internal anger scores ($2,03 \pm 0,28$) of sedentary hearing impaired men and hearing impaired women doing sports ($1,93 \pm 0,31$).

DISCUSSION AND CONCLUSION

In this study, a statistically significant difference was determined in the continuous anger points between the sportive hearing impaired and sedentary hearing impaired

Table 1. Gender and age distributions of sportive and sedentary hearing impaired individuals.

Disability Type	N	%	Female	%	Age x±Ss	Male	%	Age x±Ss
Sedentary Hearing Impaired	162	48.8	56	34.6	23.88± 2.8	106	65.4	25.34±3.04
Sportive Hearing Impaired	170	51.2	62	36.4	23.97± 2.75	108	63.6	25.54±3.57
Total	332	100	118	35.5	23.92±2.76	214	64.5	25.44±3.31

Table 2. Anger expression style changes of sportive and sedentary hearing impaired individuals depending on some socio-demographical characteristics.

Gender	n	%	Continuous Anger x±Ss	Anger Control x±Ss	External Anger x±Ss	Internal Anger x±Ss
Female	118	35.5	2.02±0.25	2.24±0.34	1.97±0.36	2.07±0.34
Male	214	64.5	2.13±0.26	2.19±0.32	2.07±0.36	2.02±0.21
		F	0.6	0.82	1.03	0.91
		P	.000*	.19	.02*	.16
Education Level						
Primary School	70	21.1	2.06±0.27	2.17±0.30	2.00±0.33	1.98±0.29
Secondary School	216	65.1	2.10±0.26	2.22±0.33	2.03±0.37	2.04±0.32
University	39	11.7	2.11±0.28	2.22±0.36	2.10±0.39	2.11±0.35
Master/Doctorate	7	2.1	2.17±0.30	2.16±0.37	2.27±0.40	2.20±0.45
		F	.67	.51	1.57	2.07
		P	.57	.67	.19	.10
Marital Status						
Single	169	50.9	2.80±0.27	2.22±0.33	2.05±0.36	2.05±0.32
Married	129	38.9	2.11±0.27	2.22±0.34	2.02±0.38	2.02±0.32
Widow	34	10.2	2.09±0.20	2.13±0.30	2.02±0.34	2.00±0.33
		F	.40	1.04	.42	.66
		P	.67	.35	.65	.52
Profession						
Civil Servant	125	37.7	2.10±0.28	2.25±0.34	2.06±0.40	2.03±0.36
Worker	89	26.8	2.09±0.30	2.18±0.36	2.00±0.30	2.02±0.28
Businessman	85	25.6	2.09±0.23	2.21±0.33	2.06±0.39	2.00±0.31
Farmer	7	2.1	2.06±0.21	2.20±0.16	2.11±0.40	2.15±0.22
Unemployed	26	7.8	2.10±0.20	2.08±0.15	1.94±0.29	2.17±0.34
		F	.06	1.75	1.08	1.53
		P	.99	0.14	.37	.19

* P<0.05 Inter-groups significant difference.

individuals (P<0.05). When examined the anger control points, the change between the sportive hearing impaired group and the sedentary hearing impaired group was considered to be statistically significant (P<0.05) and the high average of anger control in the sedentary hearing impaired group indicated that they controlled their anger less than the sportive hearing impaired group. Although

any difference in external anger averages was not observed, the high score of the sedentary group shows that they reflect their anger to the environment more while low average of the sports group shows that they do not reflect their anger to the external environment. Parallel to the increase in external anger scores, anger control was determined to increase in the sedentary

Table 3. Anger expression style changes of sportive and sedentary hearing impaired individuals.

Groups		Gender	n	Continuous Anger x± Ss	Anger Control x± Ss	External Anger x± Ss	Internal Anger x± Ss
Sedentary Impaired	Hearing	Female	56	2.08±0.23 ^b	2.22 ±0.34 ^b	1.98±0.28	2.10±0.33 ^b
		Male	106	2.19±0.23 ^b	2.14±0.29 ^a	2.03±0.34	2.03±0.28 ^c
Sportive Impaired	Hearing	Female	62	2.00±0.24 ^a	2.29±0.32 ^c	1.95±0.42	1.93±0.31 ^a
		Male	108	2.10±0.26 ^b	2.26±0.32 ^c	1.97±0.34	1.99±0.33 ^c
				F	8.62	3.89	.861
				P	.000*	.009*	.461
							3.07
							.028*

*, a.b.c.: P<0.05 Inter-groups significant difference.

group (P <0.05) (Table 3). The difference between the sedentary hearing impaired and sportive hearing impaired groups was significant in terms of the internal anger (P<0.05) and the higher internal anger point averages in the sedentary hearing impaired group than the sportive hearing impaired group showed that they internalized anger rather than other groups more.

When the socio-demographic changes between the groups were examined, a significant difference was not found depending on factors like education status, age, marital status and gender. Balkaya and Şahin (2003), Şahin (2014) did not observe any differences in the anger expression style sub-dimensions in terms of the gender variable, said that anger would change based on different reasons. In a research conducted by Albayrak and Kutlu (2009), a significant difference was observed in external anger sub-dimension depending on the gender. Keskin et al. (2011) suggested the continuous anger would vary in gender, continuous anger level would be higher in males and divorced individuals, averages would be higher in the external anger sub-dimension in ones with a high education level. These differences in the continuous anger and anger expression styles can be explained that the research group is heterogenous, they are subjected to different tests and applications, their disability situations and degrees are different.

Starnes and Peters (2004) discovered a positive relation between the continuous anger and the internal anger, the external anger and the anger control; when the continuous anger level increased, students' internal anger, external anger and anger control levels increased as well. A statistical difference was observed between the sportive and sedentary groups at the continuous anger level in this study, and the external anger points of the sportive hearing impaired group increased in parallel with the anger control points, in this way, these are similar to Starnes and Peters (2004)'study. Also, Lutwak et al. (2001) claimed that shy people hid their angers. A negative correlation between the revealed anger and the internal anger point averages of the sedentary hearing

impaired ones supports this situation.

Inal (2007) mentions the necessity of contributions of special education programs, relevant lecturers in schools, physical therapists, consultants and families for guiding disabled children in sportive activities by emphasizing that opportunities for doing sport must be increased. Özer (2001) said that hearing impaired children were not different from other disability types in terms of physical feasibility, gender based differences could be observed only in terms of performance. Thanks to sportive activities, disabled individuals will drive away from disability situation; will experience upper emotions regarding sportive activities such as love, respect, peace, share, responsibility, belonging, being a part, brotherhood and their emotions and opinions will be positively affected. Yetim (2014) stated that sportive activities made disabled individuals control their emotions such as aggressiveness, anger, enviousness, depending on their spirit. In this research, external anger, internal anger and continuous anger averages in sedentary individuals being high and anger control scores being low show a positive correlation with the findings of Yetim (2014).

In disabled children moving and most importantly learning movement is very significant for their mobilities in the future (Aksay et al. 2011). Kul et al. (2011) informed that hearing impaired teenagers' participation in sportive activities would be more effective in the continuous anger controls. Lower external anger points in the sportive hearing impaired ones are similar to the studies by Aksay et al. (2011) and Kul et al. (2011). Also, Aksay et al. (2011) suggested that disabled individuals' movement capabilities and movement securities must be targeted in the next periods instead of measuring their performances, by exceeding stereotyped movement rules to see a disabled child's own initiative and creative behaviors in Athletics, that reduced, limited and changed adult trainings must not be done by disabled individuals for achieving this and freedom must be given to them to show themselves. Groff et al. (2009) mentioned about the importance of sport in disabled individuals' socialization,

emphasized that sport and any physical activity made individuals discover different identity roles, change their perception style and reduced awareness about disability in group activities. Özer (2001) informed disabled individuals participated in and completed the competitions held for themselves, had achievements and failures, so regarded themselves as sportive men and reached at a platform to overcome with obstacles. In this study, changes between the continuous anger and anger expression style sub-points of the group doing sport are parallel with the studies mentioned below. Owing to sportive exercises and activities, hearing impaired individuals will make anger feeling as an instrument for making life more liveable, being away from destructiveness and aggressiveness, by learning many behaviors such as communication, self-confidence, self-control, concentration and self-determination.

Nomellini and Katz (1983) informed that anger based events caused to increase aggressive behaviors and created dangers in parent-child relations. Anderson and Bushman (2001) considered aggressiveness as a behavior which tries to protect from any attacks and aims to give a damage to an individual. Bayramlar (2009) said that physical, emotional and social problems may occur depending on current disabilities in disabled ones, various sports and recreational activities can minimize problems in physically disabled ones, and increase life quality. One of the important cases is that aggressiveness does not appear as a behavior which harms people and environment in a physical and psychological way as a result of anger. Özmen (2006) emphasized that emotions are expressed with the anger concept, behaviors are expressed with the aggressiveness concept. In order to minimize harms of anger feeling to disabled individuals and their environment, like reasons leading to this emotional determining disability and psychological structure resulting from disability will provide opportunities to destroy individuals' anger at the lowest level without having aggressiveness. Kökdemir (2004) described aggressiveness as a behavior occurred when anger was not controlled, said that anger may appear in some both external and internal events. Even if anger is perceived to be harmless feeling concerning only the person, it always threatens the outer environment with its reflected and uncontrolled structure. In this study, especially sedentary hearing impaired individuals' continuous anger point averages were high than other groups and this change was statistically meaningful ($P < 0.05$). The important thing is the expression style of anger and more importantly its controllable level, not anger itself.

When compared to other groups, low anger control averages of hearing impaired groups not interested in any sport branch ($2,14 \pm 0,29$), can indicate that sport is a strong instrument in controlling anger and expressing themselves. Again the anger control point averages of sedentary females ($2,22 \pm 0,34$) were lower than the

sportive females. This situation shows the importance of exercises and sportive activities. In individuals with a high point average in the anger control sub-dimension, individuals are dominant about their current anger emotion and positively reflect it on their behaviors. Berkowitz (1990) emphasized that this emotion was short-term and useful at a medium level, would lead to physical and psychological problems when it became continuous and severe. Can et al. (2015) stated teachers' internal anger and external anger average points were lower than expected, the anger control point average was high. Within the study, the sedentary hearing impaired males' external anger point averages was statistically low rather than the sportive group, the internal point averages belonging to the sportive group was lower than the sedentary hearing impaired group, which is similar to Can et al. (2015)'s study. Schuerger (1979) stated that anger was destructive when it became continuous and severe, it caused low self-respect, inter-persons and family internal conflicts, verbal and physical attacks, adaptation problems at work life. Campano and Munakata (2004) researched on Philippine 650 secondary school students, found a significant relation between high anger levels, low academic success points and psychosomatic complaints in students. Sonuç (2012) performed exercises of a 8 week, various sportive activities including one hour and two days in a week on the experimental group, in his study titled with *The Effect of Sport on Anger Level in Mentally Disabled*; after the application program, the experimental group's continuous anger, internal anger and external anger points seemed to be low, their anger control points were high. Kayıhan et al. (2011) explained that moving, doing exercise, participating in sportive activities gave individuals pleasure whatever disability type and degree in individuals were, pleasure from moving increased individuals' life motivation. Kayıhan (2011) and Sonuç's findings (2012) support the anger expression style points of hearing impaired people doing sport in our study.

This study included only hearing impaired individuals in Turkey. The limited number of scientific studies in international level on anger in hearing impaired individuals is thought-provoking. It is important to shed light on future research studies of the same kind about hearing-impaired individuals in other countries of the world.

Disabled individuals cannot do vital activities expected from themselves due to their disability, perform self-care and especially become dependent on others, which make them feel weak and idle. Girgin and Balcı (2015) suggested that disability caused both children and parents to be affected in physical, emotional and social ways and subjected to various problems, that physically disabled children felt unproductive and inactive, they had emotional problems such as anxiety, depression and loneliness. In this study the anger expression style averages concerning the sportive hearing impaired

individuals were more acceptable than the sedentary group which proves the power of sportive activities in terms of socialization. We will be all when you think you have some deficiencies which are not completed. Everything shared does not grow, especially in case of anger, when shared, it becomes smaller or losses.

Conflict of Interests

The author has not declared any conflicts of interest.

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Full Length Research Paper

Influences of moral, emotional and adversity quotient on good citizenship of Rajabhat University's Students in the Northeast of Thailand

Sunan Siphai

Faculty of Education, Chaiyaphum Rajabhat University, Thailand.

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The objective of this study is to investigate the influences of moral, emotional and adversity quotient on good citizenship of Rajabhat University's students in Northeastern Region of Thailand. The samples included 1,087 undergraduate students from 8 different Rajabhat universities. Data analysis was conducted in descriptive statistics and structural equation model. The results revealed that the adversity quotient and moral quotient had a positive direct effect on good citizenship with the significance level of .01 while emotional quotient had a negative direct effect on good citizenship with the significance level of .05. The structural equation model fitted well with the empirical data indicating the chi-square 167.784, $df = 119$, $p\text{-value} = 0.0022$, $RMSEA = 0.019$, $SRMR = 0.022$, $\chi^2/df = 1.409$, $R^2 = 0.559$.

Key words: Moral quotient, emotional quotient, adversity quotient, good citizenship.

INTRODUCTION

In nation developments, one of the crucial aspects is quality of human resource. The others are economy, society, politics, industry and education. Those national development factors inevitably depend on various desired characteristics of the nation's citizens. The nation's citizens thus become one of the most important components of Thai society. Like all other societies, every sector of a society requires competent citizens. As previously stated, the competent citizens ought to be in good physical and mental health. They should be capable of thinking, performing jobs and solving problems. The most important is that they should be able to act as

efficient man power for national advanced prosperity and stability. As for national permanent and sustainable growth, its human resources ought to be competent in moral, emotional, and adversity quotients. Good citizenship, as viewed by Soder (2003), concerns conducts both in intellectual skills (such as critical thinking) and participatory skills. In Thai settings, good citizenship is specially associated with participatory skills mainly in social norms as national traditions, morality, religious practice and having a peaceful and virtuous life. Living as a part of society, Thai people have their own duties to perform as outlined for good citizenship so as to sustain

E-mail: er2_sunan@hotmail.com

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peace and order of Thai society based on moral, ethical and legal principles. Good citizenship can be viewed and judged as the most essential basis to raise the desirable social level for entering sustainable national development in terms of society, education, economy and political aspects. Every sector presently has more recognition on the essence of good citizenship especially in educational development. The educational purposes and goals emphasize on the establishment and reinforcement of Youth's consciousness for being good citizenship in their future life enabling them to construct more social strength and firm basis of Thai society. As earlier stated about the necessity and importance of good citizenship, the Basic Education Core Curriculum B.E. 2551 (A.D. 2008), illustrates the traceable establishment of Thai students to be global citizens in the core curriculum vision for the development goal anticipated by every learner as the national human power to achieve the goal as a balanced human of good physical health, knowledge, morality and having the consciousness of being Thai citizens and global citizens (Department of Curriculum and Instruction Development, 2008)

The educational management for establishment of being good people for the youth is the responsibility of educational institutions at different levels. Although, there has been attempt to drive youth development and support for being good, smart and happy people, the truth is that such attempt has failed. The current condition of Thai society, specifically in the youth group, has not achieved the goals drawn in the educational curriculum of good citizenship in terms of actions following codes of conduct for the actual public society. The youth or students in educational institutions might be expected to have a morality as R.M. (1952) pointed out. The morality that takes accepting the traditions and customs of the society, including accepting authority and emphasizing loyalty to the group, as more important than avoiding and preventing harm. The factors might affect the youths' or students actual practices irrelevant to the goals of educational curriculum from the changes of economic, political and social, scientific and technological growth. As Pannitamai (2001) viewed that the situation of changes as previously stated might cause the modern youth group to change their behaviors in being less publicly aware. The people in different societies seem to act with less awareness in living in public societies causing social problems, such as committing crimes in different ways, quarrelling in schools or neighborhoods, or doing harm to others. It can be mentioned that those people with such problems neglect to live together under the moral and ethical guidelines that may affect the problems of happy living societies. Decreasing practices for good values and traditional customs in society, since the current globalization has caused Thai society to be materialistic but less aware of morals and national good culture. Except for the previous problems stated,

presently, most Thai families are in single family style that might make family members lack warmth in society. They tend to live on one's own or self-dependence; therefore most children of those families have been left alone and they turn to spend most of their time with friends. As they spend their lives with friends, they might do something wrong or bad intentionally or unintentionally. Similarly, as Thai people have been living with struggle, they forget to be generous to people around them. People who live for survival may seek incomes for their basic consumption needs. They help each other less than it should be while they are living a happy life. Moreover, less generous people could be more greedy because they earn their living by taking advantage of others. They could be short of generosity and public unity without respecting the others' rights and public advantages. The stated problematic situation becomes more serious causing morals and mental decadence affecting the competitiveness, selfishness, taking advantages and holding self-advantage more than public well-being (Office of the National Economic and Social Development, 2011; Chinpong, 2010; Channual, 2008; Nipawong, 2002).

Previous researches conducted did not produce clear results about good citizens regarding moral, emotional and adversity quotients. Therefore, the researcher developed good citizenship indicators of Rachabhat Universities' students in northeastern Thailand. The development of the good citizenship questionnaire was conducted in 3 different steps: 1) constructing the variables for good citizenship, 2) developing and improving the indicators of good citizenship and 3) examining and analyzing the indicators according to the research hypotheses and the data collected. The quality assessment of the instruments was tried out with three sample groups: group one contained four students for assessing the multi-case studies in order to develop indicators of good citizenship, sample group two included 120 students for assessing Exploratory Factor Analysis phase, and sample group three consisted 800 students for the assessment of the second phase of the Confirmatory Factor Analysis. Finding of the research produced 8 indicators of good citizenship.

Besides, the early problems suggested that they could affect the people in societies to be incompetent in 'being good people', so those problems could cause the personal, family and public stress. The survey of the Department of Mental Health, Ministry of Public Health in 2008 revealed that up to 20 % of Thai people from overall population encountered mental health and social problems. Children and youths have had more mental health and social problems as well. (The Office of Education Council, Ministry of Education, 2010). The children and youths who possess mental health problems exhibited different behaviors including, quarrelling, committing crimes, drug abuse and more violently solve the problems. According to the statistical record of Child

and Adolescent Mental Foundation, Rajanagarinda Institute, Ministry of Public Health, the tendency of numbers of children committing suicide at earlier ages and the quantity had increased. Such reason suggested that some of them lacked happiness (Mthai.com, 2008). Furthermore, one of youth's problems was that today's youth are established in competitiveness in everyday life aspect. They only developed in academic skills, causing lack of necessary life skills, such as adjustment, tolerance, strength and ability in encountering and overcoming problems that could be called adversity quotients. The stated final point might cause them of impatience towards doing menial jobs, being unable to solve problems and fight with real-life problems. Therefore, it can be inferred that those children were rooted in a life of indigence. The better those children could learn, gain knowledge, or live in a family with high economic status, the less indigent life they could have. Those children were unable to overcome life obstacles because of the unbalanced academic life-style that excludes problem solving abilities. As previous life-situation, it could be a risk opportunity for them to choose committing suicide (Sitthisamarn, 2009). Additionally, the analysis of business ethics by Pukkapun (2001) indicated that if someone who attempts to overcome the problems to reach the life goals without considering the correct context, having moral and ethical practices, it can produce incorrect guidelines, both in personal and working life. Moral quotient person will be a good level to instill in the children and therefore they have three factors – 1) the moralistic teaching provide directly to children, 2) to convey the morality from adults to children and 3) love and discipline. Therefore, Moral Quotient has to be practiced when they are young. If morality and ethics have been cultivated since childhood, one can develop his basic Moral Quotient up one level (Kohlberg, 1981). The people in societies should not only praise academically smart but also good people so that the societies will be balanced and happy. Every sector coping with the problems occurring among people should be aware of the original cause of those problems and how the people in societies can be good and happy. As stated that good people judged as good citizenship (Stolz, 1997; Charoensethasilp and Virawat, 2001) imply that the major aspects as the moral quotient (MQ), emotional quotient (EQ) and adversity quotient (AQ) can be necessary and important for human resource development together with national development. If the human resources are established with the qualification of good citizenship having physical fitness, sound mind and emotion and intellectual well-being, those people may be considered good citizen and be able to construct a happy society for the nation.

The moral quotient (MQ) can be defined as the intelligent, ethical, and moral levels a person should possess indicating the cause of good, smart and happy

people's behaviors (Chaloeysub, 2008; Charoensethasilp, 2005; Wana-indrayuth, 2005). The moral quotient (MQ) can be a major component in developing children and youths to be good and smart being able to live in the society happily. A person's success could not depend only on the intelligent quotient (IQ) but also on the moral quotient (MQ) (McClelland, Atkinson, Clark, 2012) and adversity quotient (AQ) that judged as the behavioral model of the adjustment into changing circumstances and rapid-happening uncertainty of no matter how big or how many problems and obstacles. Hence, the ability to confront and overcome obstacles can be an attribute of people affecting good citizenship of the community, society and the nation. The result from testing of the ones who fulfill in different careers revealed that they contain abilities in confronting and overcome the difficulties to help them be successful in life (Collins, 2001). While the emotional quotient (EQ) can be considered as a person's ability in realizing his own emotion and being able to manage and control himself appropriately, as well as the perception and understanding others' emotions (Bar-on, 2010)

Additionally, the previous research findings on the success in life or being smart indicated that the adversity quotient (AQ), intelligence quotient (IQ), and emotional quotient (EQ) were correlated to each other (Riewchaiapoom, 2010; Sophonwachirawong, 2009; Stoltz, 1997). However, the research focused on being good people and happy in Thai settings were not found directly to indicate what characteristics for developing human resource to be good people are. As for the factors affecting good citizenship, the research findings revealed that there are 6 variables influencing on good citizenship ranking from the most to least including the moral quotient (MQ), the motional quotient (EQ), the adversity quotient (AQ), family nature, intelligence quotient (IQ) and self-confidence (Sukkhom, 2011; Paiboonthitipornchai, 2010; Saroj, 2008; Lertmongkolnaam, 2008; Sukyai, 2008; Boonyanuwest, 2006; Klinkulab, 2003; Maneesrikham and Chullasub, 1999; Masuk, 1998; Promfui, 1980). The stated studies revealed that the variables of ethic quotient, emotion quotient and adversity quotient were important and mainly affected to good citizenship.

According to the background causes and significance stated, this research aimed to investigate the influences of moral quotient (MQ), emotional quotient (EQ), and adversity quotient (AQ) on good citizenship of the students in the campuses of Rajabhat University in Northeastern Region of Thailand. The findings from information analysis could be usefully implemented for related educational institutions and the guardians might derive guidelines for the promotion and development of their children to have desirable characteristics of good citizenship for their communities and the country in the future.

Table 1. Number of samples shown by genders.

Rajabhat University in the North East of Thailand	Gender				Samples	
	Male		Female		f	%
	f	%	f	%		
Nakhon Ratchasima Rajabhat University	65	56.52	50	43.48	115	10.6
Buriram Rajabhat University	53	36.30	93	63.70	146	13.4
Chaiyapum Rajabhat University	75	50.34	74	49.66	149	13.7
Maha Sarakham Rajabhat University	67	44.97	82	55.03	149	13.7
Roi Et Rajabhat University	42	47.73	46	52.27	88	8.1
Loei Rajabhat University	87	55.77	69	44.23	156	14.4
Udon Thani Rajabhat University	76	53.52	66	46.48	142	13.1
Sisaket Rajabhat University	64	45.07	78	54.93	142	13.1
Total	529	48.67	558	51.33	1087	100

Table 2. Number of sample shown by years of study.

Rajabhat University in the North East of Thailand	Years of study				
	1st year	2nd year	3rd year	4th year	5th year
Nakhon Ratchasima Rajabhat University	2	22	40	50	1
Buriram Rajabhat University	0	1	145	0	0
Chaiyapum Rajabhat University	0	0	149	0	0
Maha Sarakham Rajabhat University	20	0	0	129	0
Roi Et Rajabhat University	4	10	73	1	0
Loei Rajabhat University	46	16	14	80	0
Udon Thani Rajabhat University	0	0	0	142	0
Sisaket Rajabhat University	0	29	112	0	1
Total	72	78	533	402	2

The objective

The objective of this study was to investigate the influences of moral quotient, emotional quotient and adversity quotient on good citizenship of Rajabhat University students in the Northeast Region of Thailand.

METHODOLOGY

Samples

The research sample was 1,087 students studying in 8 campuses of Rajabhat University in the Northeast region of Thailand. The sample was selected from each campus of Rajabhat University in the Northeast of Thailand by using the multi-stage sampling technique, included 1,087 undergraduate students from 8 Rajabhat Universities in the Northeastern of Thailand. The details of the samples are illustrated in Tables 1 and 2.

Instruments

The instruments used in this study are as follows,

1) The moral quotient questionnaire (Wana-indrayuth, 2005): The questionnaire consisted of 60 items, rated using a 4-point Likert scale, ranging from 4-very true of me, 3-fairly true, 2-true sometimes and 1-not true. The questionnaire assessed 6 components of moral quotient: focus on future and self-control, beliefs in self-power, mental health, attitude, achievement motivation and moral reasoning.

2) The adversity questionnaire: This questionnaire was created based on Stoltz's (1997) concept of adversity quotient. The questionnaire consisted of 28 items assessing the aspects of the controlling problems, finding out the cause and owner of problems, evaluation of problem effect, and coping with problem continuation.

3) Good citizenship questionnaire (Siphai and Sri-Saard, 2015): This was a 40- items questionnaire assessing the aspects of good citizenship including, self-conduct in the society, thinking process skill, living together morality, loving the nation, religion and high royal king characteristics, living in adequacy, public mind and good values. Participants were asked to rate their agreement with the statements in the questionnaire using a 4-point Likert scale ranging from 1= none of the students' characteristics, 2= not often of students' characteristics, 3= more often of the students' characteristics, 4= always of the students' characteristics

4) The emotional quotient questionnaire (Department of mental Health, Ministry of Public Health, 2000) This was a 52- item, 4-point Likert scale assessing three components of the EQ, namely

Table 3. Psychometric properties of the research instruments.

Questionnaire	Item	IOC	Reliability (α)	Discrimination (r_{xy})
1. Moral Quotient	60	.80-1.00	.955	.201-.795
2. Adversity Quotient	24	.80-1.00	.911	.250-.684
3. Good Citizenship	40	.80-1.00	.933	.264 - .696
4. Emotional Quotient	52	-	.920	.220-.738

Table 4. Direct and indirect effect, specifically indirect effect and total factors affecting to good citizenship of Rajabhat University Students in the North East of Thailand

Predictor variable	Direct	Specific indirect pass			Total indirect	Total
		MQ	AQ	MQ&AQ		
MQ	0.241**	-	-	-	0.000**	0.241**
AQ	0.714**	0.043**	-	-	0.043**	0.756**
EQ	-0.200*	0.154**	0.412**	0.025**	0.590**	0.390**

goodness, smartness and happiness. The psychometric properties of the four instruments used in this research were adequate. Content validity was proved by 5 experts in the areas. The analysis of item objective congruence (IOC) revealed the values between .80 – 1.00; Cronbach Alpha ranged from .911 -.955 and; the discriminative values (r_{xy}) were between .201 -.795. The psychometric properties of each questionnaire are shown in Table 3.

Data collection and data analysis

Data were collected from 1,087 sample students. Data were analyzed using software for descriptive statistics (percentage, mean and standard deviation), and Mplus program version 7.2 (Multhen and Multhen, 2012) for structural equation model (SEM).

RESULTS

The result of SEM analysis showed that the hypothesized model fit well with the empirical data (chi-square=167.784, $df = 119$, p -value = 0.0022, CFI = 0.996, TLI = 0.992, RMSEA = 0.019, SRMR = 0.022, chi-square/ $df = 1.409$)

When considering the valid influence size on good citizenship, it was found that the Adversity Quotient (AQ) had the most influence at the .01 level of statistical significance, following by the Moral Quotient (MQ) at the .01 level of statistical significance too.

For the total influence, the effect size of the Adversity Quotient (AQ) on good citizenship was .756 ($p < .01$), while the effect of Moral Quotient (MQ) was .241 ($p < .01$)

The result of SEM revealed that the hypothetical models was best fit with the data resulting the chi-square values of 53.787, $R^2 = 0.382$. The second model was best fit with the data revealing the chi-square values of 190.630, $R^2 = 0.334$. The third model was best fit with the data indicating the chi-square values of $R^2 = 0.559$. The

Moral Quotient (MQ) and Adversity Quotient(AQ) revealed the positive values and directly affected to good citizenship, but Emotional Quotient(EQ) implied negative values and directly affected to good citizenship. The details for the indirect effect included the Adversity Quotient (AQ) with the positive values, indirectly affected to the path of the Moral Quotient (MQ) with the path coefficient = 0.043. The Emotional Quotient (EQ) had positive values, indirectly affected the path of the Moral Quotient (MQ) with the path coefficient = 0.154 and the positive values, indirectly affected to the path of the Adversity Quotient(AQ) with the path coefficient = 0.412, and the positive values, indirectly affected to the path of the Moral Quotient (MQ), the path of the Adversity Quotient (AQ), and finally, the MQ & AQ had the path coefficient = 0.025.

The indices of goodness of fit for the research hypothetical models are shown in Table 4 and Figure 1.

DISCUSSION

In terms of the influences of the moral, emotional and adversity quotients on good citizenship, this study found that the major aspect of the adversity quotient directly affected most to good citizenship of the students. This might be due to the fact that most students had the capability to confront and overcome obstacles and could respond to the challenges and difficulties in life. They reacted with strong enthusiasm to pursue their set goals and continue towards excellence in job performance with the determined commitment throughout their life (Kotchapakdee, 2001). Problems and obstacles could be the core factors as well as the important factors enabling humans to cancel or continue to do activities. If a person

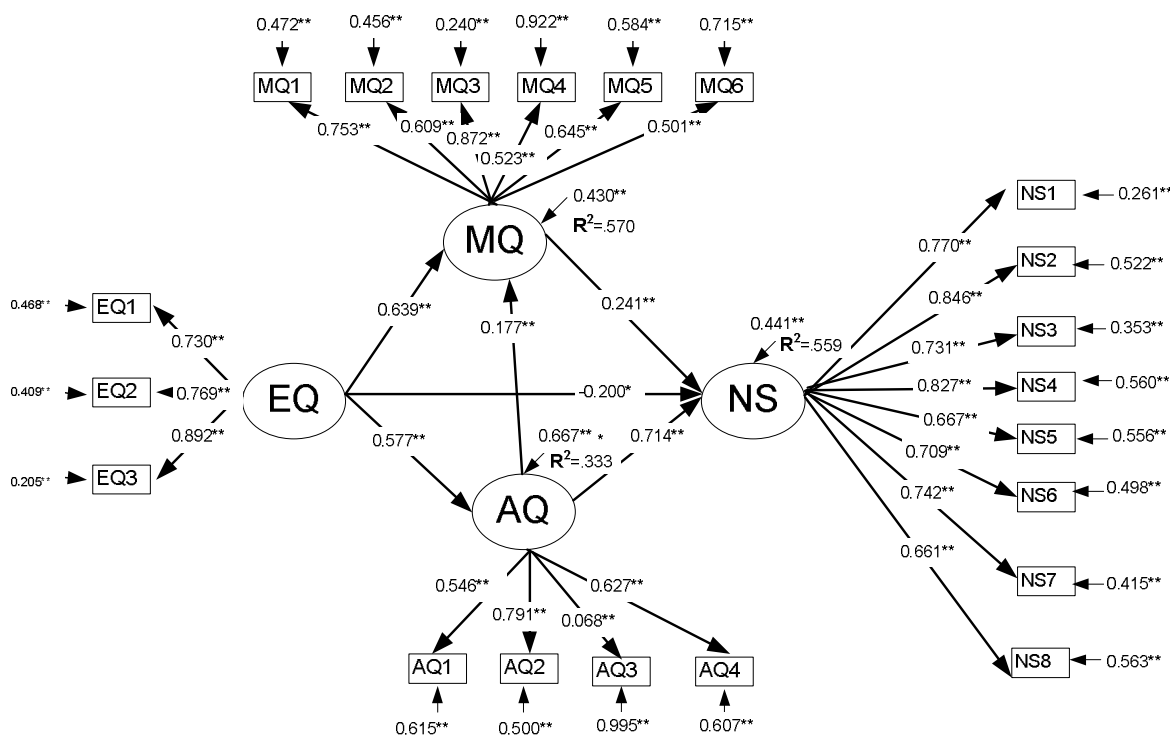


Figure 1. Model Influencing on Moral Quotient, Emotional Quotient and Adversity Quotient on Good Citizenship of Rajabhat University’s Students in the Northeast of Thailand. Chi-square chi-square=167.784, df = 119,p-value = 0.0022, CFI = 0.996, TLI = 0.992, RMSEA = 0.019, SRMR = 0.022, chi-square/df =1.409, R²= 0.559.

knows what they want and how they could put the effort to overcome the obstacles or difficulties to obtain what he needs, and realizes the satisfaction that they will be responded and can achieve the needs, they can set his goals, and if some obstacles or difficulties occur, they will prepare themselves to encounter and try to overcome those challenges (Boonrapadecha, 1985). Additionally, the adversity quotient can be a behavioral pattern to help self-adjust to the rapid-changing circumstances and uncertainties, no matter how hard the problems or difficulties may be. Therefore, the adversity quotient can be considered as the personal characteristics affecting to the aspect of good citizenship in communities, societies and nations. The stated findings can be related to the research conducted by Boonyanuwat (2006), which studied on the factors related to the good citizenship attributes of the students in Grade 9- secondary level in the Educational Service Area Office of Pattalung Province. The study findings showed that family nurture, moral reasoning, self-confidence, anxiety and self-control capability were correlated to the good citizenship attributes at the .01 level of statistical significance. Similarly, the mentioned findings were related to the research findings conducted by Sungkhamaan (2005) that studied the selected variables related to the adversity

quotient capability among the students in class level 4 in Nongkhai Province revealing that there was the positive relationship with the adversity quotient capability at statistical significance.

Moreover, in terms of the moral quotient, it directly influences good citizenship of the students in the second rank at the .01 level of statistical significance. The stated finding might be the reason that the moral quotient can be the main element for the development of the children or youth to be good people, smart and able to live in societies happily. The moral quotient is judged as the opinion level in morals or morals level in a person’s mind in order to establish social prosperity. In this case, the social members should know to select for practices with the awareness of right or wrong things based on the rules and benchmarks of social behaviors. The members of society will judge what to conduct either in the right or wrong practices focused on the criterion the societies raise (Kohlberg cited in Hunnakhin, 1980; Chomcheoun, 1992; Chinpong, 2009). The present research findings can be considered to be correlated to Kohlberg’s concept (Somboon et al., 1983, pp. 33-36) stating that the adolescents from 16 years of age and above could behave correctly depended on the rights, values and opinions of them and following to the benchmarks, rules

and orders under the approval and co-agreement of those societies. Besides, the people should persist in legal ways, but emphasize on the possibility in changing laws when considering in the advantageous reasons for societies. Therefore, in case of the students who behave in the moral quotient, it can also affect to the students' good citizenship. The reason from the findings can be related to Sukkham's study (2011), on acting as the family function, moral quotient and good citizenship of the 4th year students in Kasetsart University, Bang Khen Campus, and its findings revealed that the moral quotient was positively related to good citizenship at the .001 level of statistical significance.

But for the variable of the negative influence on good citizenship of the students in the campuses of Rajabhat University in the Northeastern, it illustrated the emotion quotient at the .05 level of statistical significance. For the finding stated, it might be because the emotional quotient can be the person's ability to realize in feeling, thinking, and different emotional states occurring on his own and others (Mayer and Salovey, 1990, cited by Tongparb, 2003, p. 10); however, that person should be able to control his own emotion so as to indicate his own thinking and acting reasonably. When looking into

For the emotion quotient, it negatively influences the good citizenship of the students in the campuses of Rajabhat University students at the .05 level of statistical significance. But when considering the indirect effects through the adversity and the moral quotients, the emotional quotient became inversely positive to good citizenship. For overall influences, it revealed that all three variables of the adversity, moral and emotion quotients affected to the good citizenship the students in the campuses of Rajabhat University students in the Northeast of Thailand at the same .01 level of statistical significance. For this case, variable of moral and adversity quotients might be the mediator variables for the students' good citizenship, because statistical mediator variables as the path relating A to C can mediate the third variable (B) could be the variables indicating the influences between independent variables and dependent variables through other variables. Actually, as McClelland et al. (1953) stated, a person's success could not solely depend on the intelligence quotient, but also depend on the moral, adversity and emotion quotients as Baron and Kenny (1968) strongly supported.

Moreover, because of the past research associated with the success in life or being an intelligent person, it indicates that the relationships among the adversity (AQ), the intelligence (IQ) and the emotional quotients (EQ) which were related to each other (Stoltz, 1997; Sophonwachirawong, 2009; Riewchaiyaphoom, 2010). This may be because the changing conditions of societies under globalization caused by the influences of technological progress, while the morality and ethics of the people in societies could reverse into another direction

likely affecting the problems of people living together in societies. That can be considered that the morals, good culture and good values became deteriorated, and the original traditions were also neglected. Thus, spending current lives appeared necessary to be skilful and able to do other things in different aspects pursuing the moral, emotion and adversity quotients. As Bar-On, (1992, cited in Punntamamai, 2001, p. 11) stated that self-capability in the emotion and social aspects could cause successful living.

In the stated point, if a person acts his innate behaviors, he will do his behavior intention. This means that the tendency or readiness of a person to act out his innate behaviors to be related to his own feelings based on the social criterion towards those situations, the people group with interrelationship and important people. The acceptance and support for the stated behaviors should be promoted to do.

If a person has previously experienced those aspects and emphasizes on the social criterion in terms of a person depending on that person in his self-confidence and complying, contradiction or accordance, they could make up more accordance into the social criterion in what he is doing, so the belief in the social criterion can be an important variable in predicting the behaviors better (Ajzen and Fishbein, 1980, cited by Klinsuwon, 1995). From the preceding discussion stated, it correlated with Stoltz's (1997) guidelines indicating that the adversity could imply the tolerance, attempt and adversity capability for fighting the obstacles or difficulties. It could also predict that who could overcome or lose the obstacles or difficulties, and it could predict that who could achieve his work more with appropriate competency, and who could lose his task in a short time. Especially, if a person follows the moral, ethical and value principles as the accepted social principles or benchmarks, that can be determined that a person has moral quotient, he will behave well and realize responsibility, honesty and ethics.

Therefore, if people conduct with high-levelled intelligence and emotion quotients, but low moral quotient, they may conduct with the intelligence quotient in the wrong way. As the earlier mentioned discussion, the moral quotient based on establishing goodness or doing in the right ways can be adopted to teach the children, correlated to various religious principles that teach people to be called as good people. The children with moral quotient can be viewed that they are generous, empathic to the others, and when growing up, they could easily adjust themselves to the others living in the same circumstances. The children with moral quotient can be judged that they will do something in the rights, know what and how they should or should not do. For the reasons stated, teaching them to behave like those effectively, someone who is responsible for teaching them should use appropriate words or speeches together with exemplified acting (Dek-D.com, 2012). Eventually,

the discussion above can imply that a person with emotion quotient can be able to overcome encountered obstacles or difficulties, and a person with moral quotient can be good citizenship in the society they spends their own life.

RECOMMENDATION

1. Stakeholders involving in the development of students' good citizenship should not only promote the emotional quotient, but they should also develop other essential parallel-variables, such as the moral quotient and adversity quotient in order to encourage them to be desirable attribution necessary for being good citizens of the society and nation in the future.

2. There should be the study on the influences of the intelligence quotient, moral quotient, emotion quotient and adversity capability toward the students' good citizenship in order to obtain the responses underlying the development that if the students are highly intelligent together with the stated quotients, whether and how there will be the effect on the students' good citizenship or not.

3. This investigation aimed to study the direct and indirect influences of the factors affecting to the students' good citizenship. There should also be the study directing influence or the co-interaction of the moral quotient, emotion quotient or adversity quotient so that it could be the information for taking to develop the students' good citizenship apparently.

4. In the study on the influence of the factors affecting to the students' good citizenship, the investigator should comparatively study in terms of the structural laid-management and functions of different variables. In that study characteristic is useful for the causal study in the present and future with more correctness and nature of variables that causes the details to implement diversely and covering the involved persons in various sectors.

Conflict of Interests

The author has not declared any conflicts of interest.

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Full Length Research Paper

Undesirable student behaviours encountered by primary school teachers and solution proposals

Mehmet TEYFUR

Ağrı İbrahim Çeçen University Faculty Of Education, Educational Sciences Department, Ağrı, Turkey.

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The purpose of this study is to determine undesirable behaviours of primary school students, to define the factors leading to these behaviours and to detect the methods applied by teachers for changing these undesirable behaviours. The data of this research were obtained through a survey comprised of two sections developed by the researcher. This survey including three open-ended questions was applied to 355 teachers and the data gathered were assessed using descriptive analysis method. Undesirable student behaviours that teachers encounter in the classroom seem to be talking without asking permission for it, walking around in the classroom without permission, continuously complaining about friends, not acting responsibly in compliance with group activities, talking disrespectfully to the teacher, acting pretending to be the characters in TV series, jealousy in relationship with friends, and having attention deficit. Teachers consider that the reasons for these undesirable behaviours are the fact that parents interfere in education-teaching process, extremely spoil their children, compare their children with their peers, force them to participate in various courses, act as if they were teachers in their relationships with teachers and that there are not adequate playgrounds in school yards, there is vulnerability of safety in schools, there are not adequate fields for activities of sports in schools. It is observed that the primary school teachers who participated in the research use for changing these undesirable behaviours the method of reminding classroom rules, calling the student's name, giving advices, encouraging for apologising, warning through eye contact, changing seats of students, complaining about the student to his/her parents, prohibiting students from having a break, retracing to the source of the problem, visiting the student at home, discussing the problem with the school counselor and ignoring the behaviour.

Key words: Classroom management, undesirable behaviours, primary school, peer group, parents.

INTRODUCTION

Classrooms are places where students feel safe, acquire new knowledge, know they are valued members of a community, and where learning is optimized (Evertson et al., 2003; National Research Council, 2000; Wang et al.,

1994). Terzi (2002) describes the classroom as a functional part of the education system where qualified man power is trained. According to Okutan (2006) in classrooms where learning is optimised and which play

E-mail: mteyfur@agri.edu.tr.

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role in the training of qualified man power, the interaction between teachers and students are significant.

It is known that in classrooms with low level of interaction emerge various undesirable behaviours.

Classroom is a place where students gather for learning. It is a vital skill for teachers to create a safe and decent environment in the classroom. This skill of teachers provides a learning environment for students that they may benefit in the best way. In terms of classroom management, the physical organisation of the classroom and the method of teaching are important in creating an effective learning-teaching environment. In addition, management of student behaviours, particularly undesirable ones, is an arduous issue for teachers (Atıcı, 2001). Teachers management feature is also effective in solving problems (Teyfur, 2011).

Coping with undesirable student behaviours in the classroom is one of the essential requirements for creating an effective teaching and learning environment (Kazu, 2007). Undesirable behaviours in classroom are classified in terms of their results as detrimental to academic activities, social relationships, physical equipment and environment (Öztürk; 2002, Çelik; 2002). A good management of classroom depends on the positive communication and interaction to be built by the teacher with the students.

Undesirable behaviours are one of the most important problems of teachers (Van and Wheby 2000). It is the responsibility of teachers to find new strategies for solving these problems (Kellam et al., 1994). Research demonstrate that students with undesirable behaviours continue these behaviours in various forms from the first grade to the end of secondary school (Sutherland, 2000). On the word of most teachers, students with problematic behaviours act detrimentally to the teacher's authority and the order of the classroom when they feel angry, bored or aggressive (Long and Morse, 1996). The teacher must use different methods for students against this kind of behaviours (Acker et al., 1996).

There are several definitions about classroom management. The common properties of these definitions form the framework of the classroom management. Upon these definitions, it may be claimed that classroom management is composed of some subtopics. Accordingly, undesirable behaviours is a subtopic of classroom management (Şişman, 1999; Özsoy, 2003; Başar, 2005; Saritaş, 2000; Çelik, 2002; Karip, 2003). The prevention of problematic behaviours is related to discipline. Effective discipline methods are very important in achieving academic success and a safe learning environment (Luiselli et al., 2005). Problematic behaviours may occur throughout the life. The important thing is that both the parents and the school know how to solve these problematic behaviours.

Ensuring discipline in school is one of the most important problems of educators. Because of complicated

social relationships, it may be said that parents also focus on this issue. Besides, this topic is often discussed even in mass media. Undesirable behaviours is one of the topics of complaint of everyone no matter they have children at school or not. The number of stimuli affecting learning of students increase every day. Classroom is a social structure where a lot of characters exist, and in this structure several problems may occur under the effect of these negative stimuli. These problems may lead to unfavorable results in terms of both teachers and students. In order to cope with these behaviours, it is necessary to search for the required problem solving behaviours of teachers.

Students with undesirable behaviours need to know what exactly is expected from them and to be frequently reminded of these expectations (Nelson et al., 1998). These students are believed that they may reduce possible problems they may have when they are trained and find this training attractive.

Successful classroom management involves not only finding effective solutions when problems occur but also preventing frequently viewed problems before they emerge. In order to make the most effective decisions in classroom management, the teacher should clearly determine his/her goals and the desired target, and make his/her decisions depending on them.

Defining undesirable behaviours in the classroom correctly and clearly is vital for changing and finally extinguishing these behaviours with appropriate strategies (Aydın; 2000). There are several management strategies for teaching proper behaviour (Algozzine and Kay, 2002; Johns and Carr, 1995; Walker et al., 1995). It is believed that when these strategies are applied, undesirable behaviours will diminish or completely disappear. In this context, which strategies are used by teachers for diminishing problematic behaviours and what kind of results they achieve must be searched. Teachers who apply effective classroom management strategies for students may be claimed to be more successful in solving discipline problems of their students. According to Ağaoğlu (2002), management of student behaviours requires constant attention of teacher within the framework of classroom management.

Classroom management strategies of teachers have a significant place in a healthy learning-teaching process, academic development of children, improving their social success and gaining life skills of children.

Classroom management strategies

The most important part of determining a strategy is the quality of the negative behaviour (Öztürk, 2002). Choices of strategies against undesirable behaviours differ according to the type of the act, its severity, how it influences others, its objectives and possible results

(Başar, 2003). Strategies to be used against undesirable behaviours may be applied through various behaviours or manners (Celep, 2004, Türnüklü and Yıldız, 2002). The following strategies may be applied for the purpose of displacing undesirable student behaviours with desirable ones and correcting them: understanding the problem, ignoring, warning, making changes during the lesson, giving responsibilities, talking to the student, communicating with the school management, communicating with parents and punishing (Başar, 2003). Baloğlu (2001) makes a list of methods applied by teachers against undesirable behaviours: ignoring trivial mistakes, eye contact, approaching, warning, reprimanding, changing seat, making a wisecrack, making a break, talking, making deprived of rights and privileges, detention, refusing requests, communicating to parents, making an agreement, non-physical punishments. It is quite hard to say that these strategies suggested upon several studies will have similar results in all students. Thus, new strategies should be searched as the student group studied changes.

Traynor (2002) and Saritaş (2006) state that teachers use compelling, free, job-oriented, authoritarian and essential strategies against undesirable behaviours. Farmer et al. (2006) propose that teachers use several methods in preventing undesirable behaviours of students or extinguishing this kind of behaviours. These are greeting the students, expectations about behaviours, adaptation in education for the target and success, proximity control, group requirements, communication with students, tone of voice, directing at group level and individual direction.

Even they differ from one society to another, undesirable student behaviours have always occurred in all education processes. Although the qualities of these behaviours are different, it may be claimed that some of them are constant and others are periodic. The first body where undesirable behaviours are observed is the family. Primary school follows the family. Recently, significant structural changes have been made in Turkey. One of these structural changes is that the age for starting school has been changed and the duration of the primary school has been reduced to be 4 years.

Psychological, emotional and cognitive development of children at primary school age is important in both social and individual terms. It is believed that it is significant to determine what kind of undesirable behaviours the children at this age have. It is known that undesirable behaviours which start at this age influence all education life of the students.

School age is the time where the child gets out of home, open to the outer world and participate in social environment (Yörükoğlu, 1978). Starting school is one of the most important events in a child's life. The first institution where the student receives a systematic education after the family is the primary school. What

kind of undesirable behaviours students develop at primary school and which strategies are applied by teachers to change them constitute an important problem field.

This research was done to determine undesirable student behaviours encountered in the classroom by primary school teachers, and to detect their solution proposals for these undesirable behaviours. In the axis of this problem, answers for the following questions were sought:

1. Which undesirable behaviours do your students have?
2. What are the sources of these behaviours?
3. Which strategies do you use in solving the problem of undesirable behaviours?

METHOD

Universe and Sampling

The universe for research is composed of primary school teachers acting in state primary schools in İzmir in 2013-2014 school year. According to the statistics of the Directorate of National Education of İzmir, the number of the primary school teachers composing the universe is 6572 in total, being 4692 female and 1880 male. In determination of sampling, stratified sampling pattern was used. In order to determine schools according to the stratified sampling method, opinions of persons working in relevant branches of the Directorate of National Education of İzmir were asked. At the end of the discussions, schools covered by the sampling were determined according to their low, medium and high socio-economic level. Schools with medium socio-economic level were considered to have adequate representative properties for the study.

Sampling size was calculated with $n = Nt^2pq/d^2 (N-1) + t^2pq$ formula (Baş, 2008), and in 95% confidence interval depending on the assumption that the research hypothesis $d: 0;05; t:1;96$ will be realised under any condition with equal probability and assuming that both p and q values are 0,5, it was calculated that $n=363$ for $N=6572$. For this purpose the survey was applied to 363 teachers. However, due to inadequacy of data in some responses and questions left blank, 355 surveys in total were included in the research.

Gender distribution of the teachers participating in the study: 60% (213) female, 40% (142) male. The experience distribution of teachers: 16.90% (60): 1-5 years, 21.12% (75): 6-10 years, 23.09% (82): 11-15 years and 38.87% (138): 16 years and more. Education backgrounds of teachers participating in the study are: 17, 75% (63) master, 82.25% (292) BA degree. The fact that significant rate of teachers have master degree can be interpreted as the opportunities provided by İzmir.

Data gathering tool

A survey comprising open-ended questions developed by the researcher was used in the research in order to gather data. In the first stage of survey development process, the problem of the research was defined. Under this scope, the problem of the research is "what are the undesirable behaviours encountered by primary school teachers and their solution proposals?" In the second stage, sub-problems were written down depending on the

problem. In the third stage, expert opinion was asked in order to determine whether the detected sub-problems were comprehensive for the solution of the problem and whether the open-ended questions prepared for the survey had an interdependent logic pattern. Based on the expert opinion, it was decided to ask three questions to the teacher to measure undesirable behaviours. These questions were which undesirable behaviours they encounter at their students, what are the sources of these behaviours and which strategies they use to solve undesirable behaviours. The form of the survey was composed of two sections. The first section of the survey was for determination of demographical properties (sex, professional seniority, educational background) of teachers while the second section was for measuring undesirable behaviours.

For the purpose of determining the validity of the survey, opinions of 4 experts were asked and the survey was put into final form based on their views. The preliminary application of the survey was performed with 48 teachers. According to Aiken (1997), preliminary application of this kind of surveys may be carried out with a group representing approximately 5% of the determined sampling size. In this context, feedback was received after this preliminary application confirming that the questions were understandable and complementary.

Reliability of the research

After the application of the survey, interview master keys and interview inventories were read individually by the researchers and required arrangements were made after discussions on issues of "agreement" and "disagreement." The formula of reliability suggested by Miles and Huberman (1994) was used for calculating the reliability of the research.

$$R(\text{Reliability}) = \frac{Na(\text{Agreement})}{Na(\text{Agreement}) + Nd(\text{Disagreement})}$$

The reliability was calculated to be 92% for the first question, 100% for the second and 96% for the third. A research with a reliability of more than 70% is considered to be reliable (Miles and Huberman, 1994). This result obtained upon the calculation was considered reliable for the research.

Analysis of the data

In the analysis of the data gathered in the research, descriptive analysis was used under the scope of qualitative research techniques. The objective of descriptive analysis is to make the raw data understandable and usable for the reader. In descriptive analysis, the data obtained is summarised and interpreted in accordance with previously determined themes. In this method, direct quotations are frequently used in order to reflect striking views of the individuals interviewed or observed (Altunışık and Şimşek, 2001; Yıldırım and Şimşek, 2005). In the analysis of the data, some of the sentences summarising the essential view of teachers' statements have been given in quotations without being paraphrased. Primary school teachers whose views have been directly given are symbolised with T1, T2, T3...

FINDINGS

The first sub-problem of the research is for determining

undesirable behaviours encountered by primary school teachers. Findings related to this sub-problem have been hindering behaviours of students during the lecture, behaviours stemming from not fulfilling their responsibilities, behaviours stemming from their relationships with their friends and behaviours non-compliant with social expectations.

As can be seen in the table 1, 20,84% (74) of the teachers stated that students talked without asking permission, 13,80% (49) said they walked around in the classroom without permission, 12,39% (44) said they constantly complained about their friends, 12,11% (43) said they did not act responsibly in compliance with group activities, 7,88% (28) said they talked disrespectfully to the teacher, 7,32% (26) said they acted pretending to be the characters in TV series, 5,63% (20) said they had jealousy in relationship with friends, 5,07% (18) said they had rude and disrespectful behaviours, 4,50% (16) said they distracted other students and prevented their study, 4,22% (15) said they exchanged course materials, 3,94% (14) said they had attention deficit and 2,25% (8) said they tried to play games with devices such as mobile phones.

The followings are views of some teachers related to the issue:

T27 "I usually see that it is hard to sustain the students' attention for a long time. While lecturing or during activities, they start to be distracted after 20 minutes."

T5 "They conflict with their friends, they violate the rules."

T150 "I have been a teacher for 25 years, I see that students complain about everything increasingly day by day."

T65 "There is lack of respect and love."

T88 "I get upset when I hear the abusive language they use."

T340 "Children behave increasingly similar to behaviours presented on TV and Internet. I am concerned about it. I believe I'm losing my influence in the classroom."

Teachers who participated in the research believe that students have several undesirable behaviours stemming from not fulfilling their responsibilities. 24,78% (88) of teachers stated that students were late for the course, 20,84% (74) said they were reluctant to go to school, 18,30% (65) said they did not bring course materials with them, 10,42% (37) said they forgot their books and/or notebooks, 10,14% (36) said they did not do their homework, 9,01% (32) said they had a lot of and dispersed fields of interest and 6,47% (23) said they attend the course without any preliminary work.

T201 "I get very tired while trying to rivet students' attention in the morning."

T173 "Since students attend several courses they both get tired and are usually late for school and lessons."

Table 1. The undesired behaviors encountered by classroom teachers.

Behaviors preventing lesson covering		F	%
Undesired behaviors arising out of failure to fulfill their responsibilities	Talking without taking permission	74	20.84
	Wandering around without permission	49	13.80
	Complaining his/her friends constantly	44	12.39
	Failure to demonstrate responsible conducts as per group	43	12.11
	Talking in non-respectfully with his/her teacher	28	7.88
	Behaving like tv serials figures	26	7.32
	Demonstrate jealous manner in his/her affairs with his/her friends	20	5.63
	Demonstrate rude and non-respectful behavior	18	5.07
	Distract other students' attention and prevent their works,	16	4.50
	Exchange course material	15	4.22
	Displaying lack of attention	14	3.94
	Playing with devices such as phone	8	2.25
		355	100
Undesired Behaviors arising out of Failure to Fulfill their responsibilities	Coming late	88	24.78
	Reluctant to come to school	74	20.84
	Not bringing course materials	65	18.30
	Forgetting books	37	10.42
	Not doing the assigned homework	36	10.14
	Too much and distracted field of interest	32	9.01
	Not prepared for lesson	23	6.47
	355	100	
Undesired behaviors in his/her affairs with his/her friends	Quickly taking offense at their friends	77	21.69
	Making fun of their friends	68	19.15
	Trying to be funny	67	18.87
	Displaying adverse attitudes towards their friends of opposite sex	64	18.02
	Giving a nickname to their friends	45	12.67
	Damaging their friends and schools materials	19	5.35
	Displaying offensive and swearing behaviors	15	4.22
	355	100	
Behaviors conflicting with social expectations	Not sensitive towards environment	188	52.95
	Disrespectful to the elderly and arrogant manners	86	24.22
	Telling lies	65	18.30
	Tendency to steal	16	4.50
	355	100	

Primary school teachers stated that their students have undesirable behaviours in their relationships with their friends. 21,69% (77) of teachers said students easily got cross with others, 19,15% (68) said they ridiculed their friends, 18,87% (67) said they tried to be funny, 18,02% (64) said they had negative attitudes towards their friends of opposite sex, 12,67% (45) said they nicknamed their friends, 5,35% (19) said they damaged materials of their

friends and the school and 4,22% (15) said they tended to have offending and abusive language.

T310 "I have difficulty in understanding the new generation. They easily and very quickly get resentful."

In terms of behaviours noncompliant with social expectations, 52,95% (188) of the teachers who participated in

Table 2. Causes for undesired behaviors.

Causes attributable to family	F	%
Interference of parents in teaching/learning process		
Extremely spoiling children	83	23.38
Comparing children with the peers	61	17.18
Not tracking success of students	50	14.08
Forcing children to attend various courses	50	14.08
Failure of families to reinforce at home the positive behaviors gained at school	35	9.85
Parents' acting as if they were teachers in their affairs with teachers	21	5.91
Parents' ceremony based interest in school	20	5.63
Not adequate educational level of family	19	5.35
Adoption of violence by the parents for solving student's problems	10	2.81
Causes attributable to student		
Displaying lack of attention	103	29.01
Displaying lack of self-confidence	97	27.32
Attending more than one course	63	17.74
Not liking teacher	44	12.39
Trying to attract attention	30	8.45
Reluctant to school	18	5.07
Causes attributable to teacher		
Failure to reflect diversity of methods	105	29.57
Careless about start-finish time of lesson	74	20.84
Failure to check the assigned homework	57	16.05
Failure to give feedback for positive aspects of the students	45	12.67
Demonstrating authoritative attitudes	30	8.45
Paying more attention to some students	25	7.04
Acting more sincere to some parents	19	5.35
Causes of physical conditions of school		
Inadequate play fields in school yard	180	50.70
Lack of security at school	75	21.12
No or inadequate sports hall at school	58	16.33
Crowded classrooms	42	11.83

the research stated that students were not sensitive about environmental cleanliness, 24,22% (86) said students behave disrespectfully and arrogantly towards elders, 18,30% (65) said they lied and 4,50% (16) said they were inclined to stealing.

T2 "I have difficulty in understanding the negative behaviours of students despite a lot of stimuli related to sensitivity about environment."

The second sub-problem of the research is about the sources of undesirable behaviours of students. Findings regarding this sub-problem have been stated to be reasons stemming from parents, students themselves,

teachers and the physical structure of schools.

As seen in Table 2, 23,38% (83) of teachers who participated in the research stated that parents interfered in education-teaching process, 17,18% (61) said parents extremely spoiled their children, 14,08% (50) said parents compared their children with their peers, 14,08% (50) said parents did not follow students' achievements, 9,85% (35) said parents forced children to participate in various courses, 5,91% (21) said parents did not reinforce at home the positive behaviours that students gained at school, 5,63% (20) said parents acted as if they were teachers in their relationships with teachers and 5,35% (19) said parents were interested in ceremony-oriented school.

Teachers who participated in the research believe that some of the undesirable behaviours stem from students themselves. 29,01% (103) of them said students had attention deficit, 27,32% (97) said they had lack of self-confidence, 17,74% (63) said they students attended multiple courses and 12,39% (44) said they did not like their teachers.

29,57% (105) of teachers said teachers did not reflect the varieties of methods in the lesson, 20,84% (74) said they were careless about entering in or exiting the classroom, 16,05% (57) said they did not check the homework they gave, 12,67% (45) said they did not give feedback about positive properties of students, 8,45% (30) said they were authoritarian, 7,04% (25) said they care more about some students and 5,35% (19) said they were closer to parents of some students than others.

50,70% (180) of teachers who participated in the research stated that there were not adequate playgrounds in school yards, 21,12% (75) said there was vulnerability of safety in schools, 16,33% (58) said there was not any or adequate sports hall in the school, 11,83% (42) said classrooms were overcrowded.

T66 "There are problems stemming from parents. Some of the parents spoil their children. In addition, I believe that some parents do not involve their children in their decision making processes. Since children are not listened to in such families, and since they do not have the right to speak, they know neither how to listen nor how to speak."

T225 "I believe that most of my colleagues do not use different methods that they learnt at university in their lectures."

T101 "I believe that as long as there are internet based games, it will be hard to socialise our students."

T33 "Sometimes, I think that these children do not like anyone other than themselves."

Strategies employed by classroom teachers to handle undesired behaviors

In the third sub-problem of the research, findings are given related to the strategies that teachers use for correcting the undesirable behaviours. It is seen that primary school teachers use the strategies of warning verbally or with body language, punishing, searching for the reason of the behaviour, communicating and behaviour correcting for coping with undesirable behaviours.

As can be seen in Table 3, 48,16% (171) of the teachers who participated in the research use the strategy of reminding classroom rules, 19,51% (70) use shouting student's name, 12,39% (44) use counselling, 10,70% (38) use encouraging for apologising, 9,01% (32) use warning with eye contact strategies which are strategies of warning with verbal and body language.

It is seen that teachers use punishing strategy in

several ways. 26,19% (93) of the teachers stated that, as a punishment, they deprived students of affection, 19,43% (69) said they changed students' seats, 18,02% (64) said they reprimanded students, 9,29% (33) said they complained about students to their parents, 9,01% (32) said they refused to give students the duty they desired, 5,91% (21) said they did not let students to have a break, 5,35% (19) said they told about the situation to the school management, 3,94% (14) said they ignored the behaviour, 2,25% (8) said they excluded the student from activities and 0,56% (2) said they made the students to get out of the classroom.

In the strategy of searching for the reason for the behaviour, teachers seem to be implementing following methods: 44,66% (155) of the teachers stated that they tried to retrace to the source of the negative behaviours of students, 28,73% (102) said they shared the reason for the behaviour with the student, 21,12% (75) said they requested information from the family related to the behaviour and 6,47% (23) said they discussed with school counselor about the problem.

It is observed that teachers who participated in the research had various behaviours in terms of the communication strategy. 55,08% (192) of the teachers said they dealt with their students during breaks, 29,57% (105) stated they said to the students that they were valuable among their friends, 12,11% (43) said they organised school trips, 4,22% (15) said they visited students at home.

Related to behaviour correction strategy. 31,54% (112) of the teachers said they applied the classroom rules, 21,97% (78) said they gave duties and responsibilities, 20,84% (74) said they made an agreement with the student, 12,67% (45) said they made description about the behaviour, 7,04% (25) said they interrupted activity and 5,91% (21) said they used different methods and techniques.

Teachers used the following striking sentences explaining their behaviour correction strategies:

T1 "Throughout my professional life, I have always made the rules with my students. When they have done wrong, I have reminded them of the rules we made together."

T280 "When I get very angry with them, I tell them that I've got cross with them. Then they quickly get better."

T98 "I give responsibilities to the problematic students."

T183 "I meet the parents of problematic students. If the family seems problematic, I understand how difficult to be in the same classroom with that child."

T12 "I believe that some problems must not be exaggerated. I observe that they decline and even disappear when I don't talk about them."

DISCUSSION

Upon the study of literature, it is seen that the majority of

Table 3. Strategies employed by classroom teachers to handle undesired behaviors.

Strategies	Behavior displayed by teachers	f	%
Warning verbally and with body language	Reminding classroom rules	171	48.16
	Shouting with his/her name	70	19.51
	Advising	44	12.39
	Making him/her apologize	38	10.70
	Warning with eye contact	32	9.01
Punishment	Not showing love	93	26.19
	Changing seat	69	19.43
	Scolding	64	18.02
	Complaining to family	33	9.29
	Not assigning task wanted	32	9.01
	Not letting him/her have break	21	5.91
	Sharing with school administration	19	5.35
	Ignoring behavior	14	3.94
	Not involving student in the activity	8	2.25
Sending out	2	0.56	
Searching cause of behavior	Trying to find out the main reasons	155	44.66
	Sharing main reason of behavior with student	102	28.73
	Getting information from family about behavior	75	21.12
	Talking with guide teacher	23	6.47
Establishing communication	Taking care during break time	192	55.08
	Using expressions indicating that he/she is precious among his/her friends	105	29.57
	Organizing classroom trips	43	12.11
	Visiting student at home	15	4.22
Arranging behavior	Applying classroom rules	112	31.54
	Assigning tasks and responsibilities	78	21.97
	Making deal	74	20.84
	Making explanation for behavior	45	12.67
	Giving a break	25	7.04
	Using different methods and techniques	21	5.91

the researches focused on the views of teachers about undesirable behaviours of their students within the classroom. It has been found out that there has not been adequate research in the literature dealing with the undesirable student behaviours particularly in the first four years of education, which factors influence these behaviours and which strategies teachers apply to change the undesirable behaviours.

Results obtained through the research have been listed in descending order as of their values in percentage. And other research results supporting them have been also given.

Classroom is a place where there is interaction. In this interaction, it is important what kind of undesirable

behaviours stand out. Undesirable student behaviours that teachers stated most in this research are talking without asking permission for it (Çetin,2013; Tolunay, 2008; Özer,2009), walking around in the classroom without permission (Elban, 2009), continuously complaining about friends (Elban,2009), acting pretending to be the characters in TV series (Çetin, 2013; Şenay, 2011). These findings obtained through the research are similar to the findings of the researchers given in parentheses.

According to the results of the research, it is also seen that students do not act responsibly in compliance with group activities, talk disrespectfully to the teacher, and are jealous in relationship with friends. Especially with the

implementation of constructive education program, the importance of group activities have increased. It can be claimed that as group activities are intensively implemented in education, undesirable behaviours have increased. Results of the research also demonstrated that other problematic behaviours among students are rude and disrespectful behaviours (Elban, 2009), distracting other students and preventing their studies, exchanging course materials, having attention deficit (Çetin, 2013; Yüksel, 2006) and trying to play games with devices such as mobile phones. Upon these results, children have quite complicated undesirable behaviours at the beginning of their educational life.

Upon teachers, students have behaviours stemming from not-fulfilling their responsibilities. These behaviours are easily getting cross with others, ridiculing their friends (Özer, 2009), trying to be funny, having negative attitudes towards their friends of opposite sex, nicknaming their friends (Tolunay, 2008), damaging materials of their friends and of the school and being inclined to have offending and abusive language (Çetin, 2013; Tolunay, 2008, Elban, 2009). Particularly in recent years a fast modification has been observed in family structure. Increase in divorces, increase in the number of single-child families, neighbourhood with very little sharing and weak relationships with relatives may be claimed to cause such behaviours.

According to the teachers who participated in the research, students have behaviours non-compliant with social expectations. These behaviours are being insensitive about environmental cleanliness, behaving disrespectfully and arrogantly towards elders, lying and being inclined to stealing. The study of Karadağ and Öney carried out in 2006 supports the results of our research. Sensitivity about environmental cleanliness is one of the most important desirable behaviours of our age. It is meaningful that teachers are in the opinion that their students have undesirable behaviours in this field.

There is not a magic wand to correct problematic behaviours. There is neither a single reason for undesirable behaviours nor a single response. Mostly they have several reasons which are generally complicated and intertwined. In one sense, undesirable behaviour is a behaviour by which the student leave the teacher in a difficult situation. Emmer et al. (1980) perceive the undesirable behaviour as a behaviour hindering seriously the activities of the student and the teacher for a long time. In this context, undesirable behaviours have several sources. The findings of the research show that the parents, student, teacher and the physical structure of the school are sources of undesirable behaviours.

Primary school teachers who participated in the research believe that parents are an important source of undesirable behaviours of students. These behaviours are interference in education-teaching process, extremely spoiling their children, comparing their children with their

peers, not following students' achievements, act as if they were teachers in their relationships with teachers, being interested in ceremony-oriented school and adopting violence as a method in problem solving. It is claimed that there are a few teachers today who do not have negative relationships with parents. As can be seen in the research results, parents have interfering attitudes about education process rather than assisting in the process.

Teachers participating in the research consider attention deficit and lack of self-confidence as the most important factors stemming from the students themselves.

Research results demonstrate that some of undesirable behaviours stem from teachers. The behaviours of teachers leading to undesirable behaviours are not-reflecting the varieties of methods in the lesson, being careless about entering in or exiting the classroom (Ekinci and Burgaz, 2009), not-checking the homework they give, not-giving feedback about positive properties of students (Ekinci and Burgaz, 2009), being authoritarian, (Atıcı and Çekici, 2009; Ekinci and Burgaz, 2009) caring more about some students and being closer to parents of some students than others.

Teachers believe that inadequate playgrounds in school yards, vulnerability of safety in schools and overcrowded classrooms are reasons stemming from the school. The study of Ekinci and Burgaz carried out in 2009 supports the results of the research. İzmir is the third biggest city of our country and receives migration intensively. Migration may be said to have such results.

Implementation of behaviour changing strategies provides the teacher with directing and guiding solutions for the problems they may encounter. In this context, there are lots of management strategies for teaching the proper behaviour (Algozzine and Kay, 2002; Johns and Carr, 1995; Walker et al., 1995). Below are the implemented strategies listed in descending order in terms of their importance.

Teachers who participated in the research are seen to use reminding classroom rules (Tolunay, 2008; Kılıç-Özmen, 2009), calling student's name (Supaporn, 2000), counselling (Kazu, 2007), encouraging for apologising and warning with eye contact (Özer, 2009) as the strategies of warning with verbal and body language. These results may be interpreted that the teachers under the scope of the research use classroom rules in changing behaviours.

Another strategy used by teachers is punishing. In this context, teachers seem to have various behaviours, which are depriving of affection, changing seats, reprimanding, complaining to parents (Kılıç-Özmen, 2009), refusing to give a desired duty, preventing from having a break, sharing the problem with the school management (Kazu, 2007), excluding the student from activities and making to get out of the classroom. The results of the research show that teachers use psychological punishments more frequently than others. It is believed, in this context, that

psychological punishments may influence the future life of students.

Another behaviour changing strategy used by the teachers in the research is searching the reason for the behaviour. In implementing this strategy teachers seem to retrace to the source of the negative behaviours of students, share the reason for the behaviour with the student, request information from the family related to the behaviour and discuss with school counselor about the problem. The studies of Kahraman (2006), Keleş (2010) and Sipahioğlu (2008) support the results of the research. Retracing to the source of the negative behaviours as a method of problem solving may be interpreted as a modern solution.

The method mostly used by teachers in communication strategy is dealing with their students during breaks. Studies of Tolunay,2008; Kazu, 2007; Özer,2009; Alım et al., 2007 support this finding. Besides, teachers say to the students that they are valuable among their friends, organise school trips and visit students at home for applying the strategy of communicating with the students.

The last strategy for changing behaviour used by teachers is behaviour correction strategy. It has been found out that teachers using this strategy apply the classroom rules,give duties and responsibilities, make agreement with the student, make description about the behaviour, use different methods and techniques and interrupt activities. Studies of Tolunay and Sipahioğlu carried out in 2008 support the results of the research.

Upon all these results, undesirable behaviours seem to be a part of human's nature. How the teacher solves these problem is connected with how he/she perceives the world. The results of the research carried out in İzmir may be interpreted that teachers use more modern methods against undesirable behaviours.

With reference to these results, the following proposals are made: Reasons, sources and solution methods of undesirable behaviours in the classroom may be inquired in multiple cities comparatively. The situation of students who have undesirable behaviours at primary school may be qualitatively studied at secondary school. Similar studies may be carried out in different cities out our country. Both qualitative and quantitative research may be carried out related to undesirable behaviours in the classroom.

Conflict of Interests

The author has not declared any conflicts of interest.

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Full Length Research Paper

Critical development exploration based on the Islamic education in Iranian higher education

Mohammad Reza Taheri¹, Narges Keshtiaray^{1*} and Ali Reza Yousefy²

¹Department of Educational Sciences, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran.

²Medical Education Research Centre, Isfahan University of Medical Sciences, Isfahan, Iran.

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The aim of this research is to do a critical development exploration based on the Islamic education in Iranian higher education. In this paper, logical analysis qualitative method was used. Through library studies, information was collected and analysis of the results was done. The information collecting tool was note taking and information was analyzed based on deductive category system. In the section of content analysis, the most important findings show that, for critical development in Iranian higher education four main and outstanding categories are necessary; the first category is: 1. Education and training of academics with spirit of critical thinking, 2. The continuity of on- going latitudinarianism of the seats and criticism in the universities. The second category is: 1. Creating room for liberality 2. Providing arguments and theorizing seats; third category: Reforming and accepting criticism; the fourth category: 1. Legal security for critics 2. Non - authoritarian and absolutism of officials and teachers. Results indicate that the above can bring the best solutions for critical development exploration in Iranian higher education based on the Islamic education.

Key words: Criticism, educational criticism, higher education.

INTRODUCTION

Criticism can be recognized as the driving motor of societies, and the best tool for human society's dynamism. Humans are intelligent and explorative and this very trait has created a lot of intelligence and cultural works throughout history (Mokhtari, 2002). History of science in industrial societies in the west evidenced by the science of development in the communities along with criticism has been done. Unfortunately, history has shown that our country's history and culture in this land with the questioning and criticism has been less consistent. In our land, parents usually respond to their

children's questions very slowly, and in the classroom teachers use short sentences all the time, repetition, children are told to be quiet and listen (Moradi, 2008).

Universities and higher education centers are the most valuable institutes that a society possesses for development and advancement; also, they are the protectors and deliverers of cultural heritage and values of the society. They respond to the society's needs for development of knowledge and technology. Development is nothing but improvement in advantages and socio – economic, political and cultural relations. In other words,

*Corresponding author. E-mail: Keshtiaray@gmail.com.

any type of development and evolution in various human life areas is called development. Scientific development is a continuous, objective and balance communication between science, technology, education and culture in a society. Therefore, higher education is influenced by a society's culture and also influences it. It is formed by the society and helps form it; it needs resources and also provides the society with resources in the form of eligible individuals, work force, better citizens and discoverers of useful and valuable knowledge (Askari, 2013).

Today, knowledge and centers for organizing it that is higher education system and university should in addition to producing science and developing knowledge boundaries, respond to society's demands, and avoid taking the traditional path. In fact, they create the required dynamism and transformation in their internal process and education system and curriculum; so they can in addition to producing science, be effective at admitting socialization of roles (Fazeli, 2008).

In this regard, and for a creative and dynamic and scientific space in universities in higher education centers and strengthening social relations and exceptionable spirit among scholars, specially professors, all the internal and external factors of disorder in human relations should be eliminated in studies and hypotheses and fields of the development of critical spirit and revision of current process for a complete development of professors should be investigated and provide the possibility for cultural lifestyle in universities. This means that bravery, creativity, criticism, exploration and prospect should be encouraged; also, knowledge management and academic independence, attention to international commitments in the area of science and research and technology should be strengthened. Some of the mentioned elements are also considered as the prerequisites of scientific development and reach richness and completeness in their own development process (Fazeli, 2008).

Therefore in this study, due to lack of essential awareness about the phenomenon of criticism and due to the little research that has been done in this field, we should examine and identify the educational critical considering Islamic in order to create and provide a spirit of criticism in Iranian higher education.

Purpose of research

The work aims to do a critical development exploration based on the Islamic education in Iranian higher education.

Research question

What are the solutions for the development of criticism in Iranian higher education based on Islamic education?

METHODOLOGY

The research design was qualitative method, involving logical analysis.

Population and sampling

Research population and sampling include the books and print electronic resources available for the basics of training. Through library studies, information was collected and analysis of the results was done. The information collecting tool was note taking and information was analyzed based on deductive category system. To get the reliability of the results and findings available in the field of education and higher education, professionals and experts outside the scope of study were consulted to approve them.

Validity and credibility

To improve the validity and credibility level of the result, sufficient time was given for careful selection of relevant and accurate information in the analysis without taking action.

Data analysis

Data analysis information was based on deductive category systems. Analytical method is one of the research methods in the education philosophy. It is said that there is not a single method, but a wide range of different characteristics is considered (Bagheri, 2010).

FINDINGS

As mentioned in the analysis of the philosophy of Islamic education, critical philosophy can adapt available indicators in the Islamic education and Iranian higher education centers and universities with critical development categories.

As shown in Figure 1, the categories were obtained for answer to the research question; each category has subset and basic key words that form part of the research description about each one.

DISCUSSION

First classification: 1. Education and training of academics with spirit of critical thinking.

2. The continuity of on-going latitudinarianism of the seats and criticism in the universities.

The obtained categories are the result of the findings of the key words, and classification concepts were in the primary levels mentioned below; the researchers' actions explain and describe them as follows: Training of the academics with spirit of critical thinking, critical skills education in the universities and higher education system, creativity and establishment of free thinking and theorizing of the seats in the universities, giving

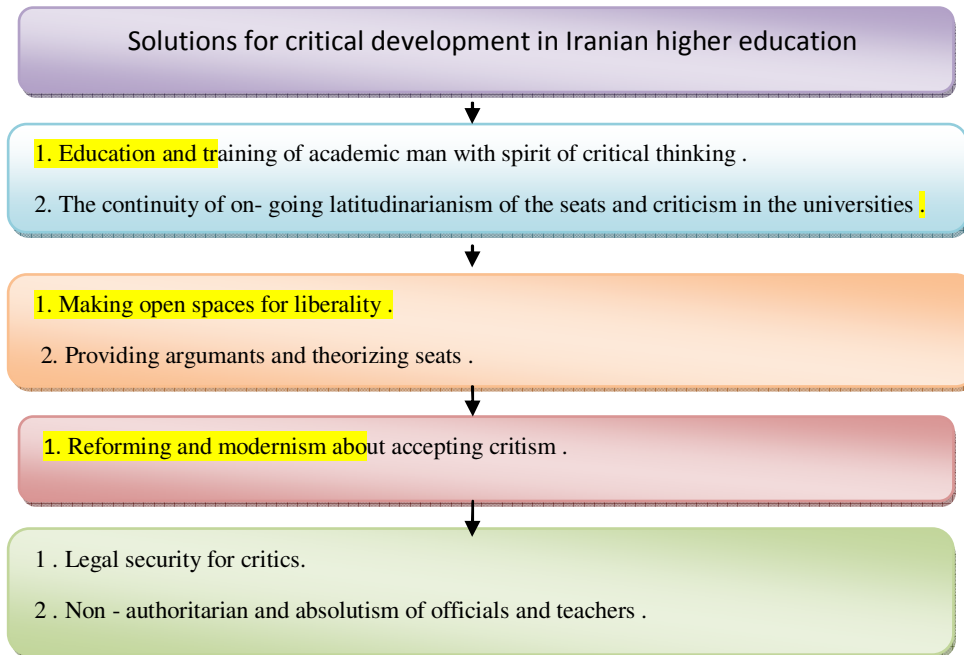


Figure 1. Categories for critical development exploration based on the Islamic education in Iranian higher education.

importance to the critical culture in the scientific centers and promoting acceptance of critical culture in scientific centers.

It seems that despite remarkable development of Iranian higher education, the universities are still not successful in education. The universities are not able to upgrade those who have failed at school. Families have no mental preparation for playing the role of the university man. Even those people who have prepared well when they enter university become disappointed with the university and higher education centers, and thus search and follow their own intellectual interests.

This supports the fact that university education is a complex task, and a successful higher education, it should get help from scientific knowledge based on the Islamic education. One of the principles of Islamic educational of universities is taking consideration to the principle of students' participation in critical education process and critical thinking; and in discussion and expression of freedom which is the fundamental individuals' right. There should be expression of comments and exchange of thoughts in academic area among students in universities (Attarzadeh, 2005).

Knowledge does not save the learners, but forms in individuals communication action with one another. Since criticism has close relation with partnership problem and discussion and conversation, it seems that expression of freedom as part of individuals' basic rights, thoughts exchange in academic area resulting in free thinking of development in the universities are clear. Therefore the results are related to Shabani (2012)'s findings on the

critical influence of the decision making process among scientific and social elite. The result shows they provide ideas with the acquisition of the intellectual skills and the ability to integrate academic and social skills. Mohammadi (2012) studied government of criticism and making criticism of the religious attitude of the society. The government criticism allows one to look at religion, protest and know individuals' political freedoms and rights. The government monitors its citizens' faith life to make it rational. Bourdieu (2007), in his valuable book titled *academic man or scientific man*, argues that it is important in the university system and scientific communities namely professors and their students during socialization should internalize learning and valuable belief related to the norms in the scientific community; it should start from primary school and continue until the final stage of people's professional life.

Second classification: 1. Making room for liberality. 2. Providing arguments and theorizing seats.

This category includes providing arguments and theorizing seats which have five sub – categories: developing the culture of openness, enhancing the capacity to accept criticism, the possibility of free thought expression in the university and higher education institutions, creating a safe place to participate in class discussions and analysis of the issues at universities, creating mutual respect and trust by listening effectively to criticism.

In order to perceive the necessity of making open spaces for liberality and theorizing seats in universities,

as a scientific and educational center, first of all it is necessary to be open minded on liberality seats. Free thought and freedom are concepts which sometimes are confronted with interpretations; individuals and various groups try to convey conflicting interpretations of to the audience. One reason for the strength and resilience of some university officials to the liberal seats is the wrong impression about this interpretation in their minds, while liberality differs from the political conceptions (Chizari, quoted in Khamenei 2004). According to Moein, Persian Dictionary, "seats" means a "bed" or a "special courses of a university professor" and vocabulary "free" means "unbound" and "pious". The vocabulary "thought" also means "thinking" and "reflection" and in terms of terminology and conceptual, Liberality Seats means creating space for diverse ideas and projects based on the logic and to discuss different issues and to show case the diverse thoughts (Moein, 2011).

Making decisions and thinking doubtlessly requires critical infrastructure and have countless achievements for our society and academic elite who are intellectual parts of the society.

Category III: Reforming and modernism about accepting criticism: The findings of the research question consist of three sub - categories which are: creating a cultural change in the field of criticism, educating review as an element in human and society development, reliability and flexibility in accepting criticism. In describing the reformation and modernism to accept criticism should be noted that modernization means neologicality, novelty and modernity, attitude to modernization in culture and social mores. Modernization means youthfulness, reconstruction and a new rotation. Modernity means continuous criticism of tradition and itself; constant renewing, criticizing themselves and walking to a new territory (Dashti, 2013).

According to the first sense, a beautiful image is presented of modernity; a picture that is compatible with human nature, because human nature seeks for modernization, novelty, and reformation of different cultural background, social customs and more. But the latter presents another fact of modern tightness, the fact which challenges the socially accepted values and principles. This sense of modernity fights with values. Modernization in this sense usually is not easily accepted in some countries and people stand up against it; so also in our country.

To deal with this phenomenon one must go into its fundamental purposes and principles and taking its positive achievements into consideration in order to be able to opposed the risks. The purposes and principles of modernity can be outlined as follows:

1. Scientism, which is idolizing the methods of empirical science, such as observation and tests in all areas of life. The real demands of modernism is to spread the scienti-

fic method and experimental approaches of the natural world in all human knowledge. Despite being hearty, scientism standard has no place; for first, the vast majority of people know that spreading of the experimental method and error test approach to all human and divine knowledge is in conflict with the intellectual structure of people. Second, the scientific and experimental method works only in the field of the natural world and all the other human knowledge cannot be achieved by this approach.

2. Rationalism or Sufficiency of Reason: The most important principles of modernity are great devotion to reason and belief in the adequacy and sufficiency of it. But it should be noted that the reason, on its own, cannot ensure prosperity and human development, because it is under the influence of instincts, passions and external events and does not analyze many topics and facts. Application and navigation of reason is complete with revelation.

3. Anthropocentric: Modernist thinking believes in the centrality of human beings and put the man in a position that everything is in his service. The rule of this kind of thinking in a society, certainly, affects deleteriously every society and makes life bitter for people, as the West World now realizes the negative implications of anthropocentrism thinking.

4. Individualism: Individualism is interpretation of humanism that gives originality not only to humans, but to the human person. Individualism means the primacy of the individual over society which entails the same effects of the previous principle.

5. Seeking Utility: Basic foundation of utility - seeking is based on individualism so that anything which provides human satisfaction can be effective in the development and reduction of human problems. But there are no spiritual and moral issues in modern human thinking. Any phenomenon that arises can have positive and negative aspects. So, such issues should be noted in dealing with and accepting and rejecting it, because one cannot believe any phenomenon without any reason. Modernity is also a double - edged phenomenon, on one hand; the development of its social institutions have an opportunity for people, on the other hand; it has dark and tragic aspects as well. In other words, it has both positive and negative features. So, It is required that scholars, intellectuals, leaders and our people to take position against this phenomenon with intelligence, alert and full awareness and to use the positive aspects of this phenomenon along with preservation of religious ideas, culture and national achievements and their customs (Ghazi , 2013).

As a result of industrial civilization through science and technology, the modern western societies certainly have made significant progress and it cannot be ignored. Therefore, we should identify the causes of progress or stagnation and apply them in our community. Factors of

inventions and discoveries have to be discovered. Context should be provided for a healthy thinking and an opportunity should be created for the society in order to budge talents and gain proud achievements for the nation . It seems that the obtained results of this study agree with the findings of Barnett (1997) about criticism and review. It proposed another conceptual system to show the original mission of the university, namely criticism, to suggest a critical reason and critical reflection and critical action and relationship to understand the culture of criticism or what he called if criticizing and is very useful in scientific communities.

It also agrees with Bourdieu (2007) who argues in his valuable research book "The College man" that an important part of a person's actions in the university system and scientific communities - the faculty and students – happens during the process of their scientific socialization including learn and internalizing the values and beliefs and norms of life in the scientific community. He realized that criticism is an academic habits that should be self - consistent with the action and interaction between instructors and students.

Category IV: 1. Legal security for critics 2. Non - authoritarian and absolutism of officials and teachers.

Concepts and sub - sections of key findings are divided into three sub - categories: non authoritarian in acceptance of criticism, reforming the structures of accepting criticism and encouraging experts to accept criticism, admitting the weaknesses of individuals and the authorities and the response by their down lines. Security has long been the most important concern of human beings. Since early humans, security has been the most important element of life after food and water. The concept of security is immunity in front of inviolability and mandatory seizure without consent. For people, security means that people do not panic and fear about their legitimate rights and freedoms; their rights should not be jeopardized in any way and no factor to threaten their legitimate rights.

Necessity in the sense of security in society is caused by the natural rights of mankind and is the requirement of the legitimate rights and freedoms, and their immunity from attack and stay away from risks and threats. In fact, security is preventing violations and potential violations. Sometimes, it is posed on the sense of panic and fear and risk (Grossi, 2007). The government has to apply all its resources to provide comprehensive rights of individuals and give legal protection for all and equality of all before the law to achieve its objectives in article II of the Constitution. To guarantee "legal protection" of citizens and members of society, Constitution of the Islamic Republic of Iran has developed principles to conserve and protect the rights of individuals. The principles include the presumption of innocence, legal principle of crime and punishment and sentence to punishment by

authorities, the principle of publicity of the trials except in special circumstances and the lack of retroactive criminal laws, etc. In this regard, judicial institutions as the justice system should apply legal principles and materials that support and protect the rights of citizens to realize legally the protection in the law enforcement and supervision in the correct form. There is no doubt that a capable and healthy judiciary is necessary for the realization of legal protection.

Judicial system is responsible for the protection and preservation of its citizens against any violation of their religious and legal rights and ensuring this security is of the most important issues of the Judiciary. Criticism is considered as one of the most efficient ways of managing the world in the form of free advice, macro - management of the society in speeding the identification and help to progressive elimination of shortcomings. Criticism in Persian language means to separate and to distinguish right from wrong. Criticism literally is fulfilled when a person neutrally comments about a matter to reform the situation and express a reality. But, unfortunately critique in our culture is considered as a revenge in different fields. The reason is rejecting the capability of the other party or weaknesses that we ourselves have and we try to cover them in the cost of damaging others. In other words, it is because of the hatred of one person one tell his right word falsely. Therefore, this is not criticism and puts the concept of criticism under the question.

Criticism must be from the critics who comment neutrally and professional and with full expertise on the topic. Today, the epidemic pest in our society is the entering to all discussion topics even with the content they are not familiar with; however, the critic should to expert and aim to reform and progress in society, have enough knowledge and expertise in an area that he is criticizing, consider the conditions of time and space in order to be effective. If we really pay attention to culture of criticism in our country and do not conduct improperly in this regard, certainly, growth and the development of individual and group in society will improve significantly afterwards. Is is basically a free consultation and in this process, citizens are free to challenge the decisions and actions taken and will determine right and wrong.

However, this criticism can be about family's private life or macro issues. This procedure causes that the macro management and administrators of the country diagnose properly the socio - political disorder in the scope of their responsibilities and to solve the problems. In democratic societies that the criticism is openly allowed, government is constantly subjected to criticism by citizens and governors of the society refine their views according to their feedback from citizens. From another perspective, formation of such a situation on their own leaves other positive effects on society. As the citizens feel that administrators have open space for criticism, they despair turns to hope. In this way, citizens express their hatred and complaints and when they find a space for criticism,

indeed, they find a psychological sense of security and hope for reform that the results of which will ensure the stability and continuity of the political and social system. Conversely, if the criticism space is closed, the administrators do not realize the drawbacks of their decisions due to the prevailing culture of flattery and incorrect and poor actions results in hopelessness of people and indifference to social and political fate, or leads to ground water through and violence in society.

Therefore, in order to provide the necessary conditions for the space to be criticized, it is required to have a series of basic demands including providing security for the mass media and independent press as an important pillar of society and a link between the citizens and leaders of the community's attention. While training to raise objections and preparing the legal means to do so is included the requirements for criticizability culture in society. According to the above explanation and the findings of this section of the study it can be found that ours is consistent with the results of Fazeli (2007) on "The culture of criticism in scientific communities", where freedom and university autonomy and critical tradition and also security are considered as one of the preconditions for the development of arts and culture.

Conclusion

On this basis, and given the importance and necessity of criticism of Islamic education in the Community, particularly in higher education institutions in Iran, it is essential that universities and higher education programs be revised under the proposed framework in this study and we can see that the requirements of the criticism development in higher education in Iran is highlighted as follow:

1. Recognizing the criticism status in the scientific community. To this end, we need to develop theoretical and empirical research in the field of criticism.
2. Developing culture of criticism and critical thinking in the universities of the country, as a means of production, dissemination and application of knowledge.
3. Reviewing the topics of education and school education and university system; Critical thinking is an approach to teaching and research science. This approach should be included in the overall educational system.
4. Developing tools and features of criticism, such as books journals, books or seminars and conferences and a special gathering on criticism and critical thinking.
5. Dissemination of criticism as a valuable and sacred in public culture. In this context, the media and the press can play an important role.

6. Spiritual and material rewards to critical activities in universities, such as the acceptance of critical articles as scientific and research papers in the process of science promoting of the teachers or substantial financial compensation to critical documents.

7. Passing laws and legal infrastructure necessary to defend the moral and material value and security in critical thinking activities in universities. The best strategy is to explain the necessities of criticism in higher education system in Iran based on Islamic education.

Conflict of Interests

The author(s) have not declared any conflict of interests.

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Full Length Research Paper

Science teachers' research skills through the use of scientific method: The case of Turkey

Meryem Nur AYDEDE YALÇIN

Nigde University, Department of Science Education, Turkey.

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This experimental study examined the science teachers' research skills through the use of scientific method. At first, a training program was developed for science teachers to gain the knowledge, skills, and experience they need to successfully plan, apply, evaluate and report a research. Then, the training program was applied to 40 science teachers. Before the study, an expectation interview was done; and after the study, a perception interview was done to the participants. As a result of the study, it was concluded that science teachers are aware of the importance of gaining research skills, they developed positive affective attitudes towards scientific method, and they acquired knowledge and experience about scientific method.

Key words: Research skills, scientific method, science teachers, science education.

INTRODUCTION

Many countries make reforms by means of a new curriculum that specifies new standards of education for the sake of their own people's welfare. When these new reforms are examined, it is seen that the developed curricula give responsibilities to the teachers, such as doing research, and planning and evaluating the learning process, along with the duty of applying the present programs. This new curricula insight on teachers' new role will make teachers, who were previously at the education practitioner position, to actively participate in the constitution of innovations having them go beyond research position in the creation of educational knowledge (Colburn, 2000; Hofstein et al., 2001; Spektor-Levy et al., 2008).

There is increasing importance of teaching strategies used in the classes that are based on research in order to

prepare an innovation-oriented future for the students (Ng, 2004). The National Science Education Standards (NSES), which is an important study on science education, remarked that teaching strategies that aim for the children to grow up as science literate individuals should be used in schools (McCain, 2005). When the science curriculum used in Turkey is examined in terms of its general objective, it is seen that it is in accordance with NSES and emphasizes the necessity of all the individuals to be science literate (Milli Eğitim Bakanlığı [MEB], 2005). Thus, it can be said that it is important to raise individuals that can engage in research, ask questions, get scientific information using research skills through the use of scientific method, and even use these skills to solve the problems they encounter in their daily lives, rather than raising individuals who know everything

E-mail: mnaydede@hotmail.com, Tel: +90 388 225 4373.

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about science (Fah et al., 2009; Haury, 1993; Kozcu-Çakır and Sarıkaya 2010). For instance, as a result of the study that Karslı et al. (2010) carried out and in which Turkish undergraduate chemistry student teachers evaluated their own sufficiency in scientific process skills, they proposed training the teachers on scientific process skills during their in-service training, and also writing books aimed at teachers on scientific process skills. The National Research Council (2000) specified seven features on what students should do during the scientific research process: (1) engaging with a scientific question, (2) participating in the design of procedures, (3) giving priority to evidence, (4) formulating explanations, (5) connecting explanations to scientific knowledge, (6) communicating, and (7) justifying explanations (National Research Council [NRC] 2000).

The kinds of teaching activities that are specified by the NRC, as above, will help students get into the habit of internalizing the scientific concepts in the best way, understanding the cause and effect relationship, problem solving, high order thinking and creativity—all of which are parallel to the needs of our century for scientific thinking (Ng, 2004; Abdullah and Osman 2010). In the long term, students can become innovative individuals, independent thinkers, lifelong learners, and able to explain the gained experiences in a logical frame, on the condition that they grow up in an environment in which they would get into the habit of scientific thinking (Fah et al., 2009; Haury, 1993; Ng, 2004).

A science teacher having research skills

Since the scientific methods such as survey, experimentation, and observation are used in the learning-teaching process of science education, a science teacher with research skills through the use of scientific method can encourage the students to learn and discover through research by the methods and techniques s/he uses in the learning-teaching process. Therefore, students can internalize their teacher's scientific attitude that s/he has developed towards teaching insights, or the method or technique s/he uses, and they can evaluate each problem they encounter in their daily lives with this attitude. In this way, with the skills of developing research, both the teachers and the students can use the above-mentioned skills that they gain in the courses for the problems they encounter. They can also have courage to independently apply research process by using scientific methods like experiments on the topics they consider; they can have self-confidence to develop research, evaluate life scientifically and have lifelong learning skill (Brickman et al., 2009; Haefner et al., 2006; Kember et al., 2008). For example, in the research that was carried out by Tessier (2010), it was found that the research-based laboratory approach provides the pre-service elementary teachers with the opportunity to

develop their attitudes towards the course and their thoughts on how to teach that course.

Within this context, we can say that to get quality educational services that the science teachers, working in schools with different physical and social conditions in Turkey, should develop positive attitudes towards educational research and should be actively included in educational studies. For the solution to these problems, it will be useful to educate teachers with a researcher's insight and to inform them of how to perform research applications through the use of scientific method more systematically.

Significance of the study

With the help of this study, the teachers who have training in this study can develop research by themselves and with their students, can evaluate their own students' science activities scientifically and look at their students' learning problems scientifically. In addition, this study will enlighten the teacher training programs and in-service trainings that will be developed in the future. Even though the science teachers are aware of the importance of doing research using scientific method as well as the science curriculum in Turkey encouraging science teachers to develop scientific researches, teachers have difficulties in developing scientific researches, especially in using scientific method. The content and the results of this study can contribute to the in-service training programs on the development of science teachers' research skills through the use of scientific method.

There is the "FBO 3009 Scientific Research Methods" course in undergraduate programs to improve the research skills through the use of scientific method of the science teacher students in Turkey. The content of this course is the same for all teaching fields. Through this study, the content of this course can be differentiated according to all professional and field information of the science teachers. In this way, science teachers that have research skills on science education, along with general research skills, can be trained. Moreover, the teachers may develop in terms of continuous learning by having the chance to apply the knowledge they have learned through the education provided to them to their own teaching insights.

It is very hard for teachers that did not get any education on scientific method to apply an educational program that guides the students towards research; it is also hard for them to do research using scientific method by themselves. The quality of a teacher depends on the number and quality of the courses s/he has taken (McDermott and Shaffer, 2000).

In short, the data from this study were compiled over a 2-year period, and address science teachers' research skills through the use of scientific method. In this context the general purpose of the study was to find out the ideas

of the participating teachers towards TDST (The Training of the Development of Science Teachers' Scientific Research Skills) that enables them to gain the knowledge, skills and experience in order to successfully plan, apply, evaluate, and report on a scientific research process within the physical and social limits of the schools they work in. Within this general aim, the main guiding questions for this research were;

- 1-What are the expectations of participating science teachers towards the TDST training?
- 2- What are the perceptions of participating science teachers towards the TDST training?

MATERIALS AND METHODS

"The Training of the Development of Science Teachers' Scientific Research Skills" meeting was carried out in the study. The content of the training is divided into five main categories that cover the all professional and field information of the science teachers: (1) research techniques in physics topics, (2) research techniques in chemistry topics, (3) research techniques in biology topics, (4) research techniques in science education, and lastly, (5) the national and international projects that the science teachers can apply. Approval for the study was obtained from the Ethics Committee of Nigde University. Description of each day activities was presented in Appendix A. One group experimental design was used; before the study, TDST expectation semi-construct interview was done; and after the study, perception semi-construct interviews were done to the participants. Then, 40 science teachers from different parts of Turkey participated and seven trainers took part in the study; the training lasted for six days.

Participants

While the participant teachers were being selected, a geographical area sampling method was used. The reason why this method was chosen is that the target population of the study is very large, and there should be a maximum diversity in the study group in terms of the characteristics of the participants. According to the geographical area sampling method, during the study, the science teachers that volunteered by filling in the application form on the website of Nigde University were grouped according to the seven geographical areas of Turkey. After this study, among the 106 teachers that applied, 40 science teachers from 26 different cities comprised the sampling of the study according to the different physical and social conditions they work in (the cities they work in, whether the school they work in is a center, village, or in a district; years of experience, ages, the department they have graduated from (physics, chemistry, biology, science teaching); having an MA degree in teaching science, the fact that they are serving/teaching in especially the disadvantaged cities of Turkey in the east). The other characteristics of the participating science teachers are as follows: 22 of them were females and 18 were males; there were participants from seven different regions and 26 different cities of Turkey; 20 of them were aged 23-30, 15 of them were 30-40, four were 40-50 and one of them was 50-55 years old, when age was considered; they were graduates of 18 different universities in Turkey, when the university that they graduated from was considered; 22 of them worked between 1-5 years, nine of them worked between 6-10 years, seven of them between 11-20 years and two of them more than 20 years, when service duration was considered.

Data collection

The first data collection method was the TDST Expectation Interview. This data collection technique was applied on the first day of the training meeting of the project in order to determine the expectations of the participating teachers towards the training. The interviews, consisting of three open-ended questions, were done along with a semi-structured interview technique. The interview took about 15-20 min.

The second data collection method was the TDST Perception Interview. This data collection technique was applied on the last day of the training meeting of the project in order to determine the perceptions of the participating teachers towards the project training meeting. The interviews, consisting of three open-ended questions, were done along with a semi-structured interview technique. The interview took about 15-20 min and all the conversations were audiotaped.

Data analysis

Content analysis and descriptive statics methods were used for the evaluation of the data obtained in the study. TDST Expectation and TDST Perception Interviews' audiotaped results were written in Microsoft word format. For each teacher, a separate word format was used to record all his/her interview results and coded with numbers. Then, recorded interviews and Microsoft word format writings were given to an expert in science education to check the consistency of the two files. Afterwards, all the interview results were studied and sub-themes were created in a systematic manner. At the end, created themes' frequency values were calculated. For the reliability of the study, Miles and Huberman's (1994) formula calculated as 93.5% was used for the first interviews and 94.25% for the last interviews (Miles and Huberman, 1994).

RESULTS

Findings obtained from the analysis of the expectation form towards TDST training

In order to determine the expectations of science teachers towards TDST training, the TDST expectation interviews were done with the participant teachers. Three main open-ended questions were asked during the interviews: What are your expectations about the activities that will be in the study? Do you think that this training will affect your thoughts on the research you will carry out in the future? How? And what might be the most important thing this study can do for you? The findings are presented in Table 1.

When the answers of 40 participating teachers were analyzed (see Appendix A) for the first interview question, the theme with the highest frequency ($f=17$) was, "Learning and applying the steps of scientific method" and the theme with the second highest frequency was, "Learning how to prepare and apply for the projects; having knowledge on the process of preparing scientific projects" ($f=9$).

The second question on the TDST Expectation Interview was, "Do you think this training could affect your thoughts on the research you will carry out? If so, how?"

Table 1. The questions and the frequencies of the interviews on the expectations about the TDST.

<i>What are your expectations about the activities that will be in TDST study?</i>	<i>F</i>	<i>Do you think that this study will affect your ideas about your future studies? How?</i>	<i>F</i>	<i>What might be the most important thing this study can realize for you?</i>	
It is going to be a useful study.	4	Yes, it will.	23	Having a scientific view on doing research	7
Helping students gain the skill of doing scientific research	8	having knowledge and experience on doing scientific research	11	Exchanging ideas with the other participants and the presenters in the program	9
Improving the laboratory skills.	6	having knowledge on the national international projects	5	having knowledge on the project studies	7
learning how apart on the projects and studies done	3	the ones who think that it will make it easier for them to reach the sources in the projects and studies		Raising the willingness on doing research	2
learning how to prepare and apply for the projects, having knowledge on the process of preparing projects	9	the ones who think that they will be more qualified, and be more useful for the students in the projects and studies that will be done	8	Successfully doing a scientific project study	6
this kind of studies should be repeated	1	thinking about developing themselves	12	the ones that want to have an effective and productive science course	1
Helping the students like science	2	the ones that want to guide the students towards science projects	6	Being aware of the improvements in science (physics, chemistry, and biology)	2
Making use of the developments and changes in science	2	the ones who think that they should be affected by the developments and improvements in science	2	the necessity of teaching the applications along with the knowledge and content	4
An enjoyable and applicable project	2	the ones thinking about applying the things they have learnt all through their lives	3	the necessity of learning scientific research techniques	4
Guiding students to produce projects	7	learning new methods in scientific research	6	helping to improve the laboratory skills	2
learning and applying the steps of scientific research	17	the ones that claim method knowledge is as important as the research topic and	2	helping to compensate the missing parts on method knowledge	1
to have valuable attainments through the exchange of ideas with other teachers coming from different cities	3	The ones looking for the answer to the question: how are the things like scientific research method and the rules of writing articles learnt?	4	learning and using the research based teaching model	1
the ones who think that the academicians and the applicators should have a coordination	4	removing their incapability on finishing the project studies they do	1	Improving one's self (academically and scientifically)	3
learning and using the research based teaching method	2	Exchanging ideas with the other participants	1	the necessity of raising and directing the feeling of wonder in students	4

Table 1, presenting the analysis of this question, demonstrates that 23 teachers said yes to this question. When the answers to the "how" question were analyzed, the highest frequency belonged to, "Thinking about their own development" (f=12). The second highest frequency belonged to the theme "Having experience and knowledge in scientific research" (f=11).

The third question on the TDST Expectation Interview

was, "What could be the most important thing this study can do for you?" When the answers given to this question were analyzed, the theme with the highest frequency was found as, "Exchanging ideas and information with the participants and academics involved in the program" (f=9). The second highest theme was found as, "Having a scientific view on doing research" (f=7), and "Having knowledge of the project studies" (f=7).

Table 2. The questions and the frequencies of the interviews on the perceptions about the TDST.

<i>What are your views about TDST training?</i>	F	<i>What is the most important thing this study did for you?</i>	F	<i>What is your idea about this study's effect on your feelings about developing scientific research?</i>	F
Productive applications related to the purpose of the study were done.	17	Raising the courage on doing research	13	The ones using the expression it positively affected	14
the study contributed a lot to the views on teaching science	2	Answering the question: How is a scientific research done?	5	The ones who say that it raised my passion to do research	18
Being satisfied with the study	17	the rise in the self- confidence on doing scientific research	5	The ones who had different project opinions	4
Having experience and knowledge about scientific research thanks to the study	10	Learning the methods and steps of scientific research	11	the ones who want to search and produce new things	9
the participants' being heterogeneous was very useful in terms of sharing knowledge and ideas	12	The friendships formed	13	They have different points of view	5
the ones who had prejudices about project before attending this study got courage to do scientific research thanks to it	3	The things every teacher have learnt in the study are useful for their students	4	the ones who have the wish to improve themselves in their job	6
the study's being useful in improving the skills of doing scientific research	9	the usefulness of laboratory studies	9	the ones who want to start a master's degree	1
Learning how a scientific research is done	3	the importance of the experiments that are done with simple equipment for science courses	4	the ones who learnt how a scientific research is done and its importance	8
having an idea on the projects that the science teachers can apply for	10	the ideas shared with the colleagues	12	the ones who say that laboratory studies will have a great help to them	2
It is useful for the teachers to guide their students do projects	3	the importance of meeting the academicians	1	the ones who say that the questions in their minds about research were answered	1
being satisfied with the trainers and staff of the study	5	Its importance in terms of career development	4	the ones who learnt how to do projects with the knowledge they have	6
the applications in the study should be raised	5	It is important to do a comprehensive literature review before starting the study	1	the ones who want to study in cooperation with universities	1
the communication skills of some of the participants were low	1	To enjoy the cultural trips in Nigde	1	the ones that realized the importance of group work	2
-		Decrease in the problem of publishing the scientific studies	1	The ones that learnt how to rapport the research results	1

Findings obtained from the analysis of the perception form towards TDST training

In order to determine the perceptions of science teachers towards TDST training, the perception towards the training interviews was used. There were three main open-ended questions during the interviews. The answers the participating science teachers gave were analyzed and the findings are presented in Table 2.

The first question on the perception towards the training was, "What do you think about The Training of the

Development of Science Teachers' Scientific Research Skills?" When the scores that the participating teachers gave were categorized, the theme with the highest frequency found was, "Carrying out efficient applications that fit the purpose of the study throughout the training" (f=17), and "Being satisfied with the training" (f=17). The theme with the second highest frequency was, "The participants' being heterogeneous was very useful in terms of sharing knowledge and ideas" (f=12).

The second question on the perception analysis towards the training was, "What was the most important

contribution of this study to you?" When the scores that the participating teachers gave were categorized, the theme with the highest frequency found was, "Encouragement to carry out projects" (f=13), and "The friendships formed" (f=13). The theme with the second highest frequency was, "Ideas shared with colleagues" (f=12).

The third question on the perception towards the training was, "How do you think this training influenced your feelings about developing research?" When the scores that the participating teachers gave to this question were categorized, the theme with the highest frequency was, "It increased my enthusiasm and ambition to do research" (f=18). The theme with the second highest frequency was, "It had a positive influence" (f=14).

DISCUSSION

This study was put forward with the idea that teachers should be trained with a spirit of inquiry, and the acknowledgement that they can examine research skills through the use of scientific method practices more systematically. The teachers, who participated in the study on a volunteer basis, were found to be aware of the significance of the study; most of the teachers thought that TDST would help them develop scientific research when the researcher explained the context of the training; teachers were aware of the fact that knowledge and experience were necessary in scientific research (Table 1). Therefore, the study results showed that the expectations for project training meetings were generally high since the teachers feel that developing research is important for a teacher.

After the TDST training, in line with the knowledge, skills, and experience that science teachers had during the study, perception interviews for TDST training were done to identify how teachers perceived the training.

The results of the perception interview analysis showed that the teachers were pleased with the study and with carrying out productive practices suitable for the study's aim (Table 2). These results indicate that the study was carried out in accordance with its aim and was properly prepared for the participants' needs in terms of the extent and practice conditions of the study.

When perception interview results were analyzed, it was found that the project training meeting did not only have an effect in a cognitive way on the teachers, but also helped the teachers to increase affective domain levels. Moreover, it can be inferred that the participant science teachers were pleased with the workshop and visual elements in a university environment, and with the atmosphere between both the participants and the instructors; this had a positive effect on helping them learn. These results are a sign that the study has affected the participant teachers positively about developing research skills through the use of scientific method in an

effective context.

There are some studies that have similar results with this study and that report the benefits of teachers' research skills. According to the research result of Feldon et al. (2011), students who both taught and conducted research demonstrate significantly greater improvement in their abilities to generate testable hypotheses and to design valid experiments. These results indicate that teaching experience can contribute substantially to the improvement of essential research skills. French and Russell (2002) found that 21 of 27 teaching assistants leading undergraduate labs reported positive benefits to their research skills as a result of their teaching experiences. Brickman et al. (2009) found that inquiry lab instruction improved students' science literacy and research skills, and that they gained self-confidence in scientific abilities. Webb et al. (2011) stated that the reason for developing students' research skills is to help them build strong intellectual and practical connections between research frontiers and their own learning. Kember et al. (2008) stated that a teacher who has scientific research ability is a teacher who has the scientific process abilities (observing, hypothesizing, determining the variables, using and interpreting the data, checking the variables, and experimentation), which he has to use during the scientific process. Because the scientific methods such as scientific research, experimentation, and observation are used in the learning teaching process with science education, a science teacher having the ability of developing scientific research can encourage students to discover and learn by means of research with the technique and method used in the learning-teaching process.

As a result, teachers and students having doing research ability to carry out scientific research can use the abilities that they gained in this lesson—mentioned above—in every problem they face. They can develop the responsibility and courage to carry out the research process by using the scientific methods such as experimentation, in an independent way when they have a problem with understanding something; they can renew or gain their self-confidence about developing research and have a lifelong learning ability by reviewing life with a more scientific point of view (Kember et al., 2008).

In this study, a learning content was developed about developing research skills of the science teachers by using scientific method, and interviews were done with the teachers on their expectations and perceptions of this content. The learning content that was developed involves the research skills of both the field information and the vocational education knowledge of the science teachers. Therefore, it was aimed that the science teachers acquire the knowledge and the skills that enable them to be able to solve all the problems they face while they are performing their jobs through scientific research methods. The results of the study showed that the teachers are more equipped in terms of scientific research.

Conflict of Interests

The author has not declared any conflict of interests.

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Appendix A.

Days	Content description	Topics
1. Day	Before the study, there were TDST expectation interviews done. Then, the participants were informed about the training program, and presentations were made on, "The National and International Scientific Projects that the Teachers can apply for," and, "Obtaining Information during Scientific Research"	<ul style="list-style-type: none"> - The National and International Scientific Projects that the Teachers can apply for - Obtaining Information during Scientific Research
2. Day	On the second day of the study, there were presentations on, "The Research techniques Used in Science Education (I) and (II)," and workshops including the applications of these presentations	<ul style="list-style-type: none"> - The Research techniques Used in Science Education (I) - The Research techniques Used in Science Education (II)
3. Day	- On the third day of the study, were the presentations, "The Importance of Science Teachers' Having the Scientific Research Skills in terms of their Career Development," and "Scientific Research and Project." After these, "Using Laboratories in Science Education," the activity, "Visiting the Physics, Chemistry, and Biology Laboratories of Faculty of Science and Letters at Nigde University," a presentation named, "The Most Commonly Used Research Methods in Biology Research," and the activity, "Biology Research Workshop" were completed.	<ul style="list-style-type: none"> - The Importance of Science Teachers' Having the Scientific Research Skills in terms of their Career Development - Scientific Research and Project - Using Laboratories in Science Education - Visiting the Physics, Chemistry, Biology Laboratories at Nigde Univ. - The Most Commonly Used Research Methods in Biology Research - Biology Research Workshop
4. Day	The fourth day of the study started with the presentation, "The Most Commonly Used Research Methods in Chemistry Research," and "Chemistry Research Workshops." It then continued with the presentation, "??"	<ul style="list-style-type: none"> - The Most Commonly Used Research Methods in Chemistry Research - Chemistry Research Workshops - The Most Commonly Used Research Methods in Physics Research - Physics Research Workshops
5. Day	- On the fifth day of the study, the participant teachers took part in workshops on project development with groups of three at most, with the guidance of the project trainers, and by using the knowledge they had gained from the previous trainings on the topics of research methods in science education, physics, chemistry, and biology.	<ul style="list-style-type: none"> - Teachers imagined that they will apply a scientific Project competition and developed their own Project according to their students and school conditions. And trainers helped them. Some example titles of the projects that the participants completed during the study are, "The Ideas of Science Teachers towards the Effect of the Teachers' Use of Formulas on Student Success", "Football without Referee", "The Friend of the Stomach", "Does Eyesight affect Taste?"
6. Day	- On the sixth day of the study, the presentation, "The Nature of Science, Scientific Knowledge, and Scientific Process Skills" was done. After that, there was a workshop on "The Nature of Science, Scientific Knowledge, and Scientific Process Skills." Moreover, the presentation "Reporting the Research Process I," and a workshop on "Reporting the Research Process II" took place, and the teachers reported and presented on the projects they did the previous day. The most successful projects were chosen by voting. Lastly, perception interviews were done.	<ul style="list-style-type: none"> The Nature of Science, Scientific Knowledge, and Scientific Process Skills The Nature of Science, Scientific Knowledge, and Scientific Process Skills Reporting the Research Process (I) Reporting the Research Process (II)

Full Length Research Paper

Predictive power of the success tendency and ego identity status of the university students

Pepe Osman

Physical Education and Sport, Erciyes University, Kayseri, Turkey.

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The aim of this research is to assess the predictive power of the success tendency and ego identity status of the students of Physical Education and Sports Teaching Department. 581 students of Physical Education and Sports Teaching Department in Kayseri, Niğde, Burdur, Bolu and Diyarbakır participated in this research. The acquired results were analyzed with SPSS 20 package. To specify if there was a meaningful relationship between the acquired data, Pearson Correlation analysis was used; and to evaluate the predictive power of the relationship between them, multiple regression analysis was applied. In the successful identity characteristic, there was a positive and meaningful relationship between learning tendency, tendency for performance and avoidance of performance tendency. While there was not a meaningful relationship between monotorium identity, encumbered identity, dispersiveness identity and learning tendency, it was found that there was a positive and meaningful relationship between tendency for performance and avoidance of performance. When the success tendencies of the ego identity statutes were assessed, it is seen that in successful identity status, learning tendency, performance tendency and avoidance of performance characteristics were predicted. As successful identity rises, individuals' learning tendency increases and while performance tendency increases avoidance of performance tendency decreases. In suspended, encumbered and dispersed identities status, learning tendency, performance tendency and avoidance of performance tendency are predicted. As suspended, encumbered and dispersed identities statuses increase, individuals' learning tendency and performance tendency decrease, but avoidance of performance tendency increases. These results reveal that Physical Education and Sports Teaching candidates' identity statutes and success tendencies are affected.

Key words: Physical Education and Sports, success tendencies, ego identity statutes.

INTRODUCTION

In his psychosocial hypothesis, Erikson indicated that development process lasts for a life time. He divided human life into eight phases, and in each part, he identified psychosocial duties that an individual must

make real. If these duties are successfully, then there will be positive qualities added and also a big progress made in the psychosocial development. If the duty is not successfully, then there will be poor solution. Personality

E-mail: opepe@erciyes.edu.tr

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and development will also be affected negatively (Erikson, 1963; 1968). The evaluation of identity development and the ability to discover the inner processes separately lead to positive results of identity development process (Bosna, 1992). While one of the most important determinants of college students' academic attitudes is success tendency, the other important thing that developmentally guides them to make many decisions and choices is identity statute. Formed in the frame of Erikson's psychosocial development hypothesis (Marcia, 1964; 1966), the identity statute hypothesis states whether there is a link in developmental living or not and also identifies four different identity statutes in terms of ideologic and interpersonal areas. It identifies four important identity statutes that are shaped with two principles; crisis and commitment. Crisis entails the process that includes individuals' choices in the past, questioning their beliefs. Commitment indicates individuals' efforts for the alternatives that they choose and levels of their investments. In other words, commitment shows individuals' loyalty to their aims, values and beliefs. According to these two principles, existence or absence adolescents will be promoted to one of the four important identity statutes like; successful, encumbered, dispersed or suspended (Marcia, 1980). Meaning of the encumbered identity is; without showing a sign that individuals pass a crisis, they commit to some values, principles and beliefs without testing them (Adams, 1999). Successful identity status meaning is; individuals' commitment to values that they choose, principles and beliefs in terms of experiencing of crises. Suspended identity means individuals' experiences of crises; and although they do research on the principles, values and beliefs, they are already committed to these. Finally, for dispersed identity; individuals do not specify their beliefs, values and aims and in terms of this they do not commit to their aims (Adams, 1999). It associates academic disadvantages with the decisions that are not made over life-sustaining issues such as religious, ideological, vocational and sexual issues; and to reach these decisions certain behaviors come into play such as dispersiveness, postponement attitude (Shanahan and Pychyl, 2007) and adapting the non-adaptive decision making styles (Bacanli, 2012). On the other hand, it associates success status with vital subjects, like whether there is failure in self-respect protector characteristic (Marcia, 1967), logical decision making style (Bacanli, 2012) and academic success. One of the most important determinants of the university students' life quality is their level of preparation for vocational success; and whether they can accomplish their academic goals at the university or not depends on their success tendencies. According to the success tendencies approach, conceptualized by Dweck et al. (Ames, 1992; Dweck and Leggett, 1998;

Nicholls, 1984), there are three academic goals for students' learning and for the required materials: academic duties in any education environment, learning, approach to performance and avoidance of performance tendencies. Success tendencies sub dimensions (learning aim orientation, performance aim orientation, tendency to performance and avoiding performance orientations) entail analyzing the acquired information truly by the teachers; behaviors of individuals at this sub dimensions need to be known. When we consider these sub conditions first one is learning aim orientation. According to Akin (2006), "Learning aim orientation is associated with the desire of the student to understand material completely and his/her wish for having a good command of the subject." Individuals who have this orientation have these characteristics (Akin, 2006:56; Dweck and Leggett, 1988).

- They use Deep cognitive strategies,
- They do not run from the difficulties that they come across,
- They have high motivation,
- They are enthusiastic for the works they will do,
- They know what they will do with the works and they assimilate them.
- They take easy works instead of difficult ones.
- They do not give up under difficulties.

Ones who have the Tend to Performance orientation;

- They seem wise and talented,
 - They avoid being untalented,
 - They work much more than people around them,
 - They avoid negative judgement,
 - They generally cannot be motivated internally,
 - They do not run from any work they failed, (Akin, 2006)
- In Avoiding Performance Aim Orientations students, they show "avoidance" behavior in classroom or in another study area to their family, teachers and other people around them. After all they express the "tending" behavior to show they are talented to the people around them (Dinç, 2010:663; Morris and Kavussanu, 2008).
- Learning tendency is the students' basic aim to learn the contents that they have and acquire the related knowledge and skills. Approach to performance entails the students having big success in the acquisition of the learning materials and having academic superiority and competence compared to others. Avoidance performance tendency includes behaviors such as escaping from responsibility and having passing grade with minimum effort. When the body of the literature is scanned on the identity statutes, Oskay (1997) did a study on the

students of Faculty of Education, Faculty of Fine Art, Engineering and Faculty of Economic and Administrative Sciences. And Morsünbül (2013) did a study on the students of Faculty of Education. Tendency to success study was done on students who study at the Faculty of Education. Akın and Çetin (2007) and İzci and Koç (2012) did a study on Faculty of Arts students, Faculty of Science and students who study pedagogical formation in the area of social sciences. There is no study on Physical Education and Sports Teaching programme. These studies come up with the importance of identity statutes and success tendencies. In the body of literature both identity statutes and success tendencies have proved the rightness of close relationships with academic variances. Based on these studies, it is aimed to reveal the relationship of the students' identity statutes and success tendencies who study at Physical Education and Sports Teaching Department.

METHOD

Model of the research

The research is based on relational scanning model. Relational research shows the relationship of one or more variances, to understand well the results (Büyüköztürk et al., 2010; Karasar, 2005).

Research group

There are 2984 students who study at the universities of 4 geographic regions of Physical Education and Sports Teaching Programme. In this geographic region, there are 5 universities chosen with more students: Erciyes, Mehmet Akif Ersoy, Abant İzzet Baysal University's Sports Teaching program; out of 711 of the students, 655 were chosen to be the sample of this study; 74 of the students' scale is considered invalid. 581 of the students' scales were taken for evaluation and sample group was formed.

Data collection tools

Demographic Information Form (Independent variances form)

The survey, which was developed by the researcher to gather information on the study's independent variances, consisted of 6 item: age, gender, department, class, weekly study hours and general weighted grade average.

Elaborated objective ego identity statutes scale (EOM-EIS)

EOEIS scale, which was developed by Marcia (1966), edited and prepared by Bennion and Adams (1986), then adapted to Turkish by Oskay (1998) was used in the research. This scale consisted of 64 questions and distinguished 4 identity statutes: successful, moratorium, encumbered, dispersiveness identities. Students

specifies their answers on a Likert Scale: 1= "certainly do not agree", 2="Almost do not agree", 3="Sometimes do not agree", 4="Sometimes agree", 5="Almost agree", 6="Certainly agree". EOM-EIS' four scales' Cronbach Alpha's coefficient that are about ideological area; for the successful identity status 59, searching for the identity status 62, dependent identity status 71 and for the identity complexity 38. For the interpersonal relationships Cronbach Alpha coefficient for the successful identity status 66, searching for identity 57, dependent identity status 84 and identity complexity status 57 (Oskay, 1998).

Success tendency scale

In the research data collection device used was "Success Tendencies Scale" which is empowered by Midgley et al. (1998.9) and adapted to Turkish by Akın and Çetin (2007). Success Tendencies Scale's original forum consisted of 18 questions and its first six points tend to performance (TP); the last six points consisted of avoiding performance (AP). Success Tendencies which is used in the study consisted of 17 points. This Scale's 17 points consisted of ; 1-6 points success tendencies 7-12 tendency to performance and 13-17 avoiding performance. The Scale has a 5 Likert grading scale like ; "1= Never", "2=Rarely", "3=Oftenly", "4= Generally" and "5=Always". This Scale was adapted to Turkish and for its Cronbach Alpha consistency it is determined that for the tend to success 77, tend to performance 79 and avoiding performance 78. For the Cronbach Alpha's secure coefficients; learning tendency 87, tend to performance 89 and avoiding performance it is 85.

Analysis of the data

The data, which were acquired from the participants, were analyzed with SPSS 20 package. In the descriptive analysis of the data to know their validity and reliability, frequency (N), percentage (%), arithmetic average (mean) and standard deviation (SD) were used. To specify, if there was a relationship between the data or not, Pearson Correlation analysis was applied. To determine the predictive power between the data, Multiple Regression analysis was applied.

RESULTS

Demographic characteristics of the students who participated in the research are given in Table 1. According to the data, 55.8% of the students are males (n=324), while 44.2% of them are females (N=257). 3rd grade students were the highest participants (37.2%); the least participants were 1st grade students (12.9%). Most of the participants were from Erciyes University (24.3%) and the least were from Abant İzzet Baysal University (17.7%).

Success tendencies and ego identity statutes averages of the students, who study at Physical Education and Sports Teaching Department, are given in Table 2. From the table, it can be said that the students have more

Table 1. Demographic profile of the participants.

Variances	Groups	n	Percentage
Gender	Male	324	55.8
	Female	257	44.2
Grade	1 st grade	75	12.9
	2 nd grade	203	34.9
	3 rd grade	216	37.2
	4 th grade	87	15.0
University	Erciyes	141	24.3
	M. AkifErsoy	108	18.6
	Niğde	107	18.4
	Abantİzzet Baysal	103	17.7
	Dicle	122	21.0

Table 2. Descriptive statistics of ego identity statutes and success tendency.

	Variance	N	Mean	SD
Ego Identity Statutes	Successful Identity	581	4.28	.79
	Suspended Identity	581	3.2	.95
	Encumbered Identity	581	2.86	1.17
	Dispersiveness Identity	581	3.03	.92
Success Tendency	Learning tendency	581	4.27	.64
	Tendency for performance	581	4.01	.94
	Avoidance of performance tendency	581	2.83	1.2

enthusiasm for success tendency and also have successful identity.

From Table 3, it is seen that there is a positive and meaningful relationship between successful identity characteristic and learning tendency ($r=.149$, $p=.000$), tendency for performance ($r=.136$, $p=.001$) and avoidance of performance ($r=.132$, $p=.001$). While there is no relationship between suspended identity and learning tendency ($r=.010$, $p=.806$), there are positive and meaningful relationships between tendency for performance ($r=.135$, $p=.001$) and avoidance of performance ($r=.363$, $p=.000$). While there is not a meaningful relationship between encumbered identity characteristic and learning tendency ($r=-.035$, $p=.405$), there is a positive and meaningful relationship between tendency for performance ($r=.176$, $p=.000$) and avoidance of performance ($r=.426$, $p=.000$). While there is not a meaningful relationship between dispersed identity characteristic and learning tendency ($r=-.044$, $p=.284$), there is a positive and meaningful relationship between

tendency for performance ($r=.095$, $p=.284$) and avoidance of performance tendency ($r=.428$, $p=.000$).

The regression analysis done for the ego identity statutes and which predict success tendency is presented in Table 4.

From Table 4, there is a meaningful relationship between success tendencies and success identity statutes ($R=.205$, $R^2=0.42$, $p<.001$). From the t-test results related to the meaningfulness of the regression coefficients, it is seen that it predicts the "learning" ($t=2.960$, $p=.003$) and "avoidance of performance" ($t=2.471$, $p=.014$) tendencies and also explains 8% of the total variance ($F_{2,296}= 8.460$, $p<.001$).

There is a meaningful relationship between success tendencies and suspended identity statutes ($R=.364$, $R^2=.133$, $p<.001$). From the t-test results related to the meaningfulness of the regression coefficients, it is seen that it predicts the "avoidance of performance tendency" ($t=8.698$, $p=.000$), suspended identity status and explains 29% of the total variance. ($F_{2,296}= 29.426$, $p<.001$).

Table 3. Analysis of the relationship between ego identity statuses and success tendencies.

		1	2	3	4	5	6	7
Successful identity	r	1						
	p							
	n	581						
Suspended identity	r	,325**	1					
	p	,000						
	n	581	581					
Encumbered identity	r	,189**	,718**	1				
	p	,000	,000					
	n	581	581	581				
Dispersiveness identity	r	,265**	,755**	,720**	1			
	p	,000	,000	,000				
	n	581	581	581	581			
Learning tendency	r	,149**	,010	-,035	-,044	1		
	p	,000	,806	,405	,284			
	n	581	581	581	581	581		
Tendency for performance	r	,136**	,135**	,176**	,095*	,281**	1	
	p	,001	,001	,000	,023	,000		
	n	581	581	581	581	581	581	
Avoidance of performance tendency	r	,132**	,336**	,426**	,428**	,041	,311**	1
	p	,001	,000	,000	,000	,319	,000	
	n	581	581	581	581	581	581	581

Table 4. Predictive analysis of the ego statuses' success tendencies.

EIS	Success tendencies	β	t	p	R	R2	F	p
Successful identity	Learning tendencies	.156	2.960	.003				
	Tendency for performance	.058	1.523	.128	.205	.042	8.46	.000**
	Avoidance of performance tendency	.070	2.471	.014				
Suspended identity	Learning tendencies	-.018	-.304	.761				
	Tendency for performance	.028	-.650	.516	.364	.133	29.43	.000**
	Avoidance of performance tendency	.281	8.698	.000				
Encumbered identity	Learning tendencies	-.131	-1.841	.066				
	Tendency for performance	.088	-1.717	.087	.434	.188	44.46	.000**
	Avoidance of performance tendency	.395	10.293	.000				
Dispersiveness identity	Learning tendencies	-.079	-1.412	.159				
	Tendency for performance	-.026	-.641	.522	.433	.188	44.5	.000**
	Avoidance of performance tendency	.336	11.102	.000				

There is a meaningful relationship between success tendencies and encumbered identity statuses ($R=.433$, $R^2=.188$, $p<.001$). From the t-test results related to the meaningfulness of the regression coefficients, it is seen that it predicts the “avoidance of performance tendency” ($t=10.293$, $p=.000$) encumbered identity status and explains 44% of the total variance ($F_{2,296}= 44.457$, $p<.001$).

There is a meaningful relationship between success tendencies and dispersed identity statuses ($R=.433$, $R^2=.188$, $p<.001$). From the t-test results related to the meaningfulness of the regression coefficients, it is seen that it predicts the “avoidance of performance tendency” ($t=11.102$, $p=.000$) dispersed identity status and explains 44% of the total variance ($F_{2,296}= 44.501$, $p<.001$).

DISCUSSION

Specifying the mechanisms, which will support the success and success motivation of the students, who study at Physical Education and Sports Teaching Department, is really important. This work studied the predictors of success motivation and success, and it was assessed whether there was a relationship between the identity statuses and success tendencies of the students or not. It is found that there is a positive and meaningful relationship between successful identity characteristic, learning tendency, tendency for performance and avoidance of performance tendency. It is also found that while there is not a meaningful relationship between suspended identity, encumbered identity, dispersiveness identity and learning tendency, there is a positive and meaningful relationship between tendency for performance and avoidance of performance. When the prediction of the success tendency of ego identity statuses is assessed, it is seen that success identity status predicts the characteristics of learning tendency, tendency for performance and avoidance of performance; and while successful identity status increases, individuals' learning tendency, tendency for performance and avoidance of performance tendency increase. It is seen that suspended, encumbered and dispersed identities predict the characteristics of the learning tendency, tendency for performance and avoidance of performance. It is also seen that as suspended, encumbered, and dispersed identities increase, individuals' learning tendency and tendency for performance decrease, but avoidance of performance tendency increases. From the literature, it is seen that there is a meaningful relationship between successful identity and avoiding performance tendency. It is thought that the students have a successful identity and this will also continue to increase. This is

seen in the sample group of 1-4 grades within the age group of 18-27, according to the literature. In Kroger's longitudinal study, he assessed university students of two years and above, and like Marcia, he found as age increases, successful identity status increases (Kroger, 1988). In the literature on successful identity status, it is seen that people with successful identity status are determined, stand firm and are not affected much from instant changes and unexpected responsibilities (Marcia, 1966). These individuals are stable, getting through with the environment and are determined to set real targets for themselves (Eryüksel, 1987). In this study, it is determined that successful identity status meaningfully predicts learning tendency and tendency for performance. With this result, it is thought that the students who study Physical Education and Sports Teaching begin to do sports at an early age, after a while they set a target for themselves and get support from their families. These affect their successful identity statuses positively. Literature defines suspended identity status as a situation in which people are in a state of depression but cannot find a solution (Marcia, 1966). For these individuals, help from their parents and the society is important. They try to bridge between this help and their skills (Eryüksel, 1987). In this conducted research, while suspended identity status affects learning tendency and tendency for performance negatively, it affects the avoiding performance tendency positively. With these results, it is thought that the students are enthusiastic to be successful in sports from their childhood; at the same time, their parents and the society's desires are parallel with theirs. This affects them positively as they do not have any issues with tendency for success. The literature associates encumbered status with variances that can affect academic success negatively, such as low academic performance, disloyalty to authority and low self-respect (Kroger and Marcia, 2011). It confirmed the results of this study that encumbered status affects academic development, learning tendency and tendency for performance tendency negatively. This shows that students who study Physical Education and Sports Teaching have sports background, and choosing a role model helps them to realize themselves. Thus, it is thought that they do not have difficulty in achieving success. It is thought that apart from the students choosing a role model by themselves, there are also different reasons. Dispersed status in the literature is associated with the variances that negatively correlate with learning tendency and positively correlate with avoidance tendency such as academic suspense and non-adaptive making decisions styles (Bacanli, 2012; Shanahan and Pychyl, 2007). In this study, relations are determined as specified in the body of literature. It is

thought, based on the body of literature, that the students studying Physical Education and Sports Teaching, beginning from their development periods have been in sports discipline and because they are not dependent on others when they make decisions, they do not have any problem in their decision making styles. This situation is not only associated with sports discipline but also other different reasons. In his study, Özgüngör (2014) indicated that identity statuses predict learning tendencies; learning tendency is predicted positively by success status, but negatively by encumbered and dispersed statuses. He reported that avoidance of performance tendency is predicted by encumbered and success statuses; approach to performance tendency is predicted by encumbered and moratorium statuses. This conducted study supports our current study. The reason could be because both studies use the university students. Yet, to make a better generalization, studies in this field should be increased. This study contributes to the body of literature through findings that reveal the relationship between identity statuses and learning tendencies of the students who study at Physical Education and Sports Teaching Department. As a result, there is an increase in the success tendency and tendency to performance of the students who study at Physical Education and Sports Teaching Department.

Suggestions

1. Psychosocial development of the students, who study at Physical Education and Sports Teaching Department, should be taken into consideration,
2. There should be more studies that assess the ego identity statuses and academic successes of the students.
3. The factors associated with ego identity statuses and academic successes of the students such as contextual, economic, psychologic, and cognitive processes need to be assessed and constructive strategies and programs should be enhanced.
4. Universities should form the curriculums to increase the students' success identities. .
5. Based on findings acquired from universities they should make a study to increase the students' learning tendency and performance tendency.
6. According to findings in terms of the study there should be much more studies on the increase of students' identity statuses and make them acquire the body of literature.
7. Utilize from the acquired findings about tend to performance and learning tendency it is suggested that there should be other studies about increasing a person's other psychological characteristics.

Conflict of Interests

The author has not declared any conflicts of interest.

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Full Length Research Paper

The education and evaluation of vitamin consumption effects on stress markers oxidative after exercise

Cemil Tugrulhan Sam

Department of Sport Science and Physical education, University of Ataturk (Erzurum), Turkey.

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The purpose of the research was to evaluate the effect of 4-week vitamin C and E supplementation on the markers of oxidative stress after exercise session in students. 30 non-athlete persons (25.21 ± 1.5 years, 173.42 ± 5.62 cm, 75.6 ± 5.75 kg, VO_2 max of 42.26 ± 1.11 ml/kg/min, and waist-hip ratio of 0.91 ± 0.02 cm) volunteered for the study and were given vitamin C and E supplementation (1000 mg per day) and control groups (without vitamins receiving). After 4 weeks of supplementation, all the participants in an aerobic exercise session consisting of running on a treadmill at -10° incline and 80% VO_2 max with 2 min rests between sets. Blood samples were taken before and after supplementation and after exercise. Normalized data were analyzed by SPSS software by using of repeated measures ANOVA, Bonferroni test, and independent samples t-test at 5% probability significance level. The results indicated that vitamin C and E supplementation before ($P = 0.005$) and after exercise ($P = 0.004$) significantly increased antioxidant capacity. It also prevented post-exercise increase in malondialdehyde ($P = 0.001$) and creatine kinase levels ($P = 0.0001$). Four weeks of vitamin C and E supplementation increases serum total antioxidant capacity which prevents exercise-induced oxidative stress and high increase in serum creatine kinase levels in students.

Key words: Creatine kinase, Malondialdehyde, total antioxidant capacity, Vitamin C, Vitamin E.

INTRODUCTION

Physical activity and moderate diet are necessary to quality of life and health. The most considerable biological change during physical activity is enhanced metabolism and oxygen ingestion. Increased oxygen uptake in mitochondria can increase electron transport, generate free radicals, and cause oxidative stress (Chrysostomou et al., 2013; Fisher-Wellman and Bloomer, 2009). The antioxidant system in the body has an important role in defending versus oxidative stress. This system uses antioxidants to disconnect the chain reactions composed by free radicals (Coşkun et al., 2005;

Goldfarb et al., 2007). Several researchers believe that the consumption of antioxidants will help to ward off this propagation of free radicals during exercise and convey a beneficial effect (Viitala et al., 2004). The antioxidant system preserves homeostasis and protects the body versus free radical-induced oxidative damage (Fisher-Wellman and Bloomer, 2009). Vitamin C has many functions within the human body. It is a water soluble vitamin basic in carnitine synthesis, Collagen formation, neurotransmitter synthesis, and as an antioxidant (Guthrie and Picciano, 1995). The established functions of

E-mail: tugrulsam@hotmail.com

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antioxidant vitamins prepare them for improving physical work capacity. It is a known fact that the concentration of these vitamins enhances after supplements yet more migration to tissues is hindered do to the structure and the accompanying biochemical properties (Thompson et al., 2001; Zoppi et al., 2006). Antioxidant supplementation may provide protection versus the negative health consequences of oxygen free radicals caused by exercise. Vitamin E is probably the most focused on and important non-enzymatic antioxidant substance in the body. Unlike most nutrients, a specific role for vitamin E in a required metabolic function has not been found (Institute of Medicine, 2000). The major function of vitamin E is to work as a chain-breaking antioxidant in a fat soluble environment thus preventing the propagation of free radical reactions (Viitala et al., 2004; Selkow et al., 2011). Two studies involving vitamin E antioxidant supplementation and aerobic exercise have produced positive results (Meydani et al., 1993). Researchers have explored antioxidant vitamins and enzymes that are found in blood plasma, in local tissue and within erythrocytes. Research performed in varying locations has caused conflicting results (Viitala et al., 2004; Zoppi et al., 2006). Kelkar et al. (2008) examined the effect of antioxidant consumption on antioxidant enzymes and they showed that antioxidant consumption significantly decreased malondialdehyde, but the increase in antioxidant enzymes was not significant. Recent researches have shown that intense aerobic exercise has health benefits for non-athletes and even people with certain diseases (Belviranlı and Gökbel, 2006; Ristow et al., 2009). However, these activities may subject sedentary individuals to cell damage due to the release of high levels of free radicals. These individuals have a relatively low antioxidant capacity and require antioxidant supplementation (Peternelj and Coombes, 2011). Studies have shown the antioxidant properties of vitamin C (Nikolaidis et al., 2012). Given a little and equivocal evidence about the effect of vitamin C and E supplementation on oxidative stress, the aim of this research was to study the effect of vitamin C and E supplementation on antioxidant capacity and malondialdehyde, creatine kinase levels after exercise.

MATERIALS AND METHODS

Participants

Sixty male students volunteered for the study of whom thirty qualified ones were selected. The subjects were in good health, were not using medications known to affect body system, and had not consumed vitamin or mineral supplements more than the recommended dietary allowance. The participants mean age was 21.5 ± 1.3 years, mean weight was 70.55 ± 2.9 kg and mean height was 173.42 ± 5.62 cm. All of the students were reading in B.S. of different fields in the university. All participants volunteered to be involved in the study and were informed of the general purpose of the investigation.

Procedure

The researchers were contacted via invited papers on board in the faculties. Participants were assured that the experiments and study did not have any damage for them and the treatments were natural without harmful materials. In this study, we tried to educate participants on vitamins consumption daily but we started with specialized doses until the participants got used to the consumption of vitamins after this test. The purpose of study was explained to the participants and they signed a consent form. Anthropometric indices (height, weight, and body fat percentage) were measured two week prior to the study. There were 3 groups in this study, control ($n = 10$), with vitamin C consumption ($n=10$) and with vitamin E consumption ($n = 10$). The measurements were done under 3 conditions, baseline, pre-exercise and post-exercise. The amounts of vitamin C and E consumption, was 1000 mg daily for both of the vitamins.

Measurements

Fasting blood samples were taken from the right hand antecubital vein 24 hours before supplementation and 12 h after the four-week supplementation period. Then the participants performed the exercise which included a general warm-up followed by 45 min by treadmill running with nine 5-min sets and 2-min rests between sets at -10° incline and at 80% VO_2 max. Final blood samples were taken immediately after the exercise protocol (Sacheck et al., 2003). Blood samples were 5 ml blood samples that were taken of the participants and collected in vials without anticoagulants to measure total antioxidant capacity (TAC) as well as malondialdehyde and creatine kinase levels. TAC was measured by using of Randox kits (MX2333) on auto-analyzer system at 600 nm (Miller et al., 1993) and creatine kinase was measured by using of the MaxDiscovery™ Creatine Kinase (CK) Enzymatic Assay Kit. Serum malondialdehyde level was measured by using spectrophotometry assay at 532 nm based on its reaction with thiobarbituric acid.

Statistical analysis

Normal distribution of the data was analyzed by using of Levene's test and Kolmogorov-Smirnov test. Then, the indices were analyzed by the use of repeated measures ANOVA and Bonferroni correction. All the statistical analysis were done by SPSS 22 and Excel 2013 software at 5% probability level. Also, abbreviation were used in figures as: CK: creatine kinase, MAD: malondialdehyde, TAC: total antioxidant capacity.

RESULTS

The descriptive statistics of the sample ($n = 30$) were as follows: 25.21 ± 1.5 years, 173.42 ± 5.62 cm, 75.6 ± 5.75 kg, VO_2 max of 42.26 ± 1.11 ml/kg/min, and waist-hip ratio of 0.91 ± 0.02 cm. The results of repeated measures ANOVA and Bonferroni correction showed that serum TAC significantly enhanced in the vitamin C and E group after four weeks ($P = 0.004$), while control group did not change significantly ($P = 1.000$). Creatine kinase ($P = 0.0001$) and malondialdehyde levels ($P = 0.001$) significantly increased after exercise, but a lower increase

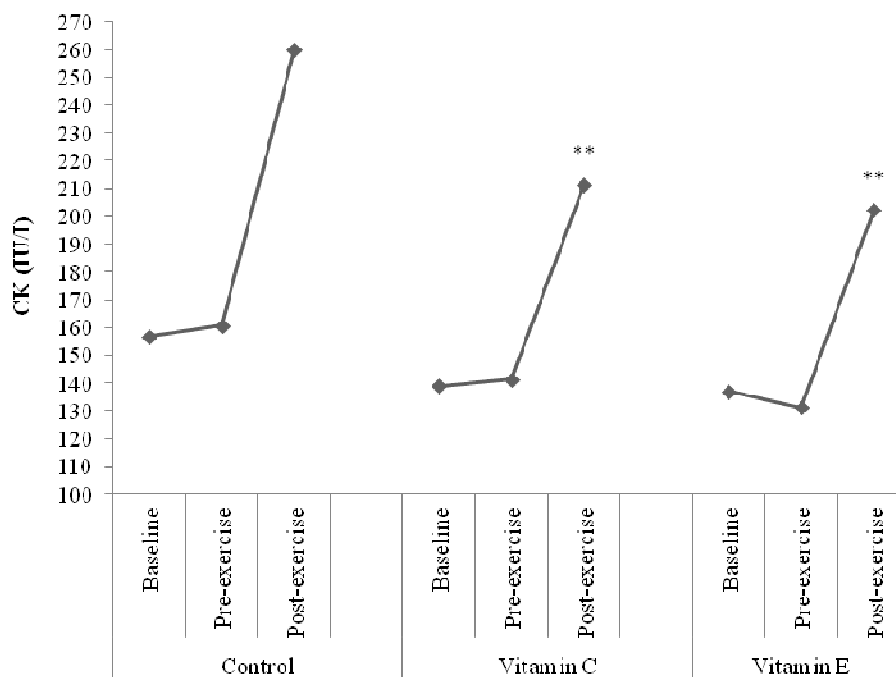


Figure 1. The effect of vitamins on CK under baseline, pre-exercise and post-exercise condition. *Significant at 5% probability level; **Significant at 1% probability level.

was indicated in the control group

There was significant difference between vitamin C and E and vitamin E had more significant effect compared to the vitamin C on the CK under both pre-exercise and post-exercise condition. Also, vitamin E caused to decrease the CK under the pre-exercise condition more than baseline condition (Figure 1).

Both vitamin C and E had significant effects on the MAD decreasing under pre-exercise and post-exercise condition but there was not significant difference between these two vitamins (Figure 2). Both vitamins had significant effects on the CK and MAD at 1% probability level under post-exercise condition (Figures 1 and 2).

Both treatments caused a significant increase in TAC under pre-exercise and post-exercise condition, although there was not significant difference between them. Also, both vitamins had significant effects as decreasing effect on the TAC at 5% probability level under pre-exercise condition (Figure 3).

DISCUSSION

The study results indicated that a four-week vitamin C and vitamin E supplementation program can significantly increase total antioxidant capacity (0.19 mm/l). Moreover, vitamin C supplementation increased antioxidant capacity after exercise (0.48 mm/l). Oberbach et al. (2010) indicated that 1000 mg consumption of vitamin C and 400

IU vitamin E for four weeks increases antioxidant capacity and prevents exercise-induced oxidative stress. The results showed that vitamin C supplementation significantly reduces malondialdehyde levels after exercise. Malondialdehyde is one of the main secondary products of lipid peroxidation (Padayatty et al., 2003). Bloomer et al. (2005) found that 1000 mg/day consumption of vitamin C for 2 weeks did not significantly changed malondialdehyde levels after a 2.5 h cycling session at 60% VO_2 max. Satchek et al. (2003) showed that 45 min of treadmill running at 75% VO_2 max and -16° incline after vitamin E consumption does not change MDA levels. Kyparos et al (2011) showed that vitamin E consumption does not significantly affect CK levels in rats. Satchek et al. (2003) illustrated that vitamin E consumption for 12 weeks had no significant effect on CK levels after exercise, but it increased peak CK levels. The results demonstrated that antioxidant vitamin C and E supplementation in soccer players may reduce lipid peroxidation and muscle damage during high intensity efforts (Claudio et al., 2006). The human studies were conducted with reasonable and otherwise practical dosages: 1000 mg/day of vitamin C and/or additionally 400 IU of RRR-alpha-tocopherol over three to eight weeks (Gomez-Cabrera et al., 2008; Ristow et al., 2009). It is noteworthy that supplementation with just vitamin C is not comparable to supplementation with a combination of vitamins C and E, even when concentrations of vitamin C are similar. In this respect, added vitamin E might

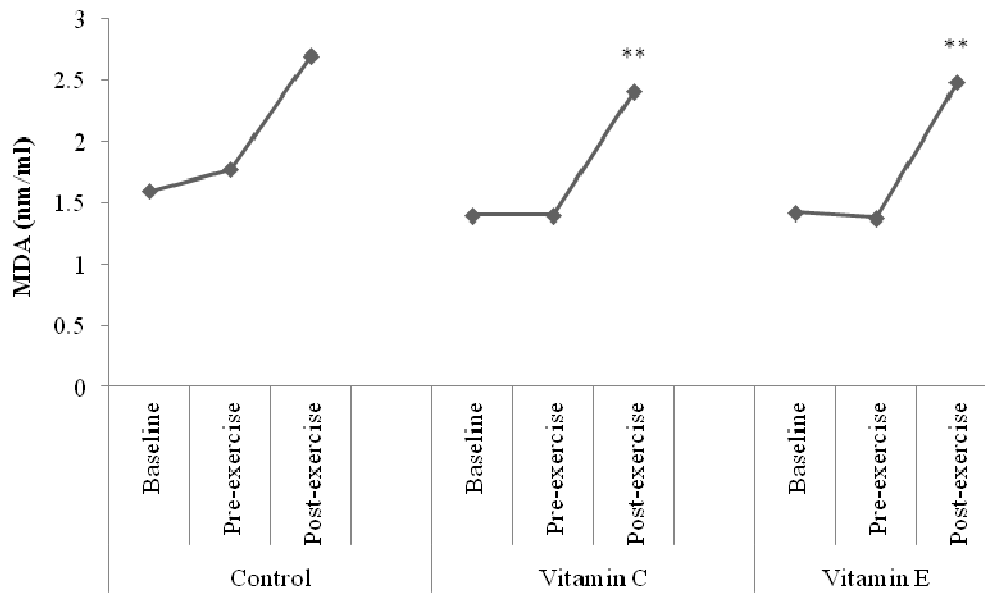


Figure 2. The effect of vitamins on MDA under baseline, pre-exercise and post-exercise condition. *Significant at 5% probability level; **Significant at 1% probability level.

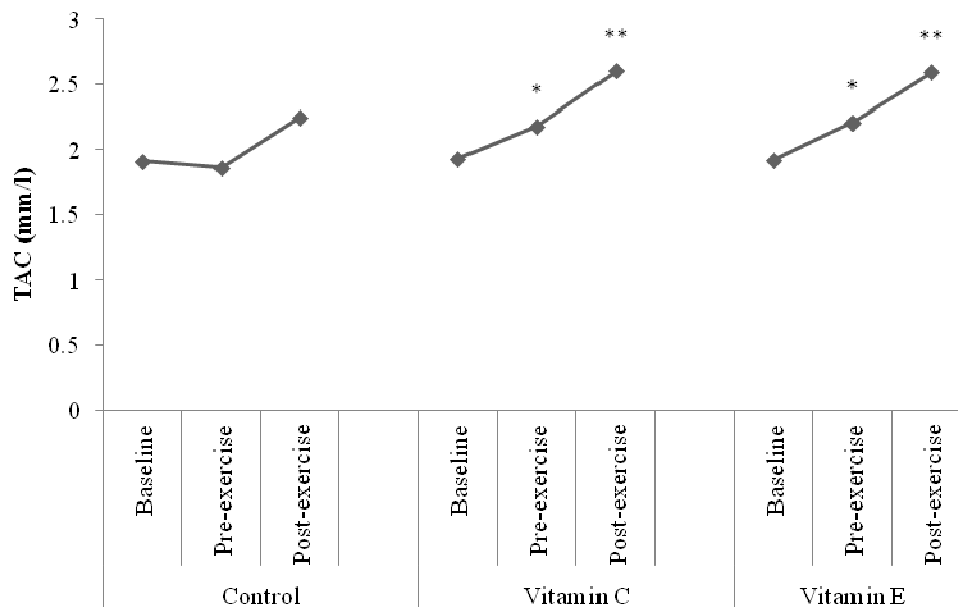


Figure 3. The effect of vitamins on TAC under baseline, pre-exercise and post-exercise condition. *Significant at 5% probability level; **Significant at 1% probability level.

change the impact on redox homeostasis due to its antioxidant and also prooxidant properties (Buettner, 1993).

Conclusion

This study extends previous research by exploring

researchers about different treatments about vitamins exercise interaction on the stress markers oxidative. In conclusion, it can be stated, this study results showed that four weeks of vitamin C and E supplementation increase serum total antioxidant capacity and prevent oxidative damage following exercise. Also, it prevents high increasing in malondialdehyde and creatine kinase levels under post-exercise condition. So vitamins

consumption especially vitamin E can cause to decrease the stress and its effect after exercise is more in compare to the before exercise. Future research can be focused on other markers of cell inflammation and the different times and doses of the supplements consumption. Also, it can be performed different exercise with different strong on the participations. Female groups can be participate for this test in sufficient time.

Conflict of Interests

The author has not declared any conflicts of interest.

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Full Length Research Paper

Teachers' professional ethics from Avicenna's perspective

Mohammad Hossein Heidari¹, Kamal Nosrati Heshi^{2*}, Zohre Mottagi², Mehrnosh Amini³, Ali Shiravani Shiri⁴

¹Educational Sciences Group, University of Isfahan, Isfahan, Iran.

²Philosophy of Education; University of Isfahan, Iran.

³History and Philosophy of Education, University of Isfahan, Iran.

⁴Philosophy of Education; Shiraz Farhangian University, Iran

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The purpose of this paper is to express Avicenna's standpoints in the area of teachers' professional ethics. Making use of a qualitative approach and a descriptive-analytic method, this study attempted to describe and analyze Avicenna's viewpoints on prerequisites of teaching profession by the help of the available resources. In general, the results showed that skillful teacher needs to possess admirable ethical characteristics in his individual and social dimensions. He should attempt to educate his own soul before making any effort in educating others considering some important points. It is better for him to have prudence in all his affairs. He should not try to educate anybody before being acquainted with his/her traits. He also should be generous and faithful toward the others. Eventually, it is expected from such a kind of teacher to gain a very high level of skillfulness in advising and guiding the learners.

Key words: Muslim scholar, Avicenna, teaching ethics, and education.

INTRODUCTION

Advancement and any kind of fundamental changes in a society necessitate a modification of educational system in that society, and the main component of advances in any educational system relies on the quality of teachers' performance. Being the most prominent element of education in developing students' educational, theological, emotional, ethical, political, and social dimensions, teachers may directly exert influence by playing a crucial role in educating the human resources needed for the society (Mirheydari, 2008). The "teacher" concept essentially differs from other similar concept such as "instructor" in that, teaching students is not the mere goal

for a teacher in the classroom. His/her goal is to educate students in all aspects. Teachers deal with the students' souls and minds. Their job is to manifest and develop students' talents. If the history of education is regarded as a science of "being" human, teachers have played crucial roles in this process of formation and evolution of "being". If we consider the education as a process of providing the underlying conditions leading to humans' development and getting balance, and regarding its goals as the actualization of humans' potential talents towards divine perfection and vicinity to God, teachers and trainers have played a crucial role in this respect.

*Corresponding author. E-mail: kamalnosrati1367@yahoo.com.

And, if we are searching for recognizing the factors which are influencing the development of humans' personality, making balance in his/her personality, and being acquainted with his/her body and mind, we should ask teachers who have served as such influential factors contributing to providing ethical, physical, social, emotional, and intellectual development in human (Mirheydari, 2008). This issue has been considered by so many scholars since a long time ago. Philosophers such as Farabi, Mulasadra, Avicenna and...believe that the role of teacher in educating children is not only conveying the concepts but also helping the students to acquire and learn the ethic, demanded habits, and values from their teachers; therefore, teachers must be acquainted with the methods of education (Farabi, 1985; Mulasadra, 1987). Avicenna has stated that: "the teacher should not only be acquainted with the methods of education, but he must be also insightful and discerning" (AbūAlī Sina).

As a matter of fact, in the past and now, teachers have made the children's minds valuable in the teaching-learning process and have attempted to help inexperienced people turn out to be quite well-educated, researcher, expert, faithful, and artist individuals in their work by utilizing art, science, experience, and being faithful to their job and loving their trainees. On the other hand, teachers should be well aware of the environment in which they are living, not limit their minds, actions, and capabilities to the circumstances in which they are. They should be creative, innovative and skillful in their job. They also should not confine their studies to some limited textbooks or handbooks they have been acquainted with in teacher training centers or during their work. The complicated and ever-changing modern world necessitates a constant learning, sensitivity, and creativity (Mirheydari, 2008).

One of the most major concerns of teachers is how to create appropriate condition for human being employed in all professions. Teachers lead and encourage the others to be responsible in their jobs, and to have complete commitment to societal and work-related issues, and to make them observe the dominant ethical principles in their professions (Bickzad et al., 2010). Therefore, communicational and ethical prerequisites should be existed in teachers' personality in order to enable them establish logical relationships and accurate conditions for communicating with their students. Teachers are responsible in making students ready to participate actively in the near future world. Teachers with more professional ethics will be more successful in conducting the society to reach its exalted goals. Thus, professional ethics plays an essential role against social and behavioral disorders (Bickzad et al., 2010). Due to their influential role in their surrounding environment, teachers are required to be equipped with ethical science and behavior, and be familiar with its principles. They also should possess moral virtues and divine etiquettes.

Teachers with professional ethics will make attempts to

enhance such factors as physical, mental, intellectual health, social responsibility, commitment, modesty, honesty, creativity, accuracy, bravery, generosity, and flexibility among their students. Moreover, such teachers will contribute to build security in their students, encourage them to make efforts in modern matters, help them recognize their values, pay attention to their issues courageously, establish good relationships, and eventually, lead them to a good faith in God, the Majesty. Accordingly, professional ethics among teachers may cause such ethics to transmit to students automatically, and the students will follow such teachers as a model in their affairs, and make efforts in prospering and elevating themselves and their future working conditions. So that, this leading to an enhancement of schools, and at a higher level educational organizations, and still beyond, in the society as well. Thus, possession of professional ethics may be considered as a success (Shakeri, 2011), since the teachers with such ethics will contribute to the societal development.

Hence, because of the highly important role and stance of teachers or trainers in an orientation toward educational activities, the present research attempted to examine the characteristics and prerequisites possessed by teachers from Avicenna's perspective, since nowadays it is felt essential to rethink of the works of great thinkers as an original Islamic-Persian model much more than before. Since he was the greatest Persian philosopher and physician in the Islamic world, his effect is more than other Islamic-Persian philosophers. Considering the role and importance of teachers' traits and characteristics, many books have been written by Islamic scholars; among them the book titled "Maniat Al Morid" by Shahid Sani lays emphasis on this issue (Hojati, 1987: 68). Avicenna is more influential in the field of education among Islamic scholars (Arafi and others 2007: 231). His ideas in the field of education and teachers as one of its important elements are so comprehensive including both personal and social aspects (Arafi et al., 2007: 231). Different educational systems, according to their cultural-historic contexts, try to establish desired educational strategies by relying on the scholars' view in their societies. Study and research on Avicenna's standpoints, as one of the main original Islamic-Iranian philosopher, may be highly important. Thus, the present research sought to answer the question "What are the characteristics of teachers' professional ethics from Avicenna's perspective?" Purposive sampling and documentary method of data collection and descriptive-analytic method of data analysis were used. A reference has been made to Avicenna's books in writing this research.

RESEARCH METHODOLOGY

This study was undertaken to find out teachers' professional ethics from Avicenna's perspective. This study is a kind of qualitative research. To collect the data, all of the related written works such

as books, essays, were studied. Therefore, researchers use purposive sampling and documentary method of data collection and interpretive-descriptive method of data analysis. Authorities believe that documentary method of data collection is the most comprehensive method among qualitative researches (Marshall and Rossman, 1998: 119).

Documentary method of data collection was done as follows.

Primary analysis

This step is the organization step in which, researcher firstly chooses and becomes familiar with the documents that will be analyzed later on through free reading and studying (Bardn, 1996: 107).

Extracting from documents and excavating meaning from the content

In this step, the categories and classes of related information should be gathered according to the general aims and unrelated information should be omitted (Flick, 2002: 240).

Descriptive content analysis:

In this step, the ambiguities will be clarified through the contextual materials and the context of analysis.

THE ANALYSIS AND INTERPRETATION OF THE RESULTS:

In the last step, the constructive content analysis will be done through investigating the results and descriptive content analysis and the questions will be answered based on the goals (Flick, 2002: 241). Therefore, in this study first of all Avicenna's written books will be investigated and through which the subjects related to the teachers' ethics will be taken in to consideration. In the next step, the articles which had been written by the others will be referred to and finally teachers' professional ethics will be described and presented.

Avicenna's biography

AbūAlī Sina Husayn ibn Abd Allāh (Avicenna) (980-1037), a Persian polymath who is regarded as one of the most significant thinkers and writers of the Islamic Golden Age, was born in Bokhara. Having acquired Holy Quran and Arabic literature at the age of ten, he attempted to learn some introductory sciences under the supervision of some teachers from his birthplace, Nateli. He improved his knowledge of philosophy and logic through study, and he turned out to be a professor in the medicine field after a short period of time. He achieved fame because of treating Amir Nuh Ibn Samandis. Afterward, he turned to some office work and joined Khwarazmian dynasty almost in 1003. Thus, he was appointed as minister in

Buyid dynasty in Hamadan and Isfahan for many years, not being safe from the troubles due to such challenging appointment (Bayhaqi, 1932, pp 38-58). In all, Avicenna's life was replete with efforts, activities and changes; he was continually busy with studying, teaching and writing books having a wide range of works. In Juzjani's words, while not holding any textbooks or reference books with him on some trips, Avicenna wrote about 50 pieces of paper a day representing his powerful memory, creativity and persevering efforts in writing. In the bibliographies, Avicenna is considered as possessing 100 books or more than this. In a comprehensive outline made by Mahdavi; a number of 131 original writings written by him and 111 works attributed to him have been stated (Mahdavi, 1934). His most famous works are *The Book of Healing* which is a vast philosophical and scientific encyclopedia and *The Canon of Medicine*, an overview of all aspects of medicine that became a standard medical text in many medieval universities. Teaching, studying continuously, enjoying entertainment, traveling, going to prison and authoring, sometime excessively, made him unable to keep himself healthy in such a way that at the time of being affected by adult colic, he was incapable of resisting against it and he suffered a relapse on his way to Hamadan. He attempted to provide himself with self-cure for some time. However, at the time of entering Hamadan, he abandoned self-cure, and after some days, he passed away on the first Friday of Ramadan Month in 1037 at the age of 58 and was buried there (Ibn Athir, 1987; the 8th Vol. p. 225; Safa, 1952; the 1st Vol. pp 37-38).

The concept of professional ethics

In the past, professional ethics were used as job and work ethics. Today various definitions have been presented for this concept:

- A) Work ethic which is the commitment of individual or group's mental, psychological and physical energy the idea of community in order to obtain power and talent within the group and individual for the reason of development.
- B) Professional ethics is one of the branches of the new morality that seeks to answer various professions and ethical issues and considers certain principles for that.
- C) Professional ethics precedes the issues and questions of ethics and principles and moral values in a system of professional ethics in the professional environment.
- D) The purpose of professional ethics is a set of rules which should be followed voluntarily and based on conscience.
- E) Individual ethics is an individual responsibility for his/her behavior.
- F) Professional ethics includes a series of value judgments, orders to carry out one's duties and behavior

(Gharamaleki, 2001: 39).

The definition of professional ethics is as follows:

1. Professional ethics is a common behavior among professional people.
2. Professional ethics is time management of human attitudes and behavior when doing professional work.
3. Professional ethics is a field of study that deals with the study of the employment relationship.
4. Professional ethics is a set of rules derived primarily from the nature of profession (Hosseini, 2006: 59)

There are two characteristics common in most professional ethics definitions:

- a) The existence and importance of individual approach in carrying out their responsibilities;
- b) the individual's job responsibilities and moral obligations. These characteristics, are both very important and each person requires to follow it in order to do his/her job and duty.

The importance of having a teacher and professional ethics in the process of education is one of the important needs of society.

Teachers' professional ethics

From Avicenna's perspective, anyone who wants to educate others must know what characteristics a trainer should possess, and which capabilities he/she should own and which activities he/she should do in order to be successful in educating the trainees. Such characteristics have been examined below:

Teachers' temperamental characteristics

Avicenna believed that not anyone deserved to be an educator, the educators should possess multiple characteristics and features, as mentioned below:

In terms of individual ethics, educators should possess good qualities and avoid vices. "They should be modest, patient, generous, have pure soul, and be free from light-headedness" (Avicenna, 1929: pp 37-38). It is obvious that anyone who is deprived of good and deserving ethics will fail to train such ethics in trainees.

Regarding social ethics of the trainers, Avicenna pointed out:

"Trainers should possess excellent ethics not only individually but also in relation to other people. They should communicate with the major figures being cognizant of their behaviors and codes of life and of others' life styles. Also, they should know manners of

eating, manners of companionship and rules of etiquette" (Avicenna, 1929: p. 38).

Probably, in this way he wanted to make us aware of the fact that trainers are obliged to make children ready for their future social life and training them according to social traditions and customs.

Soul purification

Considering teachers' professional ethics, it is obligatory for the teachers to purify and train themselves before doing any efforts in educating and training their learners. Avicenna said:

"the very first activity humans are advised to begin with, is to purify themselves; that is, they should initially make efforts in purifying their own souls, make use of their considerations and policies in that, and make themselves pure and sincere because human soul in the nearest and the most respected matter to him/her, and amongst other things, it most deserves attention and concern. It means that anyone who is capable of performing good ethics and of purifying himself/herself, he/she may be allowed to go beyond this and attempt at a government of lands and society; i.e. the one who has managed to purify himself/herself can go further and contrive the people's affairs" (Avicenna, 1946: p.17).

Therefore, in order for anybody to be qualified enough to be a teacher and to educate others in such a way and making them be aware of their duties and helping them reach prosperity, they themselves should be worthy of a high proportion of knowledge, wisdom, good ethics and deeds. As a matter of fact, it is not at all an easy task to become a boss, manager and purifier of one's family and its members; it is indeed a challenging task and a very invaluable position. Trainees' extent of intellectual development, righteousness, nobility and prosperity is dependent on the scientific and practical qualifications of that person attempting to train them. One major cause of wretchedness amongst several trainees is the absence of such fine characteristics in their trainers. Anyone attempting to educate and nurture trainees must possess such necessary qualifications and competencies. Thus, just as a self-purified person is able to, i.e. is deserved to, take actions to purify others, anyone having failed to purify themselves are not capable of purifying and improving others.

Certainly, self-purification itself necessitates some prerequisites which will be examined below:

Dominance of intellect over soul

Avicenna said:

“It is necessary for anyone who wants to perform ethics to know, amongst other things and in the first place, that he/she owns intellect which is responsible for governing his/her whole body, and he/she also owns a soul which often incites him/her to evil deeds, and that such soul, in its nature and its initial creation, has many deficiencies and evil features, and this soul must be governed by intellect” (Avicenna, 1946: p.18).

In fact, it can be said that in case humans leave their souls alone away with itself and do not govern it with intellect, such soul will lead them toward evil deeds. The cause behind this is quite clear in that when soul does not obey the intellect, it will definitely follow passions, anger and desires. The influence exerted by following one’s whim of soul on his/her leading to possession of recalcitrance and evil qualities and to wretchedness is quite obvious for everyone.

Recognition of the soul’s negative properties

Recognition of soul’s negative properties has been regarded as a prerequisite to soul purification from Avicenna’s perspective. He stated:

“For anyone who wants to attempt in self-purification and performs ethics, it is not logical to do that unless he/she managed to recognize all negative and evil properties of soul, otherwise if ignoring some of them, this resembles the situation in which there is a wound in the body which has been apparently repaired, but in fact, some infection still remains in it; and such infection would be strengthened again leading to a relapse of that wound, the infection hidden under skin would again refresh and become evident on the surface of skin”(Avicenna: 1946: p.19).

Accordingly, teachers are initially required, in an attempt to soul purification, to recognize the negative properties of their souls. As a matter of fact, soul purification is fully achieved whenever it accompanies a thorough recognition of soul’s negative properties. So that if one is to perform soul purification, he/she must first know his/her negative properties, this will make them concerned about such properties and encourage them to overcome and remove them.

Recognition of good and bad ethics and making a comparison of them with those of oneself

Trainers or any other one, attempting to purify their soul must first well recognize good and bad ethics and go through an assessment of them. Avicenna wrote:

“anyone who wants to modify his/her ethics and habits

should get aware of other individuals’ ethics and properties and comparing them with those of himself/herself and knowing that he/she is just the same as the others. The human beings are all similar to each other. If they recognized any good ethics in others, they should be sure of the point that such ethics exist in themselves whether obviously or secretly. If they are obvious, they should take care of them in order not to lose them; and if they are hidden, they should make them appear and active and avoid any ignorance; thus, such ethics will be at their service at any time needed or demanded” (Avicenna; 1946: p.27).

On the other hand, if they see any bad or evil properties, they should be well aware that a tendency toward such properties does exist in them too whether overtly or covertly. If they see them as being obvious and clearly noticeable, they should try to overcome them absolutely and eliminate them from their soul through a scarce use of them and a frequent attempt to forget them; and if they recognize them as being hidden, they should try to keep them unnoticed, avoiding them to be obvious through taking care of their soul (Avicenna; 1946)

Accordingly, successful trainers need to make an evaluation and assessment of their properties and moods. They should make the good properties evident in their personalities and avoid the evil ones. Since the teachers play a crucial role in education, they may exert huge influence on trainees; besides, trainees will regard their trainers as a model in their lives. Accordingly, before making any attempt in purification of others, trainers must make efforts to purify themselves trying to reach or approach those criteria expected to exist in any perfect human.

Regarding reward and chastisement for soul actions

The consideration of reward and chastisement for actions originated from soul is among other factors influencing soul purification from Avicenna’s perspective. Avicenna believed that:

“It is desirable for humans to regard both reward and punishment for their soul in order to make them able to govern their soul. In this way, if their soul showed a good obedience in acceptance of virtues and avoidance of evil qualities and was easily guided to the straight path, it will receive good rewards through being praised fluently and allowed to make profit of some pleasures.” (Avicenna; 1946: p.28)

Of course, it is obvious that praising soul for its attempt at a good deed and acceptance of virtues is regarded reasonable to the extent leading to an encouraging one to move toward more development and purification; nonetheless, if it resulted in proud and egotism, it will not

be a good exercise. A wise and watchful person should be, in all respects and situations, well aware of the all blessings are granted by God, and know that all virtues or scientific and practical success they will achieve or any prosperity they will reach are granted by God to them; besides, reaching prosperity is one of the major blessings granted from God.

However, if the soul avoids the acceptance of good qualities and deeds, and does not obey well, and shows disobedience and prefers evil qualities over good ones, one should punish it through a frequent criticism, severe regret and avoidance of pleasures in order to make it obedient (Avicenna; 1946). Thus, to perform correction, it is better to make one's disobedient soul occupied with some religiously-allowed ascetic discipline and good and profitable deeds, since such self-discipline will make humans move toward righteousness and prosperity.

Seeking help from a knowledgeable friend to purify the soul

In many cases, anybody attempting to perform soul purification will fail to recognize his/her own negative characteristics of the soul to remove them. Regarding this, Avicenna said:

"one's recognition about of his/her soul may not be assured of, since humans are not clever enough to come to a recognition of their own negative characteristics; they are indeed slow in this respect; moreover, they are not accurate and exact enough in self-examination of their good or evil characteristics and they may ignore them to some extent. Still, there exists another reason behind this, which helps much to this lack of assuredness that is the humans' intellect which remains unsafe of being interfered with whim of soul whenever regarding their inner qualities and moods. Thus, with the reasons stated above, anyone who wants to recognize his/her good or evil characteristics and to search for his/her evil qualities needs to have a wise friend who is able, just as a mirror, to show his/her good and evil deeds as they really are" (Avicenna; 1946: p.20).

For finding such a friend, there still exist another very important prerequisite that is to be a religious one. One may have more confidence in the mind, intellect and emotions of those individuals being wise and faithful to religion than those being atheist, not believing in God and the Hereafter. Besides, such atheist individuals will not consider any divine effect in the Hereafter exerted by any goodness or badness except that merely occurred here in the earthy world. How can one say that the passions, anger and whim of soul of such people will not influence their reason, emotions and feelings? Religion, knowledge, wisdom and experience all confirm the fact that atheism is an origin of ethical corruption and lack of wisdom and

reason on one hand, and the strengthening of passions in the soul on the other hand. Thus, the talks of anybody being not faithful to any religion about soul purification, just as in many other aspects of material and divine life, may not be reliable. Thus, one major prerequisite regarded for anybody to be a profitable friend of us is to be a religious. "One important point to be made here is that the religion which is making friends' reason and speech worthy of being relied on, is the true one, not that of falsehood or of superstition. Since a void and false religion will cause reason, perceptions and emotions go astray and lead to corruption, it must be avoided. Religious individuals must be a follower of a real religion and gain some knowledge in it; i.e. they should be familiar with truths existed in a true religion" (Avicenna; 1946).

Hence, the following note delivered by Avicenna clarifies his view of having a religious friend: "If one establishes his/her speeches and interactions on the basis of religion and generosity and finds his/her way through by their light, he/she will never go astray" (Avicenna; 1946: p.28). Thus, it may be stated that trainers or any other individuals attempting to exercise righteousness and purification in the others, firstly must make efforts to purify themselves. Since self-purification often comes to failure in many cases due to some ignorance or any other reasons, individuals are required to seek help of their wise friends in searching for their own evil characteristics and select a friend as guide in such a way that can be relied on his/her help and guidance on their way toward soul purification. From Avicenna's perspective, such a friend is that of faithful to a real and true religion.

Good prudence

Since Avicenna held the view that good prudence is an essential element for anybody, one may state that one prerequisite for teachers is good prudence in their administrating the classrooms. He said:

"After kings and commanders, those having some blessings and the favorites and their servants governed by them, should observe good prudence more than others in their affairs; likewise, the managers of families; i.e. the fathers of a given family for example, should follow good prudence in their deeds and affairs." (Avicenna, 1946: p.8)

In other words, good prudence is essential for everybody regarding his/her working conditions, and it is a kind of duty for anyone. "In fact, the smallest and the least important member of a society need a good politics, good administration, much thinking, correction, modification, guidance toward the Straight Path and restraint from the Wrong Path, just as a mayor or governor needs to" (Avicenna, 1946).

Therefore, since teachers' job is to educate trainees and to activate their potentials according to the predetermined goals, and they are under the supervision of teachers, it is really more essential for them, than for any other people, to perform good prudence with respect to their stance and important position.

Reaching a comprehensive recognition of the trainees

From Avicenna's viewpoint, the third element trainers must possess in purifying the others' soul is recognition of trainees. He said: "anyone attempting to remove and correct any evil quality is required to recognize and know such qualities completely. If such a person lacks these qualifications, his/her act of purification will not be regarded as reliable" (Avicenna, 1946: p.18).

Further he stated:

"a professor teaching figures of speech should know that he/she cannot teach any given student any type of figure of speech; indeed, each of students has the capability of learning a particular figure of speech quite distinct from that of to be learned by others; thus, any of them should be taught a special figure of speech appropriate to his/her talents and interests; otherwise, this task will fail to result in a desirable outcome. The reason for this is that if all individuals were capable of learning all figures of speech, they all would possess knowledge of literature and figure of speech. Still, the other reason is that the learning of some traditions and sciences is easy for some tribes or societies, while it may be challenging for some other people. Hence, one may see that some individuals seek to learn rhetoric, some other try to learn syntax, still some other seeking poetry and again other individuals seeking oration. Anybody follows a major related to his/her interests; and going beyond linguistics-related majors, we again see that some are interested in medicine, some other in geometry. Here again it is observed that all people in any social class adopt a major consistent with their talents and interests to study and follow" (Avicenna, 1946: pp 47-48).

The real reason for such adoptions or selections is quite unknown to humans and human understanding fails to grasp it; it is something incomparable and invisible, no one knows it except God. Accordingly, before any attempt at teaching, teachers should first try to assess their students' talents and interests and examine their intelligence. Then, they can select those arts and figures of speech appropriate for them according to their interests and talents. Next, they should gain some information about how their students are interested in that field selected for them. Furthermore, teachers should come to the awareness whether they have any background knowledge in that field or they are totally

inexperienced in that, and whether the available equipment or technology is consistent with their moods or not? Then, teachers do their best; in this way, they will concentrate on the principles of reason and thought (Avicenna, 1946).

According to the above, one may conclude that the role of teacher or trainer in trainees' education and fate is quite evident in all of their developmental stages. Trainers, in order to educate and purify trainees and to help them move toward prosperity, need to establish a deep relationship with them and reach a comprehensive recognition of them.

Whenever teachers gain success in recognizing the students' characteristics and talents, they will be capable of attempting at their guidance in the best way possible through exact administration. Therefore, any constructive effort toward educating trainees is merely possible through a comprehensive recognition.

Behavior based on religion and generosity

Avicenna himself was faithful to religion, since whenever encountering a challenging issue, he went to mosque and said prayers seeking help from God in order to resolve his problems (Safa, 1913: pp 29-30). Thus, in his opinion, it was essential for trainers to exhibit behaviors according to religion and generosity in education and purifying the trainees. Regarding this, he said:

"Whenever you base any of your speeches, meetings or parties upon religion and generosity, your duty will be to observe the limits and rules of religion and generosity, and behave according to them not anything against them. With such supposed basis and its light used on your way onward, they will never go astray, or come across challenging issues and obstacles, since, in this case, your partner is nobody except one of the types below: he/she may be confident, and may communicate with those friends being far away from imprudence and impetuosity. If you give such people pieces of advice and make them aware of their evil properties, you do a good deed for them and they will appreciate it. Even if such individuals show some proud at the beginning, they will like you after thinking carefully and thoroughly about it and recognizing its importance because of your advising behavior. On the other hand, if you face an impetuous and aggressive person, you will fail to make a friendship with such an individual whether you agree with them or not" (Avicenna, 1946; p.24).

Accordingly, within a system based upon Avicenna instruction, religion is expected to dominate all structures of educational system and all teachers or trainers are required to behave toward learners or trainees according to religion and generosity in educating and purifying them.

Recognizing how to give advice

The great wisdom of education lies inherent in advices. Guidance and advice are of positive and valuable administrations of education. Educators and parents, reformers and authorities of an Islamic society will make profit of guidance and advice in educating their children. No one can claim to be free from want of guidance and advice. One of the human's responsibilities and rights toward each other is giving the others advice and remembrance.

In addition to consider the importance of guidance, Avicenna has noted how to perform guidance in his works. He stated:

" to give guidance is not to do it without caring about its appropriate methods and ways; indeed, it is wise to select counseling method in giving a wise person advice. One should make a smooth friendship with such people, as though he/she is treating with a wound in his/her body; in such a case, he/she will cleanse the wound very smoothly. Moreover, we should talk to them in the most private and convenient places in giving them advice. In making them aware of their evil characteristics, inference and indirect talk will work much better than explicit talk; exemplification in speech is much more beautiful than saying it obviously. Having taken this way, if you see the person receiving guidance is eagerly listening to your talks and accepts them, attempt to give him/her your advice completely trying not to leave anything essential untold. However, do not forget to avoid any talkativeness or exaggeration or making them bored. Moreover, do not try to highlight your own idea and let your opinion incorporated in their heart allowing them to think about it carefully guessing what will happen in the end. On the other hand, if you see your partner and friend does not pay attention to your talks, stop your talks making them think that you do not intend to stop talking; indeed, you have something to do, for example; and postpone giving them advice to a later time whenever they are eagerly ready to receive that" (Avicenna, 1946: pp 25-26).

A right and profitable speech always influences hearts. Human are fond of trueness and profits in nature. If speakers give others advice with good intent, fair thought and good-temperedness and on time, it will definitely work. Even if the listeners are not ready to accept it at the time of receiving it, such advice will absolutely influence their heart; just as a seed hidden in soil will waits for a suitable time for growing up. Such true and profitable speech will be placed in their heart waiting for an appropriate time to flourish and attempt at purifying and correcting their heart, mind, action and behavior. The strength and abilities of a true and profitable speech is not less than those of a seed hidden in the soil under the ground (Avicenna, 1946).

Accordingly, speakers should try to speak a true and

Profitable talk delivering it through good intent, good-temperedness and smoothness.

Thus, educators and trainers should try to purify and correct their trainees' heart, mind and behaviors by being familiar with principles and methods of how to give guidance and advice.

Conclusion

Development of any given society owes to education system of that society. The flourishing and dynamicity of education also depends on the performance quality of teachers in that society. With regard to the pivotal role played by teachers in constructing society, it is appropriate for authorities of education to select teachers with a particular sensitivity. They should try to select the teachers having special scientific, ethical and personal characteristics, so that they will succeed in educating the next generation. Educational authorities in charge should evaluate teacher performance at a suitable time doing their best in removing their weaknesses and in strengthening their performance. Accordingly, in the present research, researchers attempted to examine the teachers' professional ethics from Avicenna's views in order to elucidate what criteria he considered a teacher must possess in educating the learners or the trainees. The results obtained are as follows:

1. From the very beginning, in terms of personal ethics, teachers or trainers must possess good qualities and be free from evil qualities. They should be generous and have pure soul. In terms of social ethics, they are required to exhibit desired ethics in facing others in the society to be aware of the way and quality of other individuals' life style, ethics and behavior and gain a high level of skill in interacting with others. Avicenna believed that the role of teacher in educating children is not only conveying the concepts and meaning but also helping the students to acquire the demanded ethics, habits, and values. He believed that the teacher must be insightful and discerning. Therefore the education system must be careful in choosing a teacher. This idea is so agreeable with Gazali's number¹ view on education. Gazali believed that a teacher is responsible for the students' prosperity and adversity (Gazali, 1947: 67). He also stated that: "a teacher must be patient, tolerant and modest toward the weak students (Ali, 2005: 120).
2. It is necessary for teachers or trainers to make efforts to purify and correct their own soul before any attempt at purifying and correcting others. This idea is so agreeable with Suhrawardi² and Mullasadra's³ view on education.

¹ Gazali, Mohammad is one of the great muslim philosopher.

² Yahyo Ibn Habash Shahab Al-Din Suhrawardi opened his eyes to the world in the North of Iran in 1153 (Corbin 2003, 30). He has passed most of his life in

Suhrawardi believed that a good teacher should have a pure and wakeful soul to make him able in guiding the students (Suhrawardi, 2001: 249). Teacher should purify his apparent and interior parts of his character from contaminations (Mulasadra, 1987: 299). Therefore purification is achieved whenever the teachers consider some points, do some actions and follow certain steps such as:

- a. Soul must be merely governed under control and administration of intellect to keep it safe from passions, anger and whim of the soul.
- b. Getting familiar with soul's satanic features and evil qualities and trying to remove them.
- c. Recognizing good and bad ethics in the others' personality and comparing them with those of themselves, and trying to establish good ethics in their soul.
- d. Regarding some reward and punishment for good and bad deeds of the soul.
- e. Seeking for a knowledgeable friend's help in the process of soul purification and regarding that one's cognition of his/her soul is not worthy of being trusted; thus, it is essential to seek for a friend's help who is faithful to religion and reliant on trueness and wisdom.

3. Good prudence is another prerequisite in teaching profession; in other words, good prudence is essential for them, than for any other people, to perform good prudence with respect to their important position in the society.

4. Teachers need to establish a deep relationship with the learners and reach a comprehensive recognition of them in order to educate and purify them. Any constructive effort toward educating the learners is merely possible through a comprehensive knowledge about their points of weakness and strength.

5. Teachers' behavior must be based upon rules of religion and generosity. Religion is expected to dominate all structures of educational system and all teachers or trainers are required to behave toward learners or trainees according to religion and generosity in educating and purifying them.

Therefore Avicenna's above ideas and thoughts are so much agreeable with other Muslim scholars such as Farabi, Gazali, Suhrawardi, and Mulasadra. All of these philosophers brought up subjects about human being growth and education from which many detail prescriptions can be concluded. They also put emphasis on the importance of the teacher role and his/her moral traits.

haplessness and anxiety away from his hometown caused by the crusades (Abvariyan 1993, L10).

³ Sadroddin Mohammad known as Mulasadra (1561-1632) is one of the great Muslim philosopher.

They considered teacher as an influential and important example of truthfulness, honesty, trustee, purity a being congruent in speech and act (Farabi, 1985; Gazali, 1947; Suhrawardi, 2001; Mulasadra, 1987). What makes Avicenna different from the other Muslim philosophers and scholars in this field is that he has allocated a separate chapter to this issue in his writings.

Conflict of Interests

The authors have not declared any conflicts of interest.

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Full Length Research Paper

The validity and reliability of Turkish version of fair play questionnaire in Physical Education (FPQ-PE) and an implementation

Nevzat Mirzeoğlu

Department of Teaching Physical Education, School of Physical Education and Sport,
Abant İzzet Baysal University, Turkey.

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The study was primarily carried out with the aim of adaptation of Fair Play in Physical Education Questionnaire (FPQ-PE). In addition, the adapted questionnaire was implemented on Turkish children and youth aged between 11 and 18 and the results were presented. The questionnaire originally adapted by Hassandra et al. for Greek students was adapted in four stages. 672 secondary and high school students from 11-18 age group participated in this study. The first stage was translation, the second stage was exploratory factor analysis for the validity of the questionnaire and the third stage was confirmatory factor analysis. At the fourth stage, the reliability was tested. Finally, another implementation was practiced on a new sample formed by 250 students from the same age group and their fair play scores were determined in terms of gender, school and class variables. The results showed that the questionnaire was valid for Turkish children and youths aged between 11 and 18, reliable except for one sub-scale and could be accepted as a practicable questionnaire. Furthermore, it was found that the main effect of gender and class of the students had significant effect on all sub-scales of fair play in favor of girls; at the same time, the class variable indicated a significant effect on gamesmanship and cheating sub-scales in favor of lower class (antisocial).

Key words: Physical Education, Fair Play, Fair Play Questionnaire

INTRODUCTION

Modern sport originated in Great Britain as a cultural product of modernity, emphasizing equality and competition. Fair play was the moral creed of the new sporting ethos, created by 19th century upper and upper-middle class Englishmen (Renson, 2009). Due to gradual increase in commercial and political expectations from sport in 20th century, moral expectations remained in the

background, which caused the amateur spirit fell behind in relation to ever strengthening professionalism. Through this period, the fair play perception has been transformed into a virtue of only following the rules from a degree which points out high humanitarian values such as sustaining and protecting equal competition and opportunities, respecting the sportive opponent as an

E-mail: nmirzeoglu@yahoo.com.

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equivalent actor like their own as well as his physical and mental privacy, avoiding gamesmanship (Yıldıran, 2007). However, the sport still holds the notion of effecting whole human being as an activity which includes not only tolerance, equality, discipline, virtue, joy, rights, law, happiness, love, respect but also grief, sorrow, stress (Pehlivan, 2004). The philosophy of the sport is sportspersonship and fair play (Yapan, 2007). Fair play is not only an essential element of sport, it has also become a more general philosophy of respect for others and respect for rules, whether on the sporting field or in business or other competitive endeavours. Publications such as Sigmund Loland's *Fair play in sport: a moral norm system* (2002) and the creation of a wide range of national and international fair play committees, trophies and prizes, underlines the relevance and importance of fair play for sport and society (Renson, 2009). Fair play is doing the sport in an amateur way (Yıldıran, 2004) and a kind of moral code leading the way to the sportive behaviors. Thus, the concept of fair play is the sum of social and moral values delivered to individuals through sport (Hassandra et al., 2007). Fair Play is a world-view that depends on respect to opponent, teammates, spectators and public. This view is based on the philosophy of "not demanding to win no matter what it takes, refusing to be successful if required" (Yapan, 2007; Şahin, 1992; cited by Şebin et al., 2007). Following the rules also includes equal opportunities, avoiding gamesmanship and respect to the authority of the referee (Yıldıran, 1992). The Fair play concept requires players not only to esteem game rules unconditionally and unexceptionally; beyond this, it also requires competitive sports to be played in a particular spirit (Yapan, 2007).

Fair play should be thought as a big life discipline that needs to be taught in primary school. From sportive comment to a very detailed sportive technique, that this main principle should not be left needs to be described to people (Gökçe, 1991; cited by Arıpınar and Donuk, 2011). A central concept within Sport Education is fair play. Fair play represents social skills such as (a) the accomplishment of class expectations, (b) the effort students put forth in terms of their engagement, (c) respecting other students' rights to learn and to participate, (d) being supportive with peers and playing by the rules, and (e) demonstrating respect for the roles of opponents and referees (Vidoni and Ward, 2009). Advocates of Physical Education and Sport (PES) have listed numerous benefits associated with participating in these activities. For example, Talbot claims that Physical Education helps children to develop respect for the body—their own and others', contributes toward the integrated development of the mind and body, develops an understanding of the role of aerobic and anaerobic physical activity in health, positively enhances self-confidence and self-esteem, and enhances social and cognitive development and academic achievement

(Bailey, 2006). Siedentop (1994) stressed that in sport education, 'The biggest lesson is to play hard, play fair, honor your opponent, and accept that when the contest is over, it is over. What matters most is taking part fairly and honorably, irrespective of which individual or team wins or loses' (Sidentop 1994; cited by O'Donovan et al., 2010).

The importance of physical education and sports courses in schools in teaching and acquiring Fair play concept for children and youths cannot be ignored. In view of curricula of physical education and sports courses in Turkey from primary school to high school, it can be seen that they include affective objectives as well as cognitive and psychomotor objectives and developing fair play apprehension is underlined. Fair play was described as one of the principals forming the curriculum in "Play and Physical Activities" course curriculum developed for 1st - 4th class in primary school in 2012. It stated that "it is aimed to develop a sporty thought of game and competition" (ME, 2012). Besides, fair play was described as one of the principals forming the curriculum in Physical Education and Sport course curriculum developed for 5th - 8th class in 2013. It also claimed that "it is aimed to develop a sporty thought of game and competition" (ME, 2013). Furthermore, fair play was emphasized in "Sport Culture and National Awareness" course curriculum for 9th - 12th class as "Virtue in Sport".

When we look at the literature, Hassandra, Bekiari and Sakellariou (2007) found that there was a positive relation between teachers' verbal aggression and students' antisocial behaviours; on the other hand, there was a negative correlation among students' acceptable social behaviours. Vidoni and Ward (2009) observed the effect of fair play education during rugby unit in physical education course and found that this education increased active participation in the lessons and reduced the number of aggressive behaviours. Şebin et al. (2007) studied the views on fair play of university students who did sports and identified differences depending on the gender, the branch of sport, and the faculty variables.

Considering a variety of sportive activities in Turkey, fair play thought is not recognized by most of the people and they occasionally demonstrate behaviours inappropriate to fair play in sport events. It cannot be denied that physical education and sport courses are highly important for fair play to be internalized and become behavior. However, there is a need for a new instrument to measure how effective these lessons are on students' fair play thought in Turkey. Because of this reason, the aim of this study is to adapt Fair Play Questionnaire (FPQ-PE) to Turkish, that was originally named "Fair Play in Physical Education Questionnaire" (FPPEQ) and developed by Hassandra et al. (2002), and determine whether it is suitable for Turkish children and youths aged between 11 and 18. Another aim is to carry out an implementation and submit the results. The

permission of Hassandra who is the developer of original questionnaire, was requested by email to translate and adapt the questionnaire to Turkish.

METHOD

Participants

672 secondary and high school students from 11-18 age group studying between 5th and 12th class in 2013-2014 academic year fall semester in Düzce and Bolu provinces participated in the phase of questionnaire development (pilot study). Two different samples were designated for pilot study. 372 students from secondary schools in Düzce and Bolu provinces were reached through convenience sampling method (easy-accessible method) for exploratory factor analysis and 300 students from the same schools were reached for confirmatory factor analysis. First of all, to carry out the pilot study, permission of school principals was taken. Then an interview with PE teachers was made to explain the details of study. This questionnaire was applied by PE teachers to PE classes to get self evaluation of students. That is why consent forms of parents and students were not asked.

It can be seen in the literature that there are different approaches related to sample size for factor analysis in studies of developing and adapting instruments. Worthington and Whittaker (2006) noted that a sample of 300 individuals is enough in order to reveal multi-factor designs for reliability, yet Kline (1994) stated that a sample of 200 individuals is sufficient. Furthermore, Kline (1994) suggested that the subject-item rate needs to be 10:1 in determining sample size. He also stated that this rate can be reduced, but it should be kept minimum 2:1.

Data collection instruments

Fair play in Physical Education Questionnaire – FPPEQ: Based on the conceptual structure of the questionnaire developed by Hassandra et al. (2002), its components (Butcher and Schneider, 2001; cited by Hassandra et al., 2007; M.S.O.S. (Multiscale Sports-personship Orientation Scale; Vallerand et al., cited by Hassandra et al., 2007) Fair Play in Physical Education Questionnaire is developed to assess Greek students' conception of Fair play. Scales of fair play and the items representing it were structured in accordance with physical education courses in Greek schools.

The questionnaire consists of 16 items assessing four scales (two pro-social and two antisocial) most applicable in physical education; in particular, respect toward teammates (e.g. "I praise the good efforts of my teammates"), respect for conventions (e.g. "I shake hands with opponents no matter if I lose or win"), cheating (e.g. "I cheat if it helps me win"), and gamesmanship (e.g. "I try to upset the opponents") (Hassandra et al., 2002). The questionnaire is assessed in 5-point Likert scale (1=never, 5=always) (Hassandra et al., 2007). The validity and reliability of the questionnaire was conducted by Hassandra et al. (2007). In this study, the results of factor analysis in 10-12 years old sample supported that the questionnaire had 4 sub-scales; it was filled in three times as pre-test, post-test and retention test, and through this data, it was determined that internal consistency coefficient was between .66 and .89 (Hassandra et al., 2007). These findings showed that the reliability of the questionnaire is at a sufficient level.

Hassandra et al. (2007) suggested 3 ways to calculate the score of the questionnaire: 1. Calculate the means for each factor (4 scores) (suggested for pre-post measurements on interventions)

there is no need to reverse any of the items. 2. Calculate the means of all the prosocial items (respect toward teammates and conventions) and then the scores of all the antisocial items (gamesmanship and cheating) 2 scores (suggested for interventions, cross-sectional or longitudinal) there is no need to reverse any items. 3. There is also the possibility to calculate one total score for all items but in this case you need to reverse the antisocial items' answering scale (suggested for interventions (secondary-not the main measure), cross-sectional or longitudinal studies) (Hassandra et al., 2007).

In this study, the first way was chosen for scoring and the assessment was done separately for each scale. For this reason, that the students get higher scores from the first two scales were accepted as positive, yet for the other two scales, it was students getting lower scores what was accepted as positive.

The process of developing the questionnaire (Pilot Study):

The process of the adaptation of the questionnaire in Turkish is presented respectively.

Translation stage: For conducting validity and reliability study of the questionnaire, the questionnaire was primarily translated into Turkish from English by two English language experts, three physical education and sport experts who were proficient in English, one measurement and evaluation expert, totally six people. The translations were closely examined and after specifying the main expressions, the questionnaire was prepared in Turkish. Next, this Turkish questionnaire was given to two different English language experts, three different physical education and sport experts who were proficient in English, one measurement and evaluation expert, totally six people and they were asked to translate it from Turkish to English. The translated English version of the questionnaire was compared to the original one and checked whether there were any semantic shifts in the items. An English language and a Turkish language expert contributed at this stage. After the edition, the questionnaire was finalized in 16 items (Table 1).

Pilot Study 1 (Exploratory Factor Analysis – EFA): Students from secondary and high schools in Bolu and Düzce provinces were chosen through convenience sampling method (easy-accessible method) for exploratory factor analysis. The questionnaire was firstly conducted on 372 students for exploratory factor analysis and it took ten minutes to fill in. The profile of the participants is presented in Table 2.

After the pre-check, no lost value was found in data set. Since most value sets could include some extreme value or unexpected observations that were produced by other uncontrollable variables (Çokluk et al., 2010:210), single variable and multi variable extreme values were determined. In order to determine single variable extreme values, it was essential to transform item scores of the questionnaire to standard scores (Tabachnick and Fidel, 2001); therefore, "z score" for each item was calculated. 32 values were described as single variable extreme values which were exclusive of -3 and +3 in standardized scores. These lines were excluded from the data set. Accordingly, the sample size was 340.

Validity study: An expert review was asked for construct validity of the questionnaire, and then exploratory factor analysis was done. It was investigated that whether there is a specific order among the answers given by the participants to the draft questionnaire through factor analysis and it was attempted to confirm whether the items were separated in a single factor or multi factors. In order to find out whether the data collected was appropriate to exploratory factor analysis, Kaiser-Meyer-Olkin (KMO) coefficient and Barlett test of sphericity value were calculated (KMO: .794, $\chi^2=1774.907$; $p=.000$) and it was found that the data was convenient for exploratory factor

Table 1. The process of the adaptation of the questionnaire in Turkish

Process	Duration
1. Translation of FPEQ into Turkish	2 weeks
2. Structuring FPEQ	1 week
3. Translation of FPEQ into English	3 weeks
4. Comparison of Turkish and English versions FPEQ	2 weeks
5. Implementation of FPEQ on Turkish children and youths	4 weeks
6. Calculation of validity and reliability parameters	3 weeks

Table 2. The profile of the participants for exploratory factor analysis.

Variables		f	%
Province	Düzce	115	33.8
	Bolu	225	66.2
Gender	Female	159	46.8
	Male	181	53.2
Class	5	61	17.9
	6	50	14.7
	7	55	16.2
	8	80	23.5
	9	33	9.7
	10	26	7.6
	11	20	5.9
	12	15	4.4

analysis. After that, principal components for factor analysis method was carried out on data collected. In the principal components for factor analysis, eigenvalue, explained variance ratio and Scree Plot line table were taken into consideration. In principal components factor analysis, factor values between .30 and .40 can be accepted as undercut point in the formation of factor pattern (Tavsancil, 2002; Büyükoztürk, 2003; Tabachnick and Fidell, 2001). From this point of view, lower limit in determining factor was .40 in this study. Next, varimax rotation for factor analysis was performed in order to detect under how many factors the items were grouped and they turned out to be grouped under 4 factors, in the same way to the original questionnaire. However, it was found that 13th "I want to cheat" item which was under cheating sub scale in the original questionnaire was with low factor loading and it also fell under two sub scales. For this reason, the item was removed from the questionnaire. The factor loadings and item-total correlations of the items are presented in Table 3.

According to the Table 3, it is seen that the questionnaire related to 15 questions is four scales (factors). There are 4 items each in the 1st, 2nd and 3rd sub-scales and 3 items in the 4th sub-scale. The factor loading of the items forming the first sub-scale (respect toward teammates) are between .411 and .737, the factor loadings of the items of the second sub-scale (respect conventions) are between .793 and .870, the factor loadings of the items of the third sub-scale (gamesmanship) are between .711 and .849 and the

factor loadings of the items forming the fourth sub-scale (cheating) are between .792 and .866. After identifying the factor loadings of the 15 items, it was found that the eigenvalue of the first sub-scale was 3.967, the explained variance ratio was 26.444, the eigenvalue of the second sub-scale was 2.644, the explained variance ratio was 17.759, the eigenvalue of the third sub-scale was 1.355, the explained variance ratio was 9.036, the eigenvalue of the fourth sub-scale was 1.273, the explained variance ratio was 8.485 and the variance ratio of the total questionnaire was 61.724. In the questionnaire, minimum score that could be obtained was 15, maximum 75. Minimum score given to the items of the questionnaire that was implemented on the 340 students was 25, maximum 56.

Then mean of first sub-scale "respect toward teammates" was 16.63±2.06, 14.50±4.03 for the second sub-scale "respect conventions", 5.34±2.17 for the third subscale "gamesmanship" and 3.79±1.59 for the fourth sub-scale "cheating". The correlation values of the sub-scales of the questionnaire are given in Table 4.

Table 4 showed that, there were a positive and negative middle and low level of correlation among the factors. The correlation values among the factors were between 0.56 and .458. According to this result, it can be said that "Fair Play Questionnaire in Physical Education (FPQ-PE)" consists of 15 items with four factors as in the original one and its construct validity is at sufficient level for Turkish children and youths between 11-18 years old.

Pilot Study 2 (Confirmatory Factor Analysis – CFA): The construct validity of the "Fair Play in Physical Education Questionnaire" was also tested by confirmatory factor analysis (CFA). The questionnaire was implemented on different 300 students from the same schools where data was collected for EFA in order to do exploratory factor analysis. The profile of the participants from whom data was gathered for CFA is presented in Table 5.

After the study done with transforming questionnaire items into z scores with the purpose of determining single and multivariable extreme values, 15 items were excluded from the questionnaire that were out of -3 and +3 standard score interval. First level and second level CFA were carried out in order to find whether 4 factorial structures that appeared after exploratory factor analysis were confirmed or not. CFA was implemented on a data group formed by 285 people.

The main objective of the researcher in CFA is to test if a model that has been evidently determined is confirmed or not by the data (Şimşek, 2007). In structural equation models, whether the tested model is in compliance is detected by goodness of fit index (Durak et al., 2012). Widely used fit indexes in confirmatory factor analysis are root mean square error of approximation – RMSEA, goodness of fit index – GFI, normed fit index – NFI, comparative fit index – CFI, standardized root mean square error – SRMR. Fit indexes in relation to Fair Play questionnaire is presented in Table 6.

Lisrell programme was used in the study for confirmatory factor

Table 3. Factor analysis of Fair Play Questionnaire.

Items	Factor loadings	Item-Total Correlation
RESPECT TOWARDS TEAMMATES		
1. I support my teammates.	.737	.272
2. I help my teammates.	.490	.203
3. I reward my teammates' good efforts.	.411	.193
4. I stand by my teammates.	.675	.204
RESPECT CONVENTIONS		
5. I congratulate my opponents when I lose the game.	.798	.369
6. I shake my opponents' hands no matter I win or lose.	.870	.482
7. I congratulate my teammates on their good performance.	.793	.353
8. I shake my opponents' hands when the game finishes.	.835	.476
GAMESMANSHIP		
9. I try to disturb my opponents.	.796	.241
10. I swear to my opponents.	.711	.226
11. I try to demoralize my opponents.	.849	.300
12. I try to get my opponents angry.	.741	.260
CHEATING		
13. I cheat if I am sure that I am not got caught.	.866	.236
14. I cheat.	.852	.267
15. I cheat if it helps me win.	.792	.265

Table 4. Averages, standard deviations and correlation values of the sub-scales of the questionnaire

Subscales	1 st Sub-scale	2 nd Sub-scale	3 rd Sub-scale	4 th Sub-scale
1 st Sub-scale	1.00			
2 nd Sub-scale	.399**	1.00		
3 rd Sub-scale	-.056	.149**	1.00	
4 th Sub-scale	-.095*	-.136**	.458	1.00
Total	.543**	.745**	.396*	.333**
M	16.63	14.50	5.34	3.79
SD.	2.06	4.03	2.17	1.59

*p<0.05, **p<0.01 N=340.

analysis in order to experiment if the data was in compliance with the model. It was found that the model was in a suitably good compliance. In view of the fit indexes related to CFA, X^2/sd [$X^2_{(84)}=168.03$; $p<.05$] ratio was 2.0. Wheaton et al. (1977) and Sümer (2000) pointed out that X^2/sd ratio which provides information if the measurement model is confirmed or not needs to be between 0 and 5.

After CFA, RMSEA, CFI, NNFI, RMR, NFI, GFI and AGFI fit indexes besides X^2/sd were observed. That RMSEA (Steiger, 2007), RMR (Kline, 2005) and SRMR (Hu and Bentler, 1999; Kline, 2005) indexes were below 0.05 indicated a perfect compliance; that GFI (Hooper et al., 2008), AGFI (Hooper et al., 2008), NFI, NNFI

and CFI (Steiger, 2007) indexes were above .90 showed that they were at a high compliance level. In view of these statistical results, it can be said that 4 factorial structure acquired by EFA was confirmed and its factorial structure was a valid model.

After the analysis, it can be seen that all the latent variables of the items in the questionnaire delivers statistically meaningful t value and error variances of all the observed variables are below .90 (Figure 1).

Reliability Study: Cronbach Alpha coefficient of internal consistency was used in this study to determine the reliability of the questionnaire. Cronbach Alpha coefficient of internal consistency

Table 5. The distribution of the students according to some variables

Variables		f	%
Province	Düzce	108	37.9
	Bolu	177	62.1
Gender	Female	161	56.5
	Male	124	43.5
Class	5	53	18.6
	6	63	22.1
	7	80	28.1
	8	44	15.4
	9	12	4.2
	10	17	6.0
	11	10	3.5
	12	6	2.1

Table 6. Fit indexes related to Fair Play Questionnaire.

Fit Indexes	Values
χ^2	168.03 ($p=.000$)
Sd	84
χ^2/Sd	2.00
RMSEA	0.060
RMR	0.033
SRMR	0.046
CFI	0.97
NFI	0.94
NNFI	0.96
GFI	0.93
AGFI	0.89

was .37 for the first sub-scale, .86 for the second sub-scale, .81 for the third sub-scale, .83 for the fourth sub-scale and .65 for the whole questionnaire. That reliability co-efficient is .60 and above is acceptable (Nunnally and Bernstein, 1994). According to the findings, it was verified that the reliability co-efficient for the first sub-scale was lower than the acceptable level; whereas the second, third and fourth sub-scales were acceptable.

Data analysis

In this study, expert opinion was asked, exploratory factor analysis, confirmatory factor analysis were done for validity. For reliability, Cronbach Alpha coefficient of internal consistency, descriptive statistics, one way variance analysis and two way variance analysis were used. The model including single factorial solution in confirmatory factor analysis was tested by using Lisrell programme. The significance level was 0.05.

FINDINGS

After the questionnaire was developed, it was implemented on 250 students chosen randomly and comparisons were made according to some variables. The data about the sample are given in Table 7.

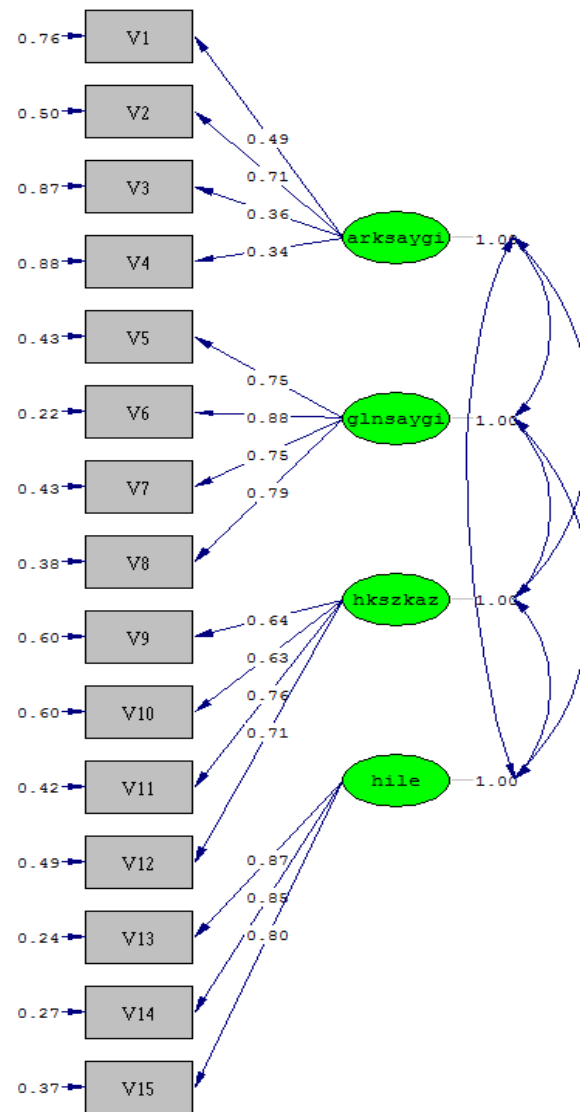
Two-way variance analysis was done to compare the scores that students obtained from the sub-scales of the questionnaire depending on the school and gender variables (Table 8).

The mean of the secondary school students in "respect toward teammates" sub-scale was 16.58 ± 2.12 and the mean of high school students was $M=17.18 \pm 1.80$. There was no significant difference of these groups among the scores in "respect toward teammates" sub-scale [$F_{(1,246)} = .060, p > 0.05$]. Accordingly, different levels of schools did not lead to significant difference in "respect toward teammates" sub-scale.

There was also no significant difference in the mean of male and female students in this scale [$F_{(1,246)} = .851, p > 0.05$]. In this scale, the mean of the female secondary school students was 17.07 ± 1.92 while the mean of the female high school students was 16.68 ± 1.45 . The mean of the male secondary school students was 16.14 ± 2.20 , yet the mean of the male high school students was 17.51 ± 1.93 . Thus, it can be said that there was a similarity between the scores of respect toward teammates of male and female students. However, it was observed that there was a significant difference in the scores of respect toward teammates of the female and male students at different school level [$F_{(1,246)} = 11.536, p < 0.05$]. It was figured out that the main effect of school and gender led to significant difference in "respect toward teammates" sub-scale (Table 9).

The mean of the "respect conventions" sub-scale of secondary school students was 14.34 ± 4.01 while it was 14.70 ± 4.40 for the high school students. There was no significant difference in the scores of these groups in "respect conventions" sub-scale. [$F_{(1,246)} = .046, p > 0.05$]. According to this result, it can be said that different school levels did not lead to significant difference in "respect conventions" sub-scale.

There was also no significant difference in the means of male and female students in this scale [$F_{(1,246)} = 8.435, p < 0.05$]. The mean of the female secondary school students was 14.92 ± 3.93 , the mean of the female high school students was 12.19 ± 4.05 , the mean of the male secondary school students was 13.83 ± 4.03 , the mean of the male high school students was 16.33 ± 3.85 . Consequently, it can be claimed that gender has a significant influence on the scores of "respect conventions". Similarly, it was found that there was a significant difference in the means of the male and female students at different school levels in the "respect conventions" sub-scale [$F_{(1,246)} = 24.846, p < 0.05$]. According to this result, it was determined that the main effect of school and



Chi-Square=168.03, df=84, P-value=0.00000, RMSEA=0.060

Figure 1. DFA results and error variances regarding the Fair Play Questionnaire.

Table 7. Demographic profiles of the sample.

Class	Male		Female		Total	
	f	%	f	%	f	%
5	17	6.8	16	6.4	33	13.2
6	12	4.8	16	6.4	28	11.2
7	19	7.6	23	9.2	42	16.8
8	27	10.8	26	10.4	53	21.2
9	6	2.4	27	10.8	33	13.2
10	19	7.6	7	2.8	26	10.4
11	7	2.8	13	5.2	20	8
12	5	2	10	4	15	6
Total	112	44.8	138	55.2	250	100

Table 8. Comparison of “respect towards teammates” scores according to gender and school variables.

Source	Type III Sum of Squares	df	Mean Square	F	p	Partial Eta Squared
Gender	.136	1	.136	.035	.851	.000
School	13.726	1	13.726	3.575	.060	.014
GxS	44.293	1	44.293	11.536	.001*	.045
Error	944.527	246	3.840			
Total	71642.000	250				

Table 9. Comparison of “respect conventions” scores according to gender and school variables.

Source	Type III Sum of Squares	df	Mean Square	F	p	Partial Eta Squared
Gender	132.533	1	132.533	8.435	.004*	.033
School	.718	1	.718	.046	.831	.000
GxS	390.406	1	390.406	24.846	.000*	.090
Error	3865.443	246	15.713			
Total	56751.000	250				

Table 10. Comparison of “gamesmanship” scores according to gender and school variables.

Source	Type III Sum of Squares	df	Mean Square	F	p	Partial Eta Squared
Gender	1.005	1	1.005	.223	.637	.001
School	64.9986	1	64.9986	14.436	.000*	.055
GxS	70.802	1	70.802	15.728	.000*	.060
Error	1107.403	246	4.502			
Total	8595.000	250				

gender caused significant difference in “respect conventions” sub-scale (Table 10).

The mean of the “gamesmanship” sub-scale of secondary school students was 5.08 ± 1.90 while it was 6.00 ± 2.59 for the high school students. There was a significant difference in the mean of these groups in “gamesmanship” sub-scale. [$F_{(1,246)} = 14.436, p > 0.05$]. Therefore, it can be said that different school levels led to significant difference in “gamesmanship” sub-scale.

There was also no significant difference in the scores of male and female students in this scale [$F_{(1,246)} = .223, p > 0.05$]. In this scale, the mean of the female secondary school students was 4.57 ± 1.34 while the mean of the female high school students was 6.76 ± 3.02 . The mean of the male secondary school students was 5.56 ± 2.20 , yet the mean of the male high school students was 5.51 ± 2.15 . Thus, it can be said that there was a similarity between the scores of gamesmanship of male and female students. However, it was observed that there was a significant difference in the scores of gamesmanship sub-scale of the female and male students at different school level [$F_{(1,246)} = 15.728, p < 0.05$]. It was

figured out that the main effect of school and gender led to significant difference in “gamesmanship” sub-scale (Table 11).

The mean of the “cheating” sub-scale of secondary school students was $M = 3.53 \pm 1.11$ while it was $M = 4.27 \pm 2.17$ for the high school students. There was a significant difference in the scores of these groups in “cheating” sub-scale. [$F_{(1,246)} = 18.597, p > 0.05$]. In view of this result, it can be said that different school levels led to significant difference in “cheating” sub-scale.

There was also a significant difference in the scores of male and female students in this scale [$F_{(1,246)} = 4.493, p < 0.05$]. The mean of the female secondary school students was $3.31 \pm .93$, the mean of the female high school students was 5.05 ± 2.62 , the mean of the male secondary school students was 3.74 ± 1.22 , the mean of the male high school students was 3.75 ± 1.65 . Consequently, it can be claimed that gender has a significant influence on the scores of “cheating”. Similarly, it was found that there was a significant difference in the scores of the male and female students at different school levels in the “cheating” sub-scale [$F_{(1,246)} = 18.025$,

Table 11. Comparison of “cheating” scores according to gender and school variables.

Source	Type III Sum of Squares	df	Mean Square	F	p	Partial Eta Squared
Gender	10.666	1	10.666	4.493	.035*	.018
School	44.146	1	44.146	18.597	.000*	.070
GxS	42.788	1	42.788	18.025	.000*	.068
Error	583.956	246	2.374			
Total	4286.000	250				

Table 12. Comparison of fair play scores according to class (5-12).

Scales	Variance source	Sum of squares	df	Average of squares	F	p	Source of difference
Respect Towards Teammates	<i>Between Groups</i>	83.857	7	11.980			
	In Group	930.927	242	3.847			5-12
	Total	1014.784	249		3.114	.004*	7-12
Respect Conventions	<i>Between Groups</i>	96.250	7	13.750			
	In Group	4208.186	242	17.389	.791	.596	
	Total	4304.436	249				
Gamesmanship	<i>Between Groups</i>	83.047	7	11.864			5-11
	In Group	1146.157	242	4.736			
	Total	1229.204	249		2.505	.017*	
Cheating	<i>Between Groups</i>	81.512	7	11.645			5-11
	In Group	579.272	242	2.394			6-11
	Total	660.784	249		4.865	.000*	7-11
							8-11
							8-12
							9-11
							10-11

p<0.05]. According to this result, it was determined that the main effect of school and gender led to significant difference in “cheating” sub-scale (Table 12).

According to the Table 12, there was no significant difference among the students’ scores in “respect conventions” sub-scale [$F_{(7,249)} = .791, p > 0.05$], whereas there was significant differences in respect towards teammates [$F_{(7,249)} = 3.114, p < 0.05$], gamesmanship [$F_{(7,249)} = 2.505, p < 0.05$] and cheating [$F_{(7,249)} = 4.865, p < 0.05$]. It can be understood that the differences were caused by the scores of 12th class (M=18.00), 5th class (M=16.09) and 7th class (M=4.64) in respect towards teammates sub-scale; 11th class (M=5.35) and 5th class (M=3.97), 6th class (M=3.36), 7th class (M=3.55), 8th class (M=3.34), 9th class (M=3.76), 10th class (M=3.81) in cheating sub-scale and the different means of the 12th class (M=4.73) and 8th class (M=3.34). The difference in the “respect towards teammates” sub-scale was in favor of 12th

classes while the differences in the “cheating” and “gamesmanship” sub-scales were opposed to 11th and 12th classes.

DISCUSSION AND CONCLUSION

One of the aims of this study was to adapt Fair Play Questionnaire (FPPEQ) to Turkish, and determine whether it was applicable to Turkish children and youths aged between 11 and 18. For this reason, exploratory factor analysis for the reliability of the questionnaire was done on 340 secondary and high school students and the mean of the students was 40.26±9.85. It can be concluded from this result that the fair play conception of the students who participated in this study was at medium level.

According to the results of EFA and CFA for the validity

of the questionnaire, it was found that the questionnaire for Turkish children and youths was four factorial consisting of 15 items. The eigenvalue of the first sub-scale of the questionnaire was 3.967, explained variance ratio was 26.444; the eigenvalue of the second sub-scale was 2.644, explained variance ratio was 17.759; the eigenvalue of the third sub-scale was 1.355, explained variance ratio was 9.036; the eigenvalue of the fourth sub-scale was 1.273, explained variance ratio was 8.485; the variance ratio of the total questionnaire was 61.724. In view of the literature about this topic, it can be said that the higher the variance ratio is, the stronger the structure of the factor is. Tavşancıl (2006) stated that the variance ratio between 40% and 60% is acceptable in social sciences. For this reason, it can be said that the variance ratio of this study is acceptable.

Based on the confirmatory factor analysis, FPQ-PE was in good compliance with four sub-scaled model. It is claimed that there is a good model fit if the approximate mean square error (χ^2/df) value is 3 or below (Meydan and Şeşen, 2011). This value was found 2.00 in this study. Furthermore, the CFI value was found .97, NNFI value was found .96. That comparative fit index (CFI) and normed fit index (NFI) are above .90 indicates a good compliance in the model. The NFFI values above .95 mean perfect compliance; above .90 mean good compliance (Meydan and Şeşen, 2011). Therefore, it can be said that the results supported the four scale structure for Turkish children and youths between 11 and 18.

Cronbach Alpha coefficient of internal consistency was applied in order to test the reliability of the questionnaire. The results were .37 for the first sub-scale, .86 for the second sub-scale, .81 for the third sub-scale, .83 for the fourth sub-scale and .65 for the entire questionnaire. These values, except the first one, were considered quite reliable as they were between .60 and .80 (Alpar, 2001). It was reported that the reliability coefficient of the original questionnaire was between .66 and .89 (Hassandra et al., 2007). As a result, it was determined that the construct validity of the fair play in physical education questionnaire for Turkish children and youths was found adequate and its reliability was acceptable except for the first sub-scale. Within this context, it is suggested that a new reliability study can be done on different samples in future studies.

A new implementation was carried out after deciding the validity and reliability studies of FPQ-PE for Turkish children and youths. In this study, students' scores of fair play sub-scales were compared to their school level, gender and class. According to the two-way variance analysis result, it was found that the main effect of school level and gender led to significant difference in all sub-scales. When examined the sub-scales separately, it was figured out that the thoughts of the students from different school levels related to the "respect towards teammates" sub-scale were similar. Likewise, there was no significant difference among the scores of the male and female

students in this sub-scale. Therefore, it can be claimed that the scores of respect towards teammates of both male and female students were similar to each other. There are other studies that support this finding (Şebin et al., 2007; Vidoni and Ward, 2009). Şebin et al. (2007) studied the university students' thoughts on fair play who did sports and found significant difference in favor of female students according to "following the rules every time", "obeying the referee's decisions every time", "it is more important to follow the rules every time than to obey the referee's decisions" and "I break the rules in order to win" variables. In the same study, there was no significant difference according to gender in "referee's decisions are always true", "I react to breach of rule in the same way". As this age period (11-18) is a time when the friendship is highly valued, there was no difference in terms of gender.

In the results of the second "respect conventions" sub-scale, there was no significant difference in school level, whereas there was a significant difference in gender and the main effect of the school level and gender. The means of the female secondary school students were higher than the female high school students in this sub-scale while the means of the male high school students was higher than the means of the male secondary school students. High school students may tend to resist and oppose to the rules because of their age period. However, it can be assumed in the younger groups (secondary school) that it is more important to respect the authority and obey the rules (McLeod, 2013). For this reason, it might be possible for female secondary school students to behave accordingly. On the other hand, the reason why male high school students achieved higher scores in "respect conventions" scale can be that males go through their adolescence during high school years. Conversely, it can be understood that secondary school and high school students have similar thoughts in this sub-scale; therefore, their scores are at acceptable level. In particular, it is a known fact that Turkish society display sensitivity towards traditions; as a result, it can be understood that there was no difference in terms of school level.

There was no significant difference in the scores of gamesmanship of the students in different gender. However, significant differences were reached in school levels and the main effect of school level and gender. Accordingly, the thoughts of male and female students about the gamesmanship were similar, whereas it was found that the scores of the secondary school students were more positive than the ones at high school. In their study, Şebin et al. (2007) reported that university students thought that following the rules were more important than winning and it was found that gender and school variables caused significant differences. The reasons for this can be that youths at high school become more competitive and children and youths at secondary school

are at the period of playing together rather than winning or losing. Hence, it can be understandable that secondary school students achieved more scores than high school students particularly in gamesmanship and cheating sub-scales. High school students may think that gamesmanship and cheating to win are acceptable as long as they are in compliance with the rules because of their age period. Similarly, it was seen that the scores of female secondary school students in main effect of school level and gender were more positive than the ones at high school.

Similar to others, there was a significant difference in gender, school level and the main effect of the school and gender depending on the scores of the participants of the "cheating" sub-scale. In cheating sub-scale, males had higher scores than females. As in other sub-scales, secondary school students got more positive scores than high school students. At the same time, female secondary school students had higher scores than female high school students in the main effect of school and gender. . Likewise, Hyland (2001) points out that it is easy to automatically condemn cheating in sport as morally indefensible, but it is a much more complex phenomenon. It is suggested that while athletes are competing they are protected by a type of moral immunity that differs from the morality that is the norm outside the sport context. Although sport is seen as a "world within a world", it cannot separate itself completely from the real world. Game reasoning must therefore continue to consider basic moral understandings (Potgieter, 2013).

Comparing the fair play scores of the students to class variable, it was found that there was a significant difference in respect toward teammates, gamesmanship and cheating sub-scales. The difference in the first sub-scale was in favor of 12th class students, yet the differences in the third and fourth sub-scales were in favor of 5th, 6th, 7th, 8th, 9th and 10th class students. The first sub-scale is related to teammates and the reason why 12th class students got more scores can be explained that they value friendship more than winning or losing. On the other hand, the third sub-scale is about gamesmanship and the fourth one is about cheating. The reason why lower classes got more scores in these sub-scales could be that they tend to follow the rules and they are not in competitive period yet.

In physical education the most relevant social behaviors are fair play behaviors such as showing respect to opposing teams and officials, and accepting losses without complaint, or victory without gloating. These fair play behaviors are important social skills for students to acquire in physical education and they are important skills for students to learn to use in sport-related activities outside of school (Vidoni and Ward (2009). Particularly, fair play education in early ages can prevent antisocial behaviours that might appear in the following years. The message here is important. You get what you teach and

value. We believe that social skill instruction should be integrated into curricula as a core outcome in physical education. Sport Education as a curriculum is ideally suited and was designed to facilitate this outcome.

Finally, the "Fair Play in Physical Education Questionnaire (FPPEQ)" that was adapted to Turkish in this study was found valid and reliable for the Turkish children and youths between 11 and 18. According to the results obtained by the last implementation using the scale, the main effect of gender and school level was in favor of girls in all sub-scales of fair play. However, it was concluded that school and gender did not influence significantly the respect to teammates sub-scale. It was seen that level of school did not have a significant effect in respect conventions sub-scale; however, the main effect of gender and school level were in favor of female secondary school students and male high school students. On the other hand, it was observed that gender was not the only factor in gamesmanship sub-scale, but the main effect of school and gender posed an important role in favor of secondary school students. For the cheating sub-scale, it was understood that gender and school variable separately and their main effect were important variables in favor of male high school students and female secondary school students. Similarly, it was found that class variable was in favor of lower classes in gamesmanship and cheating sub-scales.

In this study, the sample was chosen from secondary school and high school students in two provinces for pilot study and model practice. It can be helpful to study on different samples from different schools and cities in order to re-test the reliability of the questionnaire. In conclusion, this questionnaire and its results can source and contribute to future studies questioning the relationship between PE class and fair play. Also results of this study can provide PE teachers a new viewpoint about the importance of fair play in PH classes.

Conflict of Interests

The author has not declared any conflict of interests.

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Full Length Research Paper

The implications of Feyerabend's epistemological approach for educational research methods

Elham Shirvani Ghadikolaei^{1*} and Seyed Mahdi Sajjadi²

¹Allameh Tabataba'i University, Iran.

²Tarbiat Modares University, Iran.

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Epistemology is defined as theory of knowledge and the ways of achieving it. Epistemology is research questions of the possibility of knowledge and the riddle of knowledge. Epistemology and methodology despite being interconnected are inseparable and are not reducible from each other. In addition, their relationship is direct, meaning that ontology logically precedes epistemology and epistemology proceeds methodology, logically. In other words, it has very close relations with epistemology; there are three types of methodology: proof, interpretive and critical. In this paper, we seek to examine the perspective of Feyerabend's epistemology and its implications in research of methodology. We will first review and analyze the paradigms of research methodology and then, the description of Feyerabend's epistemology, and finally, assess the implications of methodological approach to research in education from Feyerabend's point of view.

Key words: Epistemology, methodology, educationalresearch implications, Feyerabend.

INTRODUCTION

One of the main concerns of Feyerabend in his second study of epistemology is how to deal with rational science. In fact in this article, we take a look at the rationality of science from Feyerabend's perspective. We also explain Feyerabend's features of methodological approach to Educational research. Most experts, in fact, believe that Feyerabend, in his first period of ideas, in respect to the theory of scientific rationality or reasonableness, has a convincing and plausible view. But in the second period he only reviews sheer failings of practical science and rejection of any reasonableness in science in the role of an anarchist philosopher. He becomes completely relativistic and has a postmodern position towards science. But some experts believe that

Feyerabend has accepted scientific rationality and does not exclude scientific rationality; rather, he has a new approach to the rationality of knowledge. They also believe that Feyerabend believes that we do not just have one unparalleled and unique rationality, harmonic to ordinary and standard common sense. Hence we can say that the explanation of the scientific plausibility of Feyerabend's view largely explains his approach to epistemology as well. The purpose of writing this article, in fact, is to explain Feyerabend's epistemological perspective and review his reasoning in methodological implications of education research. This article seeks to answer the fundamental question that are implications of Feyerabend's epistemological perspective for research in

*Corresponding author. E-mail: shirvanel@gamil.com.

education and what kind of critics can be used for said implications. In this article we will explain the epistemological perspective of Feyerabend first accompanied by discussion of his epistemological analysis of the basic concepts in theory. And then to deduce the educational implications of Feyerabend's view that action on Educational Research. At the end we will discuss Feyerabend's view of the implications for Educational Research Methodology.

PARADIGMS OF METHODOLOGY

Paradigms of methodology divide into three sections that in no way can be added up together or be separated:

Positivistic methodology

The root of this positivism goes back to ancient Greek, but in its prominent form, in the humanities' science, was first considered by Comte (1797-1857) in the 19th century. August Comte believed that one can establish a new social science by proposing that social sciences, based on proof, as is common in the humanities. In fact, he claimed that social phenomena can be studied like physical phenomena, as an experiment (Waraki, 2007).

Positivists believe that there is only one scientific reasoning, and that is logic of natural science. Accordingly, the difference between the natural sciences and the humanities, relates to its issues (Iman, 2007). In the field of educational research, a positivist approach believes that educational research, as in natural sciences research, must seek to explain and achieve the causal mechanisms of the educational phenomena. Then, with application of the knowledge gained, exercise appropriate changes in them.

Positivism considers reality as something that can be understood through the senses and see reality out of human existence and independence, rather see it completely objective. Positivism explains the researcher of phenomena as regular and visible, in separation of scientific knowledge from unscientific, insists on methods of the natural sciences as tools of scientific knowledge and considers another human experience and knowledge outside the field of science. It considers methods based on religion and myth, as unscientific methods and whatever that is focused in scientific knowledge is based on observations, from the perspective of positivism, is the goal of scientific research and discovery of a phenomenon. Scientific research is a tool to study identify social realities and ultimately prediction and control of reality.

Interpretation methodology

Interpretive flourished with the late nineteenth century as

it approached a deadlock with empiricism. Dilthey (2003) must be considered the architect of this theory, who according to Freud, was theoretician of Muslim human Sciences and will remain (Waraki, 2007). Interpretive methodology in the humanities is somehow relevant to the theories of the German sociologist Max Weber (1920-1864) who believed in distinction between the humanities and the natural sciences and believes in social interaction in humanities. While emphasizing the meaningful social interaction, with the tendency to purpose (goal), tends to the concept of understanding. This is to see people reflection in meaning creation and reasons and motivations (Iman, 2007). Interpretive Methodology, in a way, wants to study that ordinary people how to spend their daily lives and how they tend to their daily work? To obtain answers to these questions, action is taken to design research based on qualitative approach that is specific to Humanities. The basic principles of qualitative approach, which is required interpretation of the central concepts, is based on communication, interpretation, understanding and what everyday life (Ibid). Interpretive methodology, criticizing the positivism approach, which seeks to explain the causal relationship, considers positivism approach a natural science approach. In human sciences, unlike that of positivism approach, the researcher simply doesn't deal with matter and cause and effect and others, but rather deals with concepts such as dynamics, evolution of motivation, purpose, reason, and in particular the concepts of value and meaning (Zarghami, 2011).

In the interpretation of reality is not something external and is not independent from the researcher and the social world is not predetermined fact that researchers just discover. It is rather reality of life and experience of the investigator or people who are linked and in way facts of each individual depends on experiences in life and people's point of view. The interpretive approach, therefore, is a human oriented approach and pays much attention to the human experience. Accordingly interpretation orientated believes that science as proof, cannot explain the foundation of life for individuals. What is important is that understanding people's everyday life that is guided by common sense (Iman, 2007).

Interpretation methodology is the theoretical basis of qualitative research in the field of educational research. It can be said that qualitative research versus quantitative research can be very small and is somehow lesser welcomed by educational researchers.

Critical methodology

Within the paradigm of criticism, research objective, is change the status quo for social equality and more social freedom. In this path there are two basic steps necessary: first, recognition, review and sectional awareness about the systematic domination and oppression, which are the main obstacle to equality and freedom of

human beings and second, taking action to eliminate them (Zarghami, 2011). In this regard, the basic approach of critical methodology is to review ideologies and social structures that inhibit social freedom and equality. From this basic critical methodology, approaches such as dialectical materialism, class analysis, manufacturing, integration, and the feminism are seen (Iman, 2007).

Critical Methodology asserts many layers of reality, that behind the apparent layer, deep structures or invisible mechanisms exist. Discovering these structures or mechanisms through direct and deep questions, it is possible for a valid theory of the universe and re-establishment of the historical approach. On the path to discovery of reality, subjective meaning of actors and objective relationships (material) that form the basis of social relations and are focused in interpretation and positive methodologies, established based-identification and analyze current events in critical approach.

FEYERABEND'S EPISTEMOLOGY

By Feyerabend (1993)'s account of rationality and epistemology, freedom has a special place the most important Feyerabend's idea is in explanation of accepted knowledge. He believes that a free society, a society in which all traditions, equal rights, equal access to education, and other strong opportunities are provided. If traditions can only be an advantage in terms of other traditions; then selecting a tradition as the foundation of a free society, is a voluntary action that can only be resorted by justified force (Feyerabend, 1993).

In fact, James Kidd (2015) believes that Feyerabend:

"The second rationale concerns Feyerabend's concern with the epistemic integrity of science, especially given its authoritative status in late modern societies. If this sounds odd, given his status as 'the worst enemy of science' and his disturbing calls for the separation of science and the state, then I urge caution. In fact, a defense of the integrity of science. Feyerabend made those defenses to critically expose failures by members of the scientific establishment to honor the epistemic values and ideals that are constitutive of the authoritative status of science. If so, then Feyerabend should emerge as more conservative and less radical than man might suppose" (James Kidd, 2015).

Feyerabend in his book *"Against Method"* says, "I repeat that this free occupation is not just a fact of history of science, but it is reasonable and absolutely essential for the growth of knowledge. In particular, it can be shown that for every "basic "or "rational" rule, there are always conditions just when that rule is recommended, not only ignore the rule, but also accept the opposite. For example, when there are appropriate conditions for the production and interpretation and defense of local

hypotheses conflict with the generally accepted results and researcher, or other hypotheses that are minimal in content compared to experimental hypotheses or hypotheses that are inconsistent (Feyerabend, 1996).

Feyerabend's approach to saddened freedom from "Stewart Mill" and the most important dimension that Feyerabend targets in critique of rationality and limiting science is the dimension of training and education. Feyerabend in the analysis of issue of freedom, points to two problems in common education and training, first simplify the environment that the scientist works in by simplifying the main factors by the scientist, him/herself. It may finally have to be said that the history of science is precisely the phenomenon and the results that can be derived from them, it is not formed by them (Feyerabend, 1996). The history of science is complex and full of errors. In Feyerabend's view, the history of the formation of knowledge hasn't been like this which we see in books or taught in schools and universities, rather it is delivered to students in the form of naked phenomenon. Feyerabend's purpose of this review is that why the new learners aren't permitted to make mistakes and experience deviations in science and thought to creativity. This method is an authoritarian method and prevents real freedom of the individual and in the same way Feyerabend in his book, *"Against Method"* says:

"Scientific education as we know it today has precisely this aim. Its implies 'science' by simplifying its participants: first, a domain of research is defined. The domain is separated from the rest of history (physics, for example, is separated from metaphysics and from theology) and given 'logic' of its own. A thorough training in such 'logic' then conditions those working in the domain; it makes their actions more uniform and it freezes large parts of the historical process as well. Stable 'facts' arise and persevere despite the vicissitudes of history. An essential part of the training that makes such facts appears consists in the attempt to inhibit intuitions that might lead to a blurring of boundaries "(Feyerabend, 1993).

Feyerabend identifies this kind of training and scientific research methods and determine the scope of the evidence, as limiting individual freedoms. If we interpret Feyerabend's anarchist methodology politically, Feyerabend's considerations for freedom and benefit of society in seek of real research of democracy to the sense of the word.

Feyerabend understands the real democracy as one that "basically, any assembly of free people should respect their own members' false beliefs and provide institutional support". "A society based on rationalism is not a completely free society. A person in this society has to play the role of an intellectual". On the other hand, philosophy of pragmatism leads an open exchange. Fans in an open exchange accept the tradition that is uncertain

in the beginning and expands during the exchange. This person respects open exchange of the opponent, whether he is an individual or fully cultural, while respecting the intellectual exchange of the opponent within the intellectual framework. Open exchange has no tools, it may invent it, but has no logic even though, and it may emerge during the new forms of logic. A free society is a society in which all traditions have equal rights (Feyerabend, 1996).

In fact in Feyerabend's view:

"Pursuing science is a choice we make to live a certain way, to live in a certain kind of world, to pursue prediction and control rather than rest on authority and tradition "(Brown, 2014)

Freedom in Feyerabend's view is defined in the rational community in such way that a person is creativity killer and accepts the free intellectual society which has been guided. This freedom, as far as Feyerabend is concerned, has no originality and somehow is another reading of tyranny that in flow of time has been stricken with this tyranny and on the other hand plays a major role in the stability of the dictatorship science.

"In a free society all traditions should have equal rights in a liberal state. There is no reason why science should have special status in society in comparison to other traditions. Rather, in a free society all traditions should have equal backing by the state"(Hoyningen-Huene, 1994).

RICHNESS OF EXISTENCE

Feyerabend, in the opening of his book, *"Against Method"* says:

"History generally, and the history of revolution in particular, is always richer in content, more varied, more many-sided, more lively and subtle than even' the best historian and the best methodologist can imagine. History is full of 'accidents and conjunctures and curious juxtapositions of events' and it demonstrates to us the 'complexity of human change and the unpredictable character of the ultimate consequences of any given act or decision of men'. Are we really to believe that the naive and simple-minded rules which methodologists take as their guide is capable of accounting for such a 'maze of interactions? And is it not clear that successful participation in a process of this kind is possible only for a ruthless opportunist who is not tied to any particular philosophy and who adopts whatever procedure seems to fit the occasion" (Feyerabend, 1993)?

Hoyningen-Huene (2000) believed that:

"The target of Feyerabend's attack in against method

was a specific epistemological (self) understanding of the sciences, one that reduces special quality of scientific knowledge to the strict application mother natural science from the very begging and its essentials can be traced back to the Greeks of antiquity. Strict rules to achieve a certain target are called "methods". In his book, Feyerabend questioned the existence of such strictly binding scientific methods. Thus the title against method and its subtitle that contains the concept of anarchism: anarchism as antithesis to the unconditional reign of one or more methods" (Hoyningen-Huene, 2000).

FEYERABEND'S VIEW OF EDUCATIONAL RESEARCH, METHODOLOGICAL IMPLICATIONS

Feyerabend's implications for approach for field of education and educational research methodologies, divide to two levels of general and specific implications. General implications are concerned for criticism of the lack of training and scientific independence, where at the end are trained as researchers or learners. This area has the acceptance of interest to its intellectual meaning and implications of the approach and methodology and defects and shortcomings in Feyerabend's view, and consequently how and certainty from the perspective of educational research in Feyerabend's view.

If we consider the purpose of good education for a good life or the purpose of a good life our goal in education, undoubtedly, being single-method in education and imposing any method would be contrary to the real good life and good training. In this context, Feyerabend in the introduction his book says:

"My main motive in writing the book was humanitarian, not intellectual. I wanted to support people, not to 'advance knowledge" (Feyerabend, 1993).

People around the world have developed living in unacceptable risks and circumstances. Stories they tell and activities they partake, has developed their lives, has maintained them, and it has given them meaning. "The advancement of knowledge and civilization", as the imposition of methods and Western values, to all corners of the Earth, has destroyed human ingenuity interesting products, and [in fact] it is mercy without even the benefit of mankind overview. On the other hand Feyerabend considers that the emphasis on technique and rationality and its imposition on human life is the reason for killing creativity. "Advance knowledge" in many places means killing minds.... "(Feyerabend, 1996).

Feyerabend does not consider himself as anti-science and considers it as one of the most interesting inventions of the human mind and considers himself as savior and protector of culture. In fact, he explains science in his book, *"Against Method"* and believes that the scientific method, "is not supposed to describe what scientists are

actually doing. Rather it is supposed to provide us with normative rules" (Oberheim and Honingen Huene, 2000).

Feyerabend has serious criticisms about education or method of education and considers it, in a way, a deception and simplification for the learner. "Of course now, simplifying the operating environment where the scientist works in by making the main component of it simple is possible. The purpose of education and scientific education- as we know it today- is exactly this. This type of education, "knowledge", is simplified by simplifying its participants" (Feyerabend, 1996). This is the kind of training that is common practice today is the training in view of Feyerabend. He believes that it prevents real understanding of the universe and its implications for learner, where we, in principles of scientific rationality from the perspective of Feyerabend, brought it as "rich presence" and rich presence is always richer than ability to pour it into a clear conceptual framework, for this reason, For this reason of universal understanding, existence and naturally the nature goes further than conceptual frameworks that we have set for it or methods in which their only way of understanding the universe we identify with. Even in Berkeley's analysis, two differences that can be extracted from Feyerabend's experiences in the concept of teaching. One, the change in training of new issues with the aim of getting people to become one from multiple nations and cultures and changes in the concept of learning. Second, training to be guided to save the rich variety of perspectives formed by teachers who facilitate their task is to choose (James, 2013).

SCIENCE AND RATIONALITY BECOMING IDEOLOGICAL

We begin this discussion by Feyerabend's saying that he believes that science comes of a real puzzle that needs explaining (Kuby, 2014).

Feyerabend maneuver quite a bit on science becoming an ideology and always speaks of its dangerous outcomes. As in an article entitled, "How to defend society against science" so begins, "In this article I'm going to defend the society and its members against all ideologies and science". Feyerabend compares science and ideology as equivalent and points to a delicate note, that science finds itself innocent from ideology, even anarchists who destroy the foundation of any method, leave science without criticism and argumentation and believe that it has to be preserved. If we refer to Habermas' words about ideology that every ideology is born from critique of ideology, science, in a way, gives itself a certain legitimacy that describes all ideology and traditions and this is when itself has transformed into ideology and will suppresses all other traditions.

One of the most notable implications of the approach of Feyerabend is that we must ask ourselves that, is living and a good life with beneficial methodology and

critical analysis possible? As Feyerabend asks the question, "Is life desirable according to the rules of critical rationalism"? Feyerabend then brings up another question that "Is it possible to have science, as we have known it, and have these rules?"

Feyerabend says: "As far as I am concerned the first question is much more important than the second question. (Ibid). Feyerabend says it is true that science is an important part of our culture and is the center of interest of many philosophers, but rationalism and methodology is something of interest to philosophers and thinkers who look at the world from behind his spectacles. They have applied scientism and rationalism in their own personal life and have even turned it into a political model. But if we pay attention to human interest, and above all, to at the issue of human freedom (freedom from hunger, despair, freedom from the tyranny of centralized systems and not "free will" academic), in this case (with critical rationality) we will proceed in the worst possible way. Education field of rationalist, isn't necessary to its exact and methodical meaning, rather it is not even possible. Of course, is dependent to the overall approach to education. If we consider education as life itself, be able to give students the freedom, imposing rationality is, in a way, cruelty to students. This is inconsistent with the spirit of humanistic education and on the other hand, with student's freedom in teaching and learning in the field of creativity, and we will provide such innovations that are beyond that circle of defined critical rationality.

Based on scientific principles that Feyerabend takes into consideration for reasonableness and common criticism of rationality most important implications of methodology can be extracted for educational research.

Pluralism (plurality): Feyerabend is extremely pluralist in each of his intellectual course, means Feyerabend has been accepted in pluralism and plurality as to the meaning of developing and creating legitimate and accepted theories of incompatible theories.

Feyerabend, along pluralism, has a very broad perspective, which includes religion and religious attitudes and even myths as well (James, 2013). In his own right, James Kidd believes that in Feyerabend's view:

"Central to that pluralism is the epistemological conviction that the use of 'radical alternatives' to prevailing theories and methods enables 'immanent critique' of entrenched systems of thought and practice. The use of radical alternatives can afford new and otherwise unavailable forms of empirical and theoretical critique and so provides an essential strategy for countering 'conceptual conservatism' – roughly, a tendency for enquirers to drift into a state of unreflective reliance upon a fixed set of epistemic resources that, in turn, can lead into a state of inadvertent dogmatism. On this reading, Feyerabend argues that progressive enquiry requires active resistance to conceptually conservative tendencies through appeal to radical alternatives to currently established systems of thought and practice"

(James, 2015)

Dyer also believes that:

"Feyerabend claims that "a scientist who is interested in maximal empirical content, and who wants to understand as many aspects of his theory as possible, will adopt a pluralistic methodology." This provides a strong and not merely tolerant claim for methodological pluralism"(Dyer, 2011).

In other words, Feyerabend's argues for freedom of society is the increasing restriction sare the increased restrictions have been lifted in culture. Again, these principles are various ways in Feyerabend's writings show, which includes a strong defense of pluralism both in science and in philosophy, prejudice and hostility towards conservatism, defense of beliefs and unusual practices such as voodoo and astrology, and the constant need to explore ideas, styles and different perspectives. Furthermore, for this reason, the Hickey says:

"Feyerabend proposed a second methodological principle, the "principle of proliferation", and he asks rhetorically, why not start proliferating theories at once, and why allows a purely normal science, as Kuhn conceives it, ever to come into existence ""(Hickey, 2014)?

James Kidd pointed this out, in an article, in this way:

"It is clear that Feyerabend agreed that freedom must include knowledge and familiarity with developing alternatives to achieve is to understand the transferability and credibility. That subject reflects points, pluralistic epistemology and Feyerabend's sense that the student must prepare a survey of the possibilities of human existence. This survey needs to induce a rich repository of the alternatives offered by the humanities, religions ancient traditions. This helps to explain why Feyerabend argues about this subject that here are many different methods of life-in different times and different cultures-and that such diversity gradually, with abuses of the past practices and identical views in modern society will disappear. Such progressive destruction is not only simply a concern about the reduction of cultural diversity-due to modernism-but is reduction of awareness of the fact that here is alternative replacement to the dominant life and it reflects what the purpose of Feyerabend in his unfinished book "Conquest of Abundance" (James, 2013).

In Feyerabend's view, no new theory should be abandoned due to incompatibility with the theory (methods) and the famous saying, "anything is possible" is in the context of pluralism of Feyerabend. Methodological pluralism in research and educational research methodology can be widely ignored; in this regard plura-

lism in a sense acts as a full mirror which defects of a dominant method is seen, meaning sometimes, in order for layers and method dimensions to become explainable, pluralism causes understanding the method a bit more. Pluralism's educational research in this direction can appear comparatively, meaning that if a subject is selected, it should be addressed comparatively and from other method's views. This view can achieve a more prominent role and place higher, particularly in the field of philosophical research in education, if such research in the field of philosophy of education is largely seen, which is that same research that is issued from the perspective of different philosophical schools or a school of philosophy in all its branches, for example, the definition of the word education in the views of idealistic, realistic, existentialism, pragmatic, postmodernism, analytic philosophy, and many more. Similarly, other issues and topics of research, with the extension of this approach to all aspects and dimensions of the subject matter will be discussed. A stability method or consistent methodology and the researcher:

It is perhaps the most important principle of the philosophy of Popper that can be put against the absolute revocation and exclusion. Because Popper denies every previous theories including Kuhn's views and believes that the purpose of gaining science is to find theories that get closer to the concept of truth with clear discussion. (Hickey, 2014) In fact, Fayrband was a Popperian because he acknowledged a philosophical principle of epistemology together with falsifications and inductive skepticism (Oberheim and Huene, 2000). Collodel (2015) also believes that:

Feyerabend stretched Popper's views to such an extreme limit that he lost control of the consequences of his magic performance (Collodel, 2015).

Here, Geelan believes that:

"Popper's perspective is itself a step away from logical positivism: it does not assert that scientific theories are true, simply that the best available theories are those that (a) explain observations better than competing theories and have yet to be falsified." (Geeelan, 2003)

Feyerabend also says:

"Passionately advocated theoretical pluralism, which he supported by means of various Strategies" (Tambolo, 2015).

He also believes that the researcher can defend a theory, by picking it, against the revocation and denial and can expand that view and extract the best results from it.

But the researcher at the time of selecting the theory or method, must consider two things; first, select the theory or the method that yields the best results, then not to let go of the method at the first sign of trouble in said method

and tend to changing the method. Feyerabend says, "The principle of stability is reasonable because theories can be developed, and it is reasonable because they can become better, they can find the capability to solve the same problems they were unable to solve at the beginning".

A critical look at methods

A researcher, who works with a free view and as Feyerabend says an anarchist view, will always look into the methods and even at the subject itself, with critical eye glasses. In fact, in Feyerabend's view, anarchy is a basic method in teaching. He believes:

"Anarchism is a world concept based upon a mechanical explanation of all phenomena," writes Kropotkin. 'Its method of investigation is that of the exact natural sciences ... the method of induction and deduction.' 'It is not so clear,' writes a modern 'radical' professor at Columbia, 'that scientific research demands an absolute freedom of speech and debate. Rather the evidence suggests that certain kinds of unfreedom places no obstacle in the way of science. ..."

In fact, Feyerabend's aim, rejecting criticism is the tradition and practices that surround the researcher. Even the approach of critical rationality itself, the researcher must also criticize the methodology of critical rationality and try to make change in it.

A free society is a society in which all traditions, equal rights, equal access to education, and other strong opportunities are provided. If traditions only have one advantage from the point of view of other traditions, then selecting one tradition as the foundation of a free society; is voluntary action and can only be justified resorted to force.

Feyerabend's epistemology can be called a free epistemology by expressing this sentence. Freedom for researcher is noteworthy from many dimensions; first, how much education systems provide freedom of the learners and where do they limit them. The researcher must be free to choose the subject and how to deal with it. Feyerabend in criticizing rationality-oriented approach comes to this conclusion that this type of methodology in science, is somehow imposed to the researcher and consequently, the whole system of knowledge from research on the kind of ideological rationalist and deterministic views that follows specific goals and is after removal and ignoring other traditions of human life to produce knowledge and Feyerabend's philosophy aims for service of freedom. (BakhshZadeh, 2011)

Howard Sankey(2011) in an article, by saying that proof of Feyerabend's book is mostly for "jokes", to explain and express anarchist in a free society says:

"In science in a Free Society, he said that 'anything

goes' was "a jocular summary of the predicament of the rationalist" who insists on universal standards" (Sankey, 2011)

Also, in an article entitled "*Freedom without foundation*," the author claims:

"In Feyerabend's teachings, to preserve freedom, we must be committed to a tradition. If we cannot reach an agreement with the tradition itself, freedom will jump over tradition with one leap. Certainly there are many traditions where values of freedom have found just as much limited potential and most are against advancement, in another name. Therefore, in addition to a complete theory of the social process, a very strong ethical framework is needed." (Gergen, 1986)

Conclusion

Many critiques consider Feyerabend as an "anti-science". But it's better to consider this that he is not anti-science but as anti-science of a critic, of the false concepts and exaggerated, or the nature, scope, and value of science.

In Feyerabend's view, investigator should look at the world so its grasp is much further than its limitations to one or few specific methods. Every phenomenon that appears to us always has the possibility of unknown layers within it. Feyerabend will accept scientific plausibility only in the case when researcher always considers science and the scientific method more limiting and incomplete than life itself. Feyerabend points to history in order to explain the plausibility of knowledge, from his perspective, calls it the richness. "History, in general, and especially the history of the revolution, is always richer in terms of content and variety of being alive, comprehensive and accurate, better than best historians or epistemologists can imagine."

Epistemology must generally and a researcher particularly, take this into account this point and always recognize the methodological limitations and think creatively and to benefit from the method of their liberty, as well as other members of society.

"History is full of events and guesses and the sequence of events and this proves to us that complexity of the human and non-stereotypical attributes (or unpredictable forecast) are the final results of any act or decision of the people." Do we really believe that raw and simple rules epistemologists use are capable of justifying "complexities caused by the interactions and regrets"? Is it not clear that successful participation in a flow of this kind is possible only for a bold opportunist person, who is not affiliated to any particular philosophy and will accept any practical way that provides the opportunity?

Feyerabend quotes Einstein: External conditions that empirical phenomena provide for the [scientist], do not allowed him, through adherence, to be so limited to an epistemological system that their conceptual world.

Therefore, he must appear as reckless opportunistic before systematic epistemologists...." (Ibid)

The researchers, while investigating, should not be bound to any particular method and should just chose one method with the excuse that it is rational and systematic. This approach should be considered in the field of education and the approach is doubly important to education and educational research. A successful educational system is a system that will provide its learners intellectual creativity and on the other hand researchers in the field of education deals with human beings and human phenomena and it can be said that, human beings are the most complex in all existence and hence when dealing with educational events' riddle, this one importance should always be considered.

It seems that against the modernist epistemology viewpoints and structural-oriented and its implications in the field of educational research that are emphasized in logic and logical rationality and scientific in research, considering Feyerabend's stance, since it is a Post-structuralism view in the field of science, he has introduced rationality and knowledge which has its own implications for research in education, today is the necessity of philosophical research.

Conflict of Interests

The author has not declared any conflicts of interest.

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Full Length Research Paper

The impact of Facebook in teaching practicum: Teacher trainees' perspectives

Sehnaz Baltaci Goktalay

Uludag University, Faculty of Education, Department of Computer Education and Instructional Technologies, Turkey.

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Prompt feedback is one of the critical components of teacher education programs. To reap the greatest benefit from the teaching practicum process, the quality of feedback as well as its implementation by stakeholders, supervisors, cooperating teachers, and teacher trainees, takes on great importance. The purpose of this study is to examine how Web 2.0 tools support a teaching practicum course at a large public university and to discuss Facebook in relation to feedback and informal learning. The use of Facebook in a university setting aims to encourage interactions among stakeholders, thus enhancing instant and appropriate feedback mechanisms and informal learning. Data were obtained by monitoring posts within a closed Facebook group and from a teacher trainee survey whereby teacher trainees indicated the ways in which they adapted to this technology. Findings indicate that teacher trainees have benefited from Facebook in receiving prompt feedback; communicating with their peers, supervisors and cooperative teachers; sharing knowledge; collaborating with their peers; and improving their professional performance. The observed benefits of Facebook use by teacher trainees should therefore be an important consideration for teacher education programs in the 21st century.

Key words: Teacher training, teacher trainees, clinical supervision model, Web 2.0, Facebook, feedback, teaching practicum.

INTRODUCTION

Socializing online has become an increasingly important part of college student life (Petrovic et al., 2014). The prevalence of social networking site (SNS) use is increasing enormously both in Turkey and worldwide. As of the last quarter of 2014, over 30 million individuals in Turkey are Facebook users (i.e., indicative of a 26% penetration rate), most of whom are among the younger generation (The Statistics Portal, 2015). The younger generation communicates and establishes social

relationships through SNS. A report by the Pew Internet & American Life Project (Duggan and Smith, 2013) shows that 73% of online adults use SNS and that 42% of them use multiple SNS; however, Facebook remains the dominant platform for users. The rise of Facebook's popularity raises questions about its impact on college students (Kirschner and Karpinski, 2010; Abramson, 2011; Junco, 2011; Kamenetz, 2011; Petrovic et al., 2013; Petrovic et al., 2014) and new possibilities for using

E-mail: sehnazbg@uludag.edu.tr. Tel: (+90) 533 3523244, (+90) 224 2942216.

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these tools in the furtherance of active and informal learning (Joly, 2007; Kassens-Noor, 2012; Petrovic et al., 2012; Petrovic et al., 2013, Baltaci Goktalay et al., 2014).

Although social media and Web 2.0 tools were not specifically designed for educational purposes, these technologies have received intense and growing educational and research interest in recent years. Web 2.0 offers new learning environments based on embedded user-driven, participative, and social networking characteristics. Web 2.0 refers to a variety of digital applications, which are mostly open source. Web 2.0 tools transform the learning context by providing multiple opportunities for shared content and resources, reflection, feedback, self-directed learning, informal learning, collaborative learning, and ubiquitous and lifelong learning (Gao et al., 2012; Reupert and Dalgarno, 2011; Glassman and Kang, 2011; McLoughlin and Lee, 2008b).

The educational potential for Web 2.0 has led to many recent studies in higher education addressing topics including social networking (Daher and Baya'a, 2013; Barczyk and Duncan, 2013; Wang et al., 2012; Junco, 2012; Baya'a and Daher, 2012; Cheung et al., 2011; Cheong, 2010; Kirschner and Karpinski, 2010; Roblyer et al., 2010), microblogging (Aydin, 2014; Munoz et al., 2014; Kassens-Noor, 2012), wikis (Hadjerrouit, 2014; Lai and Ng, 2011), and blogging (Bennett et al., 2012; Reupert and Dalgarno, 2011; Halic et al., 2010; Chuang, 2010; Hramiak et al., 2009). Despite this high level of activity, there is limited empirical evidence and few critical accounts that reveal the effectiveness of the implementation of Web 2.0 tools by teacher education programs, specifically in teaching practicum (Goktalay et al., 2014; Bennett et al., 2012).

As a free Web 2.0 tool, Facebook is the most popular SNS among university students. Since its inception in 2004, Facebook has seen a steep rise in users, especially among the younger generation. According to a Pew Research Center report (2014), 71% of young adults (ages 18-29) go online daily, and 87% of them use Facebook. Facebook has the potential to become a useful tool given its popularity and students' familiarity with its use (Barczyk and Duncan, 2013). Because Facebook provides opportunities for users to share knowledge, write comments, and engage in peer-to-peer interaction, it can enhance learning experiences in an informal setting (Kirschner and Karpinski, 2010). This paper aims to examine how Facebook supports a teaching practicum course in terms of instant feedback and informal learning.

Informal and active learning

Dewey (1938) posited that students' experiences and active participation are key factors in their learning process. Active learning is the key principle in Chickering

and Gamson (1991)'s study on best practices in undergraduate education. Active learning involves lively discussions between instructors and students, peer-to-peer discussions, reflective writing and feedback, and group work to enhance knowledge through engagement (Kassens-Noor, 2012). Active learning may evolve within formal and informal settings. Although research on informal learning is not new, the advent of Web 2.0 technologies challenged the educational community to pay greater attention to the relationship between technology and informal learning and to explore how informal learning can inform formal learning (Lai et al., 2013). Researchers have adopted different perspectives when defining informal learning. While most researchers (Callanan et al., 2011; Sefton-Green, 2004) focus on location (e.g., *outside of the classroom*) when conceptualizing informal learning, others (e.g., Eshach, 2007; Laurillard, 2008) focus on the structure and process of learning as well as on instructor-student interactions. This view defines informal learning as "a self-directed, intentional interest (rather than curriculum based), non-assessment-driven and non-qualification-oriented endeavor" (Lai et al., 2013). Hicks and Graber (2010) argue that Web 2.0 tools may have created a *learning reality* that differs significantly from the formal learning setting. They therefore encourage researchers to examine these tools in order to reveal new instructional designs that make use of this technology. A review of the existing literature (Gao et al., 2012; Reynolds and Fell, 2011; Reupert and Dalgarno, 2011; Erdem, 2008) shows evidence that digital technologies can facilitate the flow of learning from formal to informal contexts.

Blending formal and informal learning using Facebook

Hannay and Fretwell (2011) predict that Web 2.0 tools will soon be adopted by universities and that the use of SNS in particular will become increasingly commonplace in university coursework. Hamilton (2011) claims that change is a must in education, given learners' expectations, technological change, and changes in teachers' roles. Web 2.0 tools have the potential to lead a redesign of the current learning environment by providing linkages between formal and informal learning. In particular, during the teaching practicum, teacher trainees need continuous feedback from their supervisors, cooperating teachers, and peers. Facebook can help to enrich the reception of feedback and facilitate interactions among stakeholders. Facebook as a mobile technology can also offer mobility and portability as well as provide pedagogical affordances in education, thus enabling learning in both formal and informal settings by eliminating the need for a fixed location and time (Hurt et al., 2012).

Web 2.0 as an e-mentoring tool

Social media as a tool to enhance informal learning has a substantial impact in educational settings (Kassens-Noor, 2012). Previous studies (Caner, 2010; Cheong, 2010; Chuang, 2010; Hramiak et al., 2009; McLoughlin et al., 2007; Single and Muller, 2001) have focused on Web 2.0 as an e-mentoring tool between faculty members and students. E-mentoring allows for greater flexibility than face-to-face mentoring because there are no time and place constraints. Single and Muller (2001) state that it is more advantageous for teacher trainees to give thoughtfully constructed written feedback using any type of Web 2.0 tool (e.g., blogs, discussion boards, emails, Facebook, etc.) than to respond immediately through oral communication. Another benefit of e-mentoring is the development of supportive relationships among peers and the promotion of greater cohesiveness within an online learning group. According to Caner (2010)'s study with 18 Turkish teacher trainees, teacher trainees require substantial feedback both for their lesson plans and their actual teaching practice; therefore, providing a platform whereby supervisors can reflect on teacher trainees' lesson plans and weekly work—and can give online written feedback—could contribute to teacher trainees' professional development. In addition, this type of online platform can encourage teacher trainees to be more active in class discussions and to become more interactive and collaborative learners (Caner, 2010). Cheong (2010) implemented Second Life during teaching practicum in the Republic of Korea with 110 pre-service teachers. The results showed that online collaboration and reflections/feedback affected pre-service teachers' personal teaching expectancy; however, it had no impact on their teaching outcome expectancy. In a similar study, English and Duncan-Howell (2008) used Facebook to examine 28 Australian teacher trainees' teaching practicum experiences. The results of this study indicated that Facebook can be utilized to support students during the practicum process. Yoon (2008) used online chat rooms and virtual reality to enrich communication between supervisors and teacher trainees. The results of the study suggest that supervisors and teacher trainees can communicate more easily through the Internet, without time and space-related limitations. In another study, Chuang (2010) examined how social media shaped 31 Taiwanese student-teachers' reflective practice during the teaching practicum. The results revealed that online conversations promoted collaboration, encouraged reflective practice, and enhanced community-building. Hramiak et al. (2009)'s study involving 38 teacher trainees in the UK demonstrated that online feedback helps teacher trainees to develop abilities with which to reflect critically on their experiences in school, thereby contributing to their professional development. Although affirmative research in the literature is plentiful, e-mentoring is not without its difficulties. For example,

Ensher et al. (2003, p. 276) identify five key challenges related to e-mentoring, including the increased likelihood of miscommunication, the slower development of relationships, the need for computing skills, the potential for technology malfunctions, and privacy issues.

Purpose of the study and research questions

As presented above, the literature supports three conclusions about Facebook use in teaching practicum. First, researchers who have experimented with Facebook and similar social networking sites agree that they can have a positive impact on communication among stakeholders in teaching practicum. Second, a number of studies have affirmed that Facebook encourages reflection and can be used as an e-mentoring/feedback tool. Third, researchers suggest that Facebook has the potential to transmit knowledge, promote informal learning, and inspire peer collaboration, especially in teaching practicum.

Despite various suggestions about the use of Facebook in academic settings, there are few empirical studies available, and none address teaching practicum courses in Turkey. In addition, qualitative studies examining the effect of using Facebook outside of the classroom as an informal learning tool do not yet exist. Therefore, the goal of this study is to examine Facebook as an informal learning tool. This study explores the ways in which teacher trainees, supervisors, and cooperating teachers communicate, give feedback, and retain knowledge when using Facebook during teaching practicum. The research questions are as follows:

1. What is the social network adoption level among teacher trainees according to Unified Theory of the Acceptance and Use of Technology (UTAUT)?
2. For what purposes do teacher trainees use social networking sites in general?
3. Does Facebook accelerate communication during teaching practicum?
4. To what extent does Facebook use in teaching practicum serve to solicit increased feedback from peers, cooperating teachers, and university supervisors?
5. Does Facebook promote peer collaboration during teaching practicum?
6. To what extent does Facebook use in teaching practicum serve to improve the professional performance of teacher trainees?

THEORETICAL FRAMEWORK

To date, many models of technology acceptance have been developed; of these, several examine pre-service teachers' technology acceptance in particular. This research draws on the UTAUT model as the theoretical

framework for this study (Venkatesh et al., 2003). Venkatesh et al. (2003) integrated factors from previous technology acceptance models. Usluel and Mazman (2009) generated a Facebook adoption model (SNA) based on the UTAUT model in Turkey and thereby identified five factors affecting the Facebook adoption process: usefulness, ease of use, social influence, facilitating conditions, and community identity. This study also draws on Pedagogy 2.0 (McLoughlin and Lee, 2008a), which aims to form an online or face-to-face learning environment within a class wherein all stakeholders contribute to and discuss a collective understanding of the topic/practice. For students to maintain control over their own learning in the classroom with Pedagogy 2.0, the instructor should provide an effective learning environment with attention to the following:

1. *Content*, including a wide variety of learner-generated resources
2. *Curriculum*, open to negotiation and student input as well as blending formal and informal learning
3. *Communication*, offering various forms of visual, verbal, written, and auditory tools among stakeholders
4. Contextualized and reflective *learning processes*
5. Multiple formal and informal *resources*
6. *Scaffolding*, students have support from a network of peers, teachers, and other experts
7. Authentic and personalized *learning tasks* designed by students

In the current study, a learning environment with Pedagogy 2.0 features was provided to teacher trainees through a closed group on Facebook.

METHODOLOGY

This study was conducted during the spring semester of the 2013-2014 academic year. The ultimate goal of the larger project was to develop a Teaching Practicum Program based on the Clinical Supervision Model (Bulunuz et al., 2014; Gürsoy et al., 2013) in which teacher trainees receive maximum feedback and supervision. This study examines the use of a Facebook group as an informal learning tool in the experimental group.

Participants

The participants in this study were 41 teacher trainees, from a national university's teacher education program in Northwestern Turkey, enrolled in a required teaching practicum course. Traditionally, teacher trainees in Turkey complete their 4-year teacher education preparation courses and spend one year (i.e., one semester as an observer, one semester as a student teacher) at designated primary/elementary schools as part of their teaching practicum. University supervisors are supposed to engage in at least three visits to each teacher trainee during this time to provide feedback and support for her/his professional development. In the current study, after teacher trainees successfully completed the course and were graded, they were asked to take part in a survey.

Course design and implementation

In this case study, a Facebook group was used in a teaching practicum course, a four-credit required course offered during the spring semester of the 2013-2014 academic year. A total of 48 teacher trainees took part in the course. The course was 14 weeks long and comprised both two hours per week of face-to-face sessions and six hours per week teaching practice at primary schools. The Facebook group was created at the beginning of the semester and all stakeholders (i.e., 48 teacher trainees, 8 cooperating teachers, and 8 university supervisors) were invited to join to the group. The administrator of the group was the author. The Facebook group was originally set up as "open" to the public so that access did not require users to be Facebook friends. After all stakeholders joined the group, it was set to "closed" so that group discussions could be kept away from random access by others. During students' first face-to-face session, stakeholders were invited to a computer lab and were instructed as to how they were to use the Facebook group as a feedback and communication tool during the semester. Stakeholders were also asked to keep any personal messages mentioning the teaching practicum for submission to the author at the end of the semester. Four teacher trainees refused to use Facebook for personal reasons; therefore, 44 teacher trainees were included in the study and of these, 41 completed the survey.

The Facebook group provided access to a course syllabus, a clinical supervision model booklet covering key concepts, readings, announcements about the course requirements, meetings, seminar presentations, course materials, weekly forms and assignments, shared experiences, videos, and photos. In this way, course supervisors had the advantage of being able to provide course content for teacher trainees more quickly than in other conventional/formal learning environments. The blending structure of the teaching practicum course in this study can be seen in Figure 1. The Clinical Supervision Model has five stages including pre-conference, observation and data collection, data analysis, post-conference, and reflection. First, a supervisor organizes a pre-conference with a teacher trainee to provide a plan for future observation. Then, he/she conducts a systematic observation and collects data on the teacher trainee's teaching practice, followed by an analysis prior to a three-way conference between the supervisor, cooperating teacher, and teacher trainee. During the post-conference, stakeholders (e.g., peers, supervisors, cooperating teachers) provide supportive feedback to the teacher trainee so that he/she can make plans to improve his/her future teaching performance. Lastly, a supervisor may ask a colleague to reflect on their performance during the previous stages of the Clinical Supervision Model.

Instrument and data collection

A combination of constructs from two models (i.e., UTAUT, SNA) underpins this research study (Table 1). In addition, three variables were added to the study: Peer Collaboration, Benefits in terms of Communication, and Feedback. These constructs were combined into a survey (see Table 1 for the source of the constructs and Appendix 1 for the survey items). The survey was divided into three parts: the first part gathered demographic data (4 items), the second part included questions about the nine constructs (i.e., actual use, usefulness, ease of use, social influence, facilitating conditions, community identity, communication benefits, peer collaboration, and professional performance expectancy) (26 items), and the last part included open-ended questions asking participants to provide comments on how they used Facebook in terms of receiving feedback from their cooperating teacher and university supervisor (2 items).

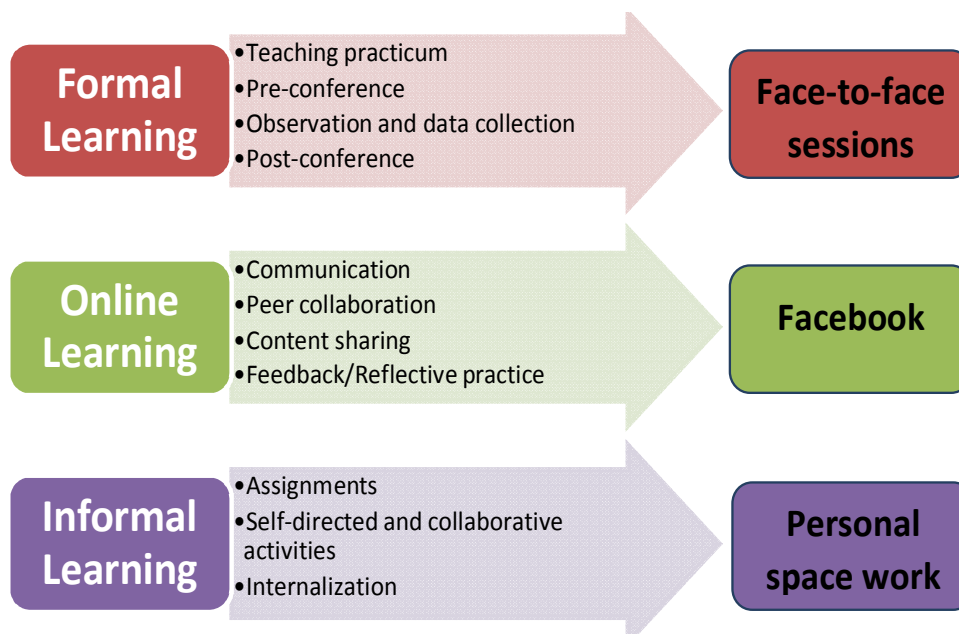


Figure 1. The blended structure of the Teaching Practicum Course based on the Clinical Supervision Model (Modified from Lai et al. (2013) and the Mobile-Blended Collaborative Learning Model).

Table 1. Constructs and source.

Constructs	Source
Usefulness (U)	SNA, UTAUT
Ease of Use (EoU)	SNA, UTAUT
Social Influence (SI)	SNA
Facilitating Conditions (FC)	SNA, UTAUT
Community Identity (CI)	SNA
Performance Expectancy (PE)	UTAUT
Actual Use (AU)	UTAUT
Benefit in terms of Communication (BoC)	Newly added
Peer Collaboration (PC)	Newly added
Feedback (F)	Newly added

Data analysis

Data analysis was both quantitative and qualitative. Quantitative data (e.g., means, standard deviations, frequencies) were calculated using SPSS 22.0. Open-ended questions were analyzed with a hybrid approach to qualitative data analysis using both a data-driven inductive approach described by Boyatzis (1998) and a deductive a priori template of codes approach outlined by Strauss and Corbin (1990). This approach involved the creation of a template in Excel, developed a priori based on the research questions and theoretical framework, to be applied as a means of organizing text for subsequent interpretation. In practice, the analysis process was conducted in the following phases. First, open-ended questions were read through to familiarize with the questionnaire's content. Second, the data were coded deductively into four themes (Inan and Lowther, 2010): communication benefits, feedback, peer collaboration, and professional performance expectancy. Third, further inductive thematic analysis was carried

out within each theme. Benefit in terms of communication was organized into three categories: communication, feedback, and sharing knowledge. Feedback was organized into three categories: course plans, course materials, and common student issues/questions. Peer collaboration was organized into three categories: sharing course plans, sharing course materials, and communicating with and/or helping one another. Professional performance expectancy was organized into three categories: faster communication, sharing knowledge, and prompt feedback.

RESULTS

Quantitative results

A total of 48 teacher trainees enrolled in the teaching practicum course during this study; however, four of these teachers did not agree to participate in the study because they were not willing to use Facebook at all. When volunteer teacher trainees were asked to take part in the survey at the end of the semester, 41 teacher trainees participated in the survey. The overwhelming majority of participants were female (86%, 38), a demographic breakdown that is in line with the general gender ratio of the department. The majority of participants reported having a 'good' or 'very good' level of computer literacy (95%, 42), with only 2 participants reporting that they could not operate computers well. When asked how often they used Facebook, the results were 73% (32) a few times a day, 11% (5) once a day, 7% (3) very rarely, and 9% (4) only used for this course.

Table 2 shows that the highest mean was indicated for ease of use (4.335±0.704), followed by facilitating

Table 2. Means of social network adoption (SNA) subcategories.

Factors	N	Minimum	Maximum	Mean	Std. Deviation
Usefulness (U)	41	1.75	5.00	3.835	0.697
Ease of Use (EoU)	41	2.00	5.00	4.335	0.704
Social Influence (SI)	41	1.00	4.50	2.664	1.011
Facilitating Conditions (FC)	41	2.40	5.00	4.092	0.492
Community Identity (CI)	41	1.00	4.50	3.323	0.887

Table 3. Purpose of using social networking sites.

Purpose	N	Percent
Using only for teaching practicum	7	8
Communicating with my friends and find new ones	27	32
Having fun in spare time	20	24
Playing games	7	8
Joining groups and being social	8	9
Sharing information/videos/photos	16	19

Table 4. Themes for communication benefits.

Communication	f	Feedback	f	Sharing knowledge	f
Faster communication	10	Detailed/constructive feedback	1	Common questions	5
Ease of communication	30	Prompt feedback	15	Course documents	6

conditions (4.092 ± 0.492). Social influence has the lowest mean (2.664 ± 1.011). In another question, when participants were asked for what purposes they use social networks, 32% of stated that they used SNS “to communicate with my friends,” followed by “for fun” (24%) and “to share information” (19%), as seen in Table 3.

Qualitative results

Benefit in terms of communication

When participants were asked “Do you think using Facebook in the teaching practicum accelerates your communication with other stakeholders?” of the 41 participants who responded to this question, the majority (93%, 38) answered in the affirmative, while three (7%) indicated that Facebook did not accelerate their communication with others. The three participants gave the following reasons for their negative views: “Since I don’t know the others in my group in person, I was hesitant to communicate with them through Facebook” (Respondent 2); “Since some of the stakeholders did not use Facebook, it could not help to accelerate our communication” (Respondent 38); and “I used Facebook only for this course, and did not use it for communication purposes. I just followed the others’ posts on the wall”

(Respondent 30).

Participants who thought Facebook was beneficial in accelerating communication stated that “...Facebook made it possible to communicate faster and get prompt feedback” (Respondent 11 and 23), “It was nice to share knowledge through Facebook with peers experiencing the same teaching practicum process” (Respondent 39), and “Since Facebook is at my disposal, it was easy to communicate with others through Facebook” (Respondent 34).

Table 4 shows the response frequencies of the follow-up question: “What kinds of benefit do you think using Facebook added to your teaching practicum process in terms of your communication with other stakeholders?” Three themes emerged from participants’ responses: communication, feedback, and knowledge sharing. While 40 responses mentioned communication, 10 focused on how Facebook made communication faster, and 30 responses discussed the ease of communication. Respondent 4 stated, “We always communicated via Facebook throughout the semester with my peers, my cooperating teacher, and my university supervisor.” It was also stated that “Knowing that I was able to reach my cooperating teacher and supervisor via Facebook at any time reduced my concerns. We were able to communicate without any interruption. I had a strong relationship with my teachers” (Respondent 11). On the second

theme, one participant stated, "We communicated faster and received constructive feedback through Facebook" (Respondent 1), and 15 participants indicated that they received prompt feedback. Respondent 16 stated, "I was able to modify my course plan when I received my university supervisor's feedback through Facebook before the course. Moreover, I got feedback from my cooperating teacher about the activities I prepared in my course plan and I went to my class very well prepared. We also gave feedback to each other as teacher trainees when we saw our course plans on Facebook." Another participant mentioned "Our practicum school was far away from my house. It would have been so hard to get prompt feedback from my cooperating teacher if I hadn't used Facebook. I could also use Facebook with my peers any time of the day." A further 11 participants also mentioned the benefits of using Facebook to share knowledge. While six respondents indicated that they were able to become more aware of course requirements and obtain documents and forms more easily through Facebook, five participants also mentioned that they did not have to ask as many questions because they were able to find answers to common questions about the course on the group's Facebook wall. Three participants reported negative experiences with Facebook use. One (Respondent 2) stated that "I was able to get feedback after 3-4 hours, though sometimes it took as much as 24 h through Facebook. I prefer prompt feedback by calling my cooperating teacher and talking on the phone."

Feedback

The main reason that Facebook was used in the teaching practicum was to provide prompt feedback to teacher trainees. This study therefore investigated Facebook use from the perspective of all stakeholders involved (e.g., cooperating teachers, university supervisors, teacher trainees). First, participants were asked "To what extent do you agree that the use of Facebook in the teaching practicum course helped you to get more feedback from your University Supervisor?" While 36 participants (87%) answered this question positively, five participants (13%) reported that they did not receive feedback from their university supervisor through Facebook. These participants gave the following reasons for their negative answers: "My supervisor answered my questions on Facebook, but I did not receive feedback in regard to my course plans or materials" (Respondent 20), "We were communicating face-to-face to receive feedback on my course materials" (Respondent 28), "Since I did not share anything with her, she did not give me any feedback on Facebook" (Respondent 30), "We didn't share much on Facebook" (Respondent 35), and "We preferred face-to-face meetings instead of Facebook" (Respondent 39). Positive answers were categorized into three general

themes: *course plans, materials, and common questions*. A total of 24 participants indicated that they received feedback on their course plans from their university supervisor through Facebook. For example, Respondent 41 stated that "Every week I shared my course plan with my supervisor on Facebook. After my supervisor gave me feedback, I made the necessary modifications and shared it again to receive final approval from her." One participant reported that he/she used Facebook at least three times a week to share course plans, videos, and materials to get feedback as well as to brainstorm in preparation for the next course (Respondent 15). Eight participants indicated that in addition to getting feedback on their course plans, they also received feedback on their course materials. For example, Respondent 32 stated "My supervisor always gave me feedback on my songs, activities, videos, visuals, etc., that I planned to use in my next course. I believe I received very constructive feedback from her. I asked for help from her any time I needed it, and she was very responsive. We also talked about common problems that all of us faced during the practicum." Four other participants also indicated that Facebook was a beneficial tool for solving common problems/issues. Table 5 shows how the responses related to feedback from university supervisors were categorized.

When asked, "To what extent do you agree that the use of Facebook in the teaching practicum course helped to get more feedback from your cooperating teachers," the response pattern was a little different from that of the previous question. While 30 participants (73%) answered in the affirmative, 11 (27%) indicated that they did not receive feedback from their cooperating teachers through Facebook. Participants receiving feedback through Facebook reported that they received feedback both for their course plans (19) and for their course materials (14). Feedback with regard to course plans was rated the most highly by participants. Almost half of the participants (19) received feedback on their course plans from their cooperating teacher. One participant reported, "We were using Facebook at least four times a week to share materials to get feedback. She gave me very handy feedback about course plans, materials, and school resources. I believe that I received very adequate feedback from my cooperating teacher" (Respondent 15).

Another participant responded that "my cooperating teacher suggested movies and books that I could use in class and gave me feedback on my course plans" (Respondent 38). One participant indicated that although she received feedback on her course plans through Facebook, it was not always a quick response; thus she preferred to engage with her cooperating teacher in face-to-face meetings through the end of semester (Respondent 8). Four participants indicated that they received feedback with regard to common issues and inquiries about students who needed extra attention in

Table 5. Feedback received from university supervisors through Facebook.

Feedback	f (n=41)
Course plans	24
Course materials (Videos, songs, hands-on activities, visual materials, etc.)	8
Common issues/questions/problems	4
Received no feedback	5

Table 6. Feedback received from cooperating teachers through Facebook.

Feedback themes	f (n=41)
Course plans	19
Course materials (Videos, songs, hands-on activities, visual materials, etc.)	14
Common issues/questions/problems about school/students	4
Received no feedback	10

Table 7. Peer collaboration.

Peer collaboration themes	f (n=41)
Sharing course plans	15
Sharing course materials (activity sheets, visual materials, videos, songs, etc.)	11
Communication/Brainstorming/Helping each other	19
No communication through Facebook with peers	5

class. There were a high number of responses (10) reporting that they could not receive feedback through Facebook from their cooperating teachers. One participant reported that “Although I sent all my course plans and materials such as photos, videos, songs, and activity sheets to the cooperating teacher, she only wrote “thanks” and gave no feedback” (Respondent 23). Out of 10 negative responses, seven reported that they did not use Facebook at all. One indicated that “my cooperating teacher was not active on Facebook, so we preferred face-to-face conversations” (Respondent 12). Two participants responded that they preferred face-to-face meetings, but gave no reasons for this choice. Table 6 presents the teacher trainees’ responses with regard to feedback they received from their cooperating teachers.

Peer collaboration

In answer to the question, “To what extent do you agree that the use of Facebook assisted with peer collaboration?” the participants’ responses echoed three major themes: sharing course plans, sharing materials, and communication (Table 7). While 36 participants (87%) reported that they communicated with their peers through Facebook, five reported that they preferred not to

communicate with their peers through Facebook; instead, they called each other or used WhatsApp messages.

Three of the participants who did not use Facebook as a collaboration/communication tool indicated that they preferred phone calls (Respondents 21, 37, and 38), while another stated, “They were my close friends, so we were meeting face-to-face instead of messaging through Facebook. I think face-to-face meetings prevent misunderstandings” (Respondent 2), and the last participant (Respondent 30) did not indicate any reason why she did not use Facebook with her peers. In addition, eight participants answered simply “yes, it was useful,” but gave no other explanation. Of the 24 participants who reported that Facebook was useful in peer collaboration, 15 indicated that they used Facebook to share course plans, 11 used it to share other course-related materials, and 19 used Facebook to help brainstorm about course preparation, give feedback, share announcements, and communicate course requirements.

One participant reported, “I used Facebook only with my peers in my teaching practicum group. We shared all of our course plans and gave feedback to each other. We always supported each other” (Respondent 31). Another stated, “When someone in my group needed help in any course-related activity or homework, we worked collaboratively, did some brainstorming and solved

Table 8. Themes for improvement of professional performance (n=41).

Communication	f	Feedback	f	Sharing knowledge	f	Negative response	f
Faster communication	10	Prompt feedback	12	Common questions	2	Facebook has no effect on professional performance	8
Ease of communication	7			Course documents	2		

problems" (Respondent 32).

Improvement of professional performance

The last open-ended question was "To what extent do you agree that the use of Facebook in the teaching practicum course helped to improve your professional performance?" While 33 participants agreed that Facebook helped to improve their professional performance, eight did not agree (Table 7). A total of 17 participants reported that they communicated more quickly and easily with their cooperating teachers and supervisors and thus received more feedback. Faster communication therefore affected their professional performance in a positive way. Four participants mentioned that sharing knowledge with their peers helped them to improve their performance, and 12 observed that receiving prompt feedback on their course plans through Facebook was very helpful in improving their professional performance. One response was "I can't deny Facebook's help. It was very easy for us to get feedback from our teachers. In addition, I joined some other Facebook groups about the teaching practicum and other teacher trainees' suggestions gave me new ideas to apply to my own courses" (Respondent 18). Another similar response was "It was helpful to be able to see my peers' activity sheets, course plans, photos, and other posts to form my courses" (Respondent 39). Two participants reported that Facebook made it possible to reach all stakeholders anytime they needed. However, eight participants reported that Facebook had negligible effects on the improvement of their professional performance (Table 8).

DISCUSSION AND CONCLUSION

This study has provided a real world overview of the adoption of Facebook as a Web 2.0 technology in a teaching practicum course, investigating teacher trainees' reflections on the impact of this approach from different perspectives: peer collaboration, communication benefits, feedback, and the improvement of professional performance. This study followed Pedagogy 2.0 theory while providing a rich environment in which learners could communicate with a variety of tools, receive feedback, access resources through formal and informal

means, seek support from Facebook group stakeholders, and complete authentic learning tasks during the teaching practicum.

The first research question explored teacher trainees' adoption of social networking sites. When the means of social network adoption were examined, results were in line with a study by Tanrıverdi and Sağır (2014). Teacher trainees stated that they preferred to use the Facebook group primarily because it was easy to use in terms of soliciting feedback for their lesson plans and classroom activities.

The second research question addressed teacher trainees' reason for using social networking sites. Findings show that communicating with friends was the most frequently cited reason for using Facebook, followed by a way to spend spare time and sharing information. A similar study reports that college students primarily spend time communicating with their peers, playing games, and watching videos (Rideout et al., 2010).

The third research question examined whether Facebook accelerated communication during the teaching practicum. The findings show that the majority of participants (93%, 38) agreed that they benefited from Facebook in terms of communication with their peers, as well as cooperation with teachers and university supervisors. It was found that fast and easy communication facilitated prompt feedback and the sharing of knowledge. Teacher trainees reported that Facebook is a convenient tool for enhancing discussion. These results support the study by Barczyk and Duncan (2013), which addresses Facebook use in higher education courses.

In the fourth research question in this study, the author sought to identify the extent to which Facebook use in the teaching practicum served to facilitate the exchange of feedback between students, their peers, cooperating teachers, and university supervisors. Most teacher trainees (87%) reported that they received prompt feedback from their university supervisors. This finding runs contrary to that of Roblyer et al. (2010), who found that only 6.5% of faculty members communicate with their students with regard to class activities. However, it was reported that fewer teacher trainees (73%) received feedback from cooperating teachers through Facebook. Even positive responses revealed that cooperating teachers preferred oral communication or phone calls to Facebook. The difference between university supervisors and cooperating teachers might be attributable to gender or age. University supervisors in the study were all

females in their 40s, while cooperating teachers were mostly males over the age of 50. Moreover, university supervisors were more aware of the importance of giving feedback to teacher trainees than were cooperating teachers. Teacher trainees need to receive substantial feedback on both lesson plans and other classroom activities during the teaching practicum course (Caner, 2010). The need for feedback is always emphasized among education faculties. Teacher trainees also stated that they received frequent feedback from their peers through Facebook as well as through oral communication. They also responded to the fourth research question by stating that Facebook promoted peer collaboration by allowing users to easily share course plans and materials and to help each other with course-related problems. The last research question examined teacher trainees' perceptions of the effect of Facebook on professional performance. While 80% of respondents answered to the affirmative, 20% indicated that Facebook use had not improved their professional performance.

The study revealed that teacher trainees were not using Facebook as an educational tool prior to the inception of this study. This lack of usage could be attributed to the fact that Web 2.0 technologies had not yet been sufficiently introduced into the higher education environment. By contrast, with the introduction of the FATİH project (MEB, 2012), K-12 teachers were required to be technology savvy and able to integrate Web 2.0 technologies into their instruction. In addition, according to Pedagogy 2.0, Web 2.0 tools should be integrated into coursework to support knowledge sharing, enable peer-to-peer networking, and facilitate greater learner autonomy (McLoughlin and Lee, 2008b).

Increased feedback for teacher trainees is an important benefit of the use of Web 2.0 tools in teacher education programs. Integrating such tools into the teaching practicum in particular can serve to advance the student-centered learning approach of Pedagogy 2.0. This study highlights the positive outcomes from creating an informal learning environment for teacher trainees that centers on the affordances of social networking tools to improve teaching practices.

Additional research investigating the teaching practicum is warranted, specifically studies that focus on how cooperative teachers and supervisors can benefit from using Web 2.0 tools to change their pedagogical practices to better serve teacher trainees. This study focuses solely on teacher trainees in primary education, many of whom had known each other for four years, i.e., the duration of their degree course. This familiarity may have skewed the data in favor of positive perceptions of Facebook that might not otherwise have been presented. Scholars are encouraged to replicate this study with teacher trainees in other disciplines to validate the findings discussed herein. Studies involving larger groups of teacher trainees might also provide another perspective on the building of community among teacher trainees,

cooperative teachers, and supervisors who are away during the practicum and who rely on Facebook to communicate and give feedback.

The findings of this study may have important implications for teacher education programs that apply a clinical supervision model and seek to prepare teachers to teach in 21st century classrooms. While integrating the effective use of Web 2.0 tools, teacher trainers can facilitate the transformation of their own roles as they work with teacher trainees, who in turn might adopt these tools in their K-12 classrooms.

Conflict of Interests

The author has not declared any conflict of interests.

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Full Length Research Paper

A new experimental system design related to the plasma state

S. D. Korkmaz

Eskisehir Osmangazi University, Elementary Science Education Department, Meşelik Campus, 26480- Eskisehir, Turkey.

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The plasma state is included in the unit on matter and its properties in the 9th grade Physics course secondary school curriculum prepared by the Ministry of National Education of Turkey. Any tools and equipment required by tests to be conducted in the scope of the Physics course curriculum are in general easily accessible. However, in cases in which there are any physical or technical restrictions, it is suggested that different means such as demonstrations, tests or simulations are used. It is difficult to implement tests related to the plasma state of matter constituting the subject of this research due to technical restrictions. The goal of this study is to enable the student to understand the plasma state of matter that we encounter both in the universe and in daily life. To that end, an experimental system is designed for the plasma state of matter. To investigate the effect of this designed experimental system on understanding the plasma state, a working group was established with 48 students who studied in the 2014–2015 educational year in Eskisehir. Data are collected by an academic achievement test developed by the researchers. The achievement test is applied before and after the experimental procedure, and it is examined by t-test for unrelated samples. The answers given by the students to the open-ended questions are examined. According to the results of such a t-test for unrelated samples, it is found that the point averages received by the students from the achievement test after the experimental procedure are significantly higher than the point averages received by the students from the achievement test before the experimental procedure. Rubric scores for the answers given by the students to the open-ended questions show that the students explain their justifications better because of the experiment.

Key words: Secondary school students, physics education, plasma concept.

INTRODUCTION

In the antique phlogiston theory, states of matter include "soil," "water," "air" and "fire." Despite its basic defects, the phlogiston theory classifies states of matter in 4 groups: Solid, liquid, gas and plasma. Although it is

estimated that 99% of the matter in the universe is plasma, the significance and properties of the plasma state were only discovered in the 20th century (Johnson, Lectures in Plasma Physics).

E-mail: sduysal@ogu.edu.tr.

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Table 1. Plasma temperature and particle density (Johnson, Lectures in Plasma Physics).

Type of plasma	Particle density No/cm ³	Temperature T (K)
Interstellar Gas	1	10 ⁴
Solar Corona	10 ⁶	10 ⁶
Solar Atm. Gas Discharge	10 ¹⁴	10 ⁴
Diffuse Lab. Plasma	10 ¹²	10 ⁶
Dense Lab. Plasma	10 ¹⁴	10 ⁶
Thermonuclear Plasma	10 ¹⁶	10 ⁸

The plasma state, which was first defined by Irwin Langmuir as an ionized gas containing free particles in 1928, constitutes more than 99% of the universe (Langmuir 1928, Tonks and Langmuir, 1929). Examples of plasmas in the universe include the sun, other stars, solar winds, supernovas and nebulas; examples of plasmas on Earth include polar lights (Auroras), lightning flashes, fire, the ionosphere region of the earth, the magma stratum of the earth and the Van Allen belts. Furthermore, examples of plasmas generated *in vitro* include neon advertisement lamps created with modern technology, Xenon headlamps of vehicles and sodium vapor lamps (Grill, 1993; Elizer and Eliezer, 2001; CPEP, 2014; Tresman, 2014, ESOGU, 2014).

The reason we encounter the plasma state of matter very frequently is that it has different properties compared with other states of matter. Freedom of movement of particles increases as matter changes from a solid state to liquid and gas states and reaches the plasma state. In solids, atoms are arranged in a periodic crystal lattice and have no freedom of movement. In liquids, atoms are free. However, due to powerful interatomic interaction, their volumes remain unchanged, but not their shapes. In gases, atoms collide with other gas atoms as they move freely. If they continue to radiate heat in their gas state, ionization may begin. Ionization state means that at least one electron leaves an atom or molecule. In a sufficiently heated gas, ionization occurs repeatedly and free electron and ion clouds begin to form. However, particular atoms are stimulated and continue to remain neutral electrically, expelling their energy surplus and again becoming basic atoms by emitting photons. This medium, in which electrons in these atoms, ionized atoms and molecules, neutral atoms, stimulated atoms and molecules and photons exist together and interact permanently, is called "plasma." Plasma is collectively neutral (Grill, 1993; Elizer and Eliezer, 2001; Contemporary Physics Education Project [CPEP], 2014; Tresman, 2014, Eskisehir Osmangazi University [ESOGU], 2014).

The most important two plasma parameters are particle density (number/cm³) and temperature (K). Classification of plasmas based on these parameters is given in Table 1 (Johnson, 2014).

Plasma physics has been particularly driven by two grand challenges. The first is to understand the behavior

of natural plasmas in the universe. The majority of matter in the visible universe is in the plasma state. Behavior of the solar system is significantly determined by plasma physics. The Earth is embedded within a plasma (the ionosphere and magnetosphere); the solar wind transports plasma from the sun to the Earth, and the Sun is a plasma. Moreover, plasmas are key to behavior at all scales in the universe – from the plasma filling the interstellar medium to extra-galactic jets of plasma that emanate from disks surrounding black holes.

The second challenge is to develop fusion energy as an energy source to transform the way the world produces energy. This requires producing, controlling – and understanding – a plasma at a temperature of 100 million degrees confined by a magnetic field. The goal to produce fusion energy on Earth for electricity generation is often aptly described as producing a sun in a container. Magnetic fields are used for confinement since no solid material could withstand the extremely high temperature of the plasma. A minimum required value for the product of the plasma (electron) density n_e and the "energy confinement time" τ_E is given by the Lawson criterion (Lawson, 1955) which is an important general measure of a system that defines the conditions needed for a fusion reactor to reach ignition.

As recently reported in the National Research Council's report on Plasma Science, plasmas play an important role in developing many of today's advanced technologies (National Research Council [NRC], 2007). Although they are not very well-known by the general public, plasmas are used for most of high technology devices. Indeed, one of the main applications of plasma technology is related to micro and nanotechnologies. For instance, in a clean room of production of Integrated Circuits for memories or microprocessors, more than 50 % of the equipment consist of plasma reactors. Plasma technologies are also used for many other applications in materials industry (coating, functionalization), in chemical industry (gas abatement, gas production ...), in medical industry (plasma sterilization, plasma treatment...) and in many other industries (Liebermann and Lichtenberg, 1994). Hence, there is real value in teaching the basics of plasma physics to the next generation of scientists as early as possible (O'Brien et al., 2011). However, it is not particularly simple for a science or engineering undergraduate and high school student to obtain a qualitative

understanding of the basic properties of plasmas that exhibit a huge array of phenomena that challenge our ability to describe and understand collective behavior. Recently educational programs and collaboration projects between universities and plasma laboratories such as the Princeton Plasma Physics Laboratory (PPPL) started so plasma scientist can work with graduate and undergraduate students to teach basic properties of plasma and plasma technologies (Tillocher et al., 2015; Prager and Ono, 2014).

Teaching of plasma concept in Turkey

The Physics course curriculum in the high school was redesigned by the Ministry of National Education in 2013 to enable students to obtain knowledge and skills required for their university education and to develop the scientific literacy of students in Turkey (Ministry of Education [MoE], 2013). The physics course curriculum involving 9th and 10th grades includes basic concepts in the science of physics. At a basic level, the physics course curriculum in the 9th grade is a continuation of previous science courses. The course is aimed to enable students to explain any basic concepts related to matter, energy, force and motion included in the science of physics but without attempting any detailed mathematical operations in physics courses in the 9th grade.

The second unit of the 9th grade physics curriculum consists of 5 units including Matter and Its Properties, for which a time of 12 course hours is allowed. In this unit, the students at this grade level may understand, explain and syllogize any events and circumstances such as jewelry, porcelain, business, strength of creatures, ability of an insect to walk on a water surface, water absorption of paper napkins, lightning, and northern lights in daily life by using knowledge of matter and its properties. The last topic of the unit, "Matter and properties," includes Plasmas. This unit exemplifies and explains the general properties of plasmas and aims at ensuring that students learn related information.

However, it is not easy to ensure that high school students perceive the basic properties of plasma. Students must understand and be able to apply at least dynamic, electricity and magnetism and chemistry associated with the plasma state of matter to be able to perceive plasma and its properties. For students following the course curriculum of secondary schools as applied in Turkey, this is possible only when these students attain the 12th grade level.

To ensure that students acquire knowledge of plasma, lecturing must be supported by experiments. As stated in the physics curriculum of the high school, experiments are also important in the scientific process. The students must play an active role socially and cognitively to achieve the real goal of the experiments. Any tools and equipment required by experiments to be conducted in

the scope of the Physics course curriculum are in general easily accessible. However, in cases in which there are any physical or technical restrictions, it is suggested that different means such as demonstration experiments or simulations are used. It is difficult to implement experiments related to the plasma state of matter constituting the subject of this research in classroom due to technical restrictions and requirement of high voltage. Therefore, because in vitro tests are not conducted for feedback on the plasma state of matter described in the curriculum, return of such feedback on the plasma state of matter to the students is not possible.

Literature research shows that the experiments related to plasma state for high school students are limited only to plasma globe. In this study we designed an experimental system to enable the students to understand the plasma state of matter that we encounter both in the universe and in daily life. To the best of our knowledge, previously no one has reported such a study. To examine high school students' understanding of plasma concepts, a two tier test used by many researchers in the science education (Garnett and Treagust, 1992; Haslam and Treagust, 1987; Mann and Treagust, 1998; Treagust, 1988; Odom and Barrow, 1995; Voska and Heikkinen, 2000) owing to their features covering the deficiencies of multiple choice tests has been prepared and named Plasma Achievement test. Such tests are generally particular to a specific subject in any discipline (Uyulgan et al., 2014). It is thought that the two-tier test to be developed in the present study will be useful to determine the difficulties the students have in relation to the concepts of plasma as well as their misconceptions.

Aim of the study

The aim of this study is to ensure that high school students may perceive the plasma state, which is a state that exists widely in the universe and that is used to produce new products and generate energy today, and its general properties. A demonstration experiment designed in line with this aim was watched to the students, and the study examines the students to ascertain whether there is any change in their knowledge level on plasma from before to after the demonstration.

Research model

This study is a relational survey research, which aims at examining whether there is any significant change in the knowledge level of students on plasma from before to after a demonstration.

Working group

The working group of the research was established with

48 students, who studied in the 2014–2015 educational year in the Cumhuriyet High School, Eskisehir city.

Data Acquisition Tools

Plasma Achievement Test (PAT) (APPENDIX-1): The Plasma Achievement Test was developed as a 10-item instrument, with each item consisting of a two-tier multiple-choice test question. The first tier of each item was designed to examine students' content knowledge of a selected plasma concept, and the second tier included open-ended questions designed to examine students' reasons for answering the way they did for each first-tier question. It is expected that the students justify their answers to the open-ended questions similarly to how they justify answers given by them to multiple-choice questions. In preparing the test, the questions are developed to reveal knowledge of the secondary schools students teachers on plasma and to reveal how they use that knowledge. In developing the questions, it is considered that any knowledge on plasma the students have learned in 9th grade. Care is taken that plasma-related study materials previously available to the students include material covered by the test questions to ensure that validation of the test scope includes the questions in the test. Additionally, two measurement evaluation specialists, two physics teachers, one physical science specialist and one science teaching-specialist are consulted for their opinions.

Item analysis and reliability study of the PAT was carried out with 80 students studying in the two different high schools in Eskişehir in the 2014-2015 academic years. Item difficulty and item discrimination indices were calculated.

Table 2 gives the findings related to the results of the item analysis of the test developed in the research. According to these results, the discrimination indices of test items are higher than .30. Discrimination indices of the test items in the final form consisting of 10 items ranged between 0.36 and 0.91 while difficulty indices ranged between 0.15 and 0.83. At the end of the item analysis made, test-retest reliability coefficient of the 10-item test was found to be 0.81. This value shows that the test is highly reliable (Buyukozturk et al., 2008). A scaled scoring key is used that is prepared by asking two physicist and one measurement evaluation specialist for opinions on the scoring of the open-ended questions of the academic achievement test. Accordingly, the multiple-choice questions are scored so that they sum to 100 points, and the open-ended questions are scored so that they also shall sum to 100 points. In scoring, each question has an equal weight.

Procedure

A new experimental system is designed as a demonstra-

Table 2. Item analysis of PAT.

Item	P	r_{jx}
1	.83	.41
2	.35	.55
3	.31	.77
4	.58	.91
5	.19	.36
6	.38	.59
7	.48	.59
8	.15	.36
9	.24	.55
10	.33	.45

tion experiment in accordance with the goal of the study. As a pre-test, the PAT is given to the students one week prior to the demonstration experiment.

In the demonstration experiment, Neon Lights and Other Discharge Lamps and simulations are monitored (PHET, 2014), and then PAT is given again as a post-test.

Experimental system

The experimental system shown schematically in Figure 1 consists of 7 different gas-pressure discharge tubes shown as (7) in the figure and a plasma stick. With the plasma stick shown as (5) in the figure, a potential having a relatively frequency (20 kHz) is generated between 5 kV and 10 kV by using the grid voltage. When any frequency-type power supplies are operated, it is possible to transmit energy into the tube without any electrodes within the discharge tubes. Such a discharge operation is called "electrodeless discharge." An variable electrical field occurs at the end of the plasma stick with a frequency-type power supply. When the plasma stick is brought near the discharge tubes (position (6) in the figure) the electrical field flow increases. The variable electrical field ensures that the particles vibrate within the discharge tube. Ions increasing suddenly within the tube are forced to collide with one another and with un-ionized gas atoms within the tube. The collisions cause stimulations and ionizations to begin. In this case, luminosity is observed in the tube (electrodeless discharge). Because gas pressures and gas types are different in the tubes, different color plasmas occur. We may explain to the students why plasmas occur in different colors because different colors occur visually.

Because the plasma stick is isolated by a glass tube, it is disconnected directly from the discharge tubes. Thus, the teacher and students may contact the tubes safely; furthermore, the teacher may demonstrate a wireless and contact-free energy transfer to the students. If any tube is contacted once the discharge tubes begin to light up, a sudden increase in intensity of the luminance occurs.

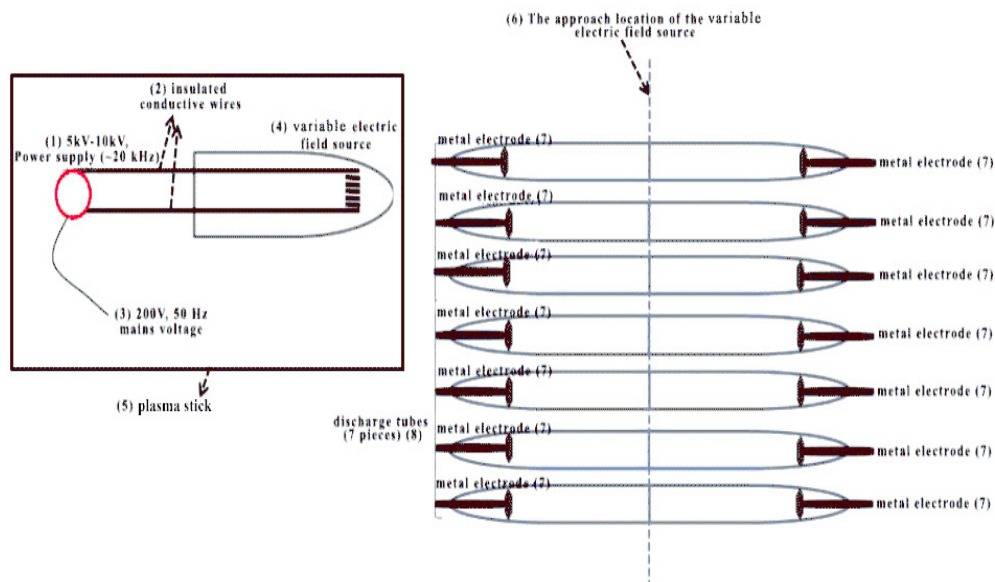


Figure 1 Schematic diagram of experimental set-up.

This is why the electrical field intensifies suddenly. Thus, any contacting person serves as a ground.

As seen Figure 2, in the discharge tubes filled with 7 different gases, there are also electrodes to serve as anodes and cathodes. These electrodes are used to show that flow passes from one end to the other, and thus electrical conductivity of the plasma is demonstrated.

Any physical topics and concepts such as Atom models, Light, Photon, Color, Stimulation, Ionization, Electromagnetic spectrum, magnetic field and interaction of the plasma are explained to the students. It is thus ensured that the students in 9th grade have knowledge of this experimental system. The simulations to be used are designed to have a flexible nature and are designed for the students. Thus, it is intended that the students understand the specific concepts in the 10th, 11th and 12th grades of the secondary education program.

Data analysis

In preparing the data for analysis, each multiple-choice question is normally scored as 1 for each correct answer and as 0 for each incorrect answer. Then, the total number of correct answers of each student is calculated for the pre-test and the post-test. Interpretations are made considering the number of correct answers.

In scoring justifications for answers given by the undergraduates to the multiple-choice questions, each question is scored relative to perfect scores by means of a scaled scoring key.

Answers given by the students to the multiple-choice and open-ended questions in the test are examined via a



Figure 2. Experimental set-up.

frequency analysis. The answers then are examined in terms of score differences between pre-test and post-test scores. Finally, whether the score differences meet the normality hypothesis is determined. To that end, the Shapiro-Wilk normality test is applied, determining that the distribution of score differences differs excessively from the normal distribution for both the multiple-choice questions and the justifications ($p > .05$). Accordingly, a t-test is used as a parametrical test for correlated samples in average comparisons.

FINDINGS

Descriptive statistics are calculated for the pre-test and post-test scores of the students and presented in Table 3. The pre-test scores of the students have a point average

Table 3. Descriptive statistics for pre-test and post-test scores

	N	Min	Max	Mean	Std. Deviation
Pre-test	48	.00	6.00	2.54	1.49
Post-test	48	.00	8.00	4.21	2.04

Table 4. Correct and incorrect answers to the questions in pre-test and post-test.

Item	Pre-test		Post-test		DIF
	Correct	Incorrect	Correct	Incorrect	
1	34	14	42	6	8
2	14	34	18	30	4
3	7	41	23	25	16
4	22	26	23	25	1
5	2	46	7	41	5
6	6	42	12	36	6
7	17	31	33	15	16
8	5	43	12	36	7
9	3	45	21	27	18
10	12	36	11	37	-1

of approximately 2.54, and the post-test point average score of the students is 4.21. The numbers of correct and incorrect answers given to the questions are calculated and given in Table 4. The students reach a larger number of correct answers in the post-test, particularly on the 3rd, 7th and 9th questions with respect to properties.

The physics course in 9th grade of the secondary school includes the following sections on plasma:

Section 9.2.4.1 explains the general properties of plasmas by giving examples:

a explains that plasma is a state of matter such as solid, liquid and gas; and

b explains the general properties and structures of plasmas, with examples from daily life.

The 3rd, 7th and 9th questions measure the information set forth in 9.2.4.1.b, whereas first question measures the information set forth in 9.2.4.1.a. The demonstration experiment and simulations do affect learning.

The paired-samples t-test is implemented to determine whether there is a considerable difference statistically between point averages scored by the students in the Plasma Achievement Test (PAT) before and after the demonstration experiment. Test results are given in Table 5.

The post-test point averages ($\bar{X} = 4.21$) scored by the students in the PAT test are significantly higher than the test point averages ($\bar{X} = 2.54$) scored by the students in the PAT pre-test ($t_{47} = -6.245$; $p < .05$). The effect size is calculated to determine whether this distance is also significant in practice, and it is found that Cohen's d is

Table 5. PAT pre-test and post-test paired-samples t-test results.

Test	N	\bar{X}	S	df	t	p
Pre-test	48	2.54	1.49	47	-6.245	.000
Post-test	48	4.21	2.04			

Table 6. Descriptive statistics for pre-test and post-test scores on essay-type questions.

	N	Min	Max	Mean	Std. Deviation
Pre-test	48	.00	23.00	10.46	7.63
Post-test	48	.00	31.00	14.69	6.83

Table 7. PAT essay-type questions pre-test and post-test paired-samples t-test results.

Test	N	\bar{X}	S	df	t	p
Pre-test	48	10.46	7.63	47	-3.660	.001
Post-test	48	14.69	6.83			

equal to -.935. This value shows that the difference in average has a wide effect size.

The answers given by the students to the open-ended questions are scored, and descriptive statistics for the scores are given in Table 6.

In Table 6, the students have a point average of 14.69 points out of a total of 100 points on the post-test, whereas they have a point average of 10.46 out of a total of 100 points on the pre-test. A t-test is conducted for relational samples to determine whether the variation between them is significant. The results are given in Table 7.

In Table 7, student scores on the answers given on the open-ended questions increase significantly ($p < .05$). Calculating the Cohen d coefficient obtains a value of -.584. This value shows that the students have a medium effect size on the increase in the average points from pre-test to post-test.

Discussion and Conclusion

In the present study an experimental system was designed to enable the students understand the plasma state of matter that we encounter both in the universe and in daily life. As stated before, literature research shows that the experiments related to plasma state for high school students are limited only to plasma globe. In order to check the effect of this designed experimental system on understanding the plasma state, we have started a qualitative study with gifted high schools students to obtain their opinion about our system.

It was concluded in the research that the Plasma achievement test developed in relation to plasma concept was sufficiently reliable and valid to reveal the conceptual comprehension levels of high schools students on this subject. The results of the item analysis of the test showed that discrimination and difficulty indices of the items were acceptable.

The analysis shows a low knowledge level on plasma of the student group examined in this study. The post-test point averages of the students are considerably higher than their pre-test point averages. This increase in the post-test points is observed both in multiple-choice questions and in open-ended questions. In this case, it may be interpreted that the students may justify their answers better after the demonstration experiment.

Examining the correct answers given by the students to the multiple-choice and open-ended questions, it appears that the students provide correct answers to the third, seventh and ninth questions but cannot justify their correct answers. By the nature of the multiple-choice questions, all options are provided to a person taking the test, and that person is expected to find and check correct answers among the options. In the open-ended questions, the person must provide the correct information to earn a point on the question. Therefore, on the third, seventh and ninth questions, they cannot justify why they check the answer, whereas the students may find and check correct answers on the questions. This behavior shows that the students do not comprehend the basic properties of plasma sufficiently.

When the third, seventh and ninth questions are examined, it is understood that these questions relate to the basic properties of the plasma and to natural and artificial plasma samples; these questions measure any knowledge acquired on plasma in the physics course curriculum in 9th grade of the secondary school. Thus, the simulations and the recently designed demonstration experiment, which constitutes the subject of this study, affect learning.

Although the students show higher success in the last test conducted upon the demonstration experiment and shown simulations, the fact that the average of the academic achievement test is low reveals that the plasma topic is not understood sufficiently. The students must learn topics such as electricity and magnetism associated with the plasma state of matter, modern atom theory, atomic stimulation and ionization to perceive plasma and its properties. In Turkey, description of these topics is completed in the physics course curriculum in 12th grade of the secondary school. This study reveals that if the plasma state is explained to the students before they study these topics related to the plasma state of matter, the students will experience problems with understanding the plasma state of matter and misunderstand much of what is taught. Research that we have conducted with candidate elementary science teachers in 3rd grade shows that the structure and properties of the plasma state are not easily understandable topics without the

necessary physical background (Korkmaz et al., 2015).

Based on the findings of this study, the following suggestions may be given:

1. Any subjects related to at least dynamics, electricity and magnetism of the plasma state and modern atom theory in the unit "structure and properties of matter" in the 9th grade physics course curriculum of the secondary school must be transferred to the curriculum in the 12th grade.
2. The plasma concept must be supported by experiments and simulations when it is discussed.
3. Although it was determined that the testing equipment set up for this study increased the scores by the students both from multiple-choice and open-ended questions significantly, it is observed that the students cannot justify any answers given to any particular questions. In the light of qualitative studies, the testing equipment to be set up for plasma instruction should be arranged so that students may learn better. A qualitative research mode may be investigated with answers given by the students to the open-ended questions.

Conflict of Interests

The author has not declared any conflict of interests.

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Appendix 1. Plasma Achievement Test.**Dear students:**

This test consists of 10 questions. Each question has two steps. A multiple-choice question constitutes the first step of each question, and another question, which requires describing reasons for the answer given to that question, constitutes the second step.

Any clear and understandable answers that you give to the questions will provide us critical hints on new educational and teaching techniques. The answers that you give will not affect your grade and will be kept confidential.

We thank you for your participation and wish you success.

S - 1. How many states of matter exist in the universe?

- A) 3 B) 4 C) 5 D) 6 E) 7

Type your reason for S – 1 briefly.

S - 2. I. Gases are not affected by magnetic and electrical fields, but plasmas are affected by magnetic and electrical fields.

II. Because the distance between molecules of gases is large, gases do not conduct heat well, but plasmas do conduct heat well.

III. Gases and plasmas do not conduct electricity.

Which of the above phrases is/are true?

- A) Only I B) Only II C) Only III D) I and II E) I and III

Type your reason for S – 2 briefly.

S - 3. I. It consists of ionized and excited atoms.

II. Because it has an equal number of positive charges (ion charges) and negative charges (electrons), it is neutral electrically.

III. It consists of an ionized gas.

Which of the above phrases about the plasma state of matter is/are true?

- A) Only I B) Only II C) Only III D) I and II E) I, II and III

Type your reason for S – 3 briefly.

S - 4. An atom:

I. Can be heated and excited.

II. Can be excited by electromagnetic waves (photons).

III. Can be excited by electron bombardment.

Which one/s of the above consideration is/are true?

- A) Only I B) Only II C) Only III D) II and III E) I, II and III

Type your reason for S – 4 briefly.

Appendix 1. Contd.

S - 5. When a high voltage is applied to both ends of a glass tube containing a low-pressure gas, the tube emits light (e.g., neon lights in billboards).

What is/are physical reason/s for this radiation?

- A) Due to the applied high voltage, atoms in the tube combine and form molecules. Meanwhile, the liberated energy is seen as a light.
- B) Caused by collisions, the order of electrons of atoms in the tube changes, and atoms radiate when they restore to their original state.
- C) Due to a potential difference applied to the ends of the tube, a current passes through the tube. This current causes radiation just as with wired bulbs.
- D) Electrons moving inside the tube radiate.
- E) Positive ions moving inside the tube radiate.

Type your reason for S – 5 briefly.

S - 6. Which of the following definitions of plasma is incorrect?

- A) It is a stimulated state of gas.
- B) It is a warmed state of gas.
- C) It is a high-energy state consisting of ions, neutral atoms, free electrons and photons.
- D) It is a state at a vaporization point.
- E) It is a state at a sublimation point.

Type your reason for S – 6 briefly.

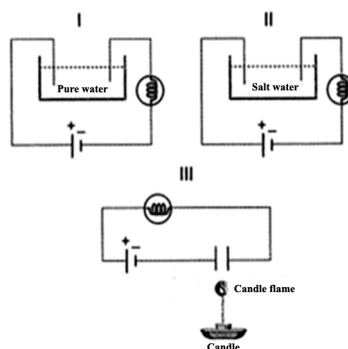
S - 7. Which one of the following items is not an example of plasma?

- A) Lightning
- B) Incandescent lamp
- C) Flash
- D) Fluorescent lamps
- E) Matter in the Sun

Type your reason for S – 7 briefly.

S - 8. In which of the mechanisms shown in the right figure can the lamp be expected to emit light?

- A) Only I
- B) Only II
- C) Only III
- D) I and II
- E) II and III



Type your reason for S – 8 briefly.

Appendix 1. Contd.

<p>S - 9. Which of the following phrases is/are true?</p> <p>I. Fluorescent and neon lamps are examples of plasma produced in vitro. II. Solar wind is an example of plasma in space. III. Auroras are examples of plasma occurring on the Earth.</p> <p>A) I and II B) II and III C) Only III D) I and III E) I,II and III</p> <p>Type your reason for S – 9 briefly.</p>
<p>S - 10. I. Energy production with plasma is cleaner and causes less damage to the environment. II. Plasma technology is used in industry and in removal of bacteria and other microorganisms. III. Plasma in stars is called “hot plasma.”</p> <p>Which one/s of the above consideration is/are true?</p> <p>A) I and II B) I and III C) II and III D) I, II and III E) Only III</p> <p>Type your reason for S – 10 briefly.</p>

ANSWER KEY TO THE ACADEMIC SUCCESS TEST

1. B
2. D
3. E
4. E
5. B
6. C
7. B
8. E
9. E
10. D

Full Length Research Paper

The relationship between primary school teacher candidates' tendency for lifelong learning and their perceptions of computer self-efficacy

ISIK Ayse Derya

Bartın University, Turkey.

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This study determines the relationship between primary school teacher candidates' lifelong learning tendency and their perceptions of computer self-efficacy. The research was carried out with 92 undergraduate teachers studying at Bartın University of Teacher Education Faculty, in 2014-2015 academic year. In this study, personal information questionnaire, Lifelong Learning Trends Scale developed by Diker (2009) and Computer Self- Efficacy Scale developed by Askar and Umay were used to collect data. At the end of the research, the teacher candidates' desire for life-long learning and perception level of computer self-efficacy, motivation and perseverance dimension scores, desires to obtain post- graduate education, deprivation size and being happy studying primary teaching education varied. The students' scores of computer self-efficacy scale, motivation and persistence size scores had moderate significant and positive relationship; while deprivation of learning regulation scores had a non-significant relationship with computer self-efficacy scale.

Key words: Life long learning, self efficacy, tendency, teacher candidates.

INTRODUCTION

From the past to present, ongoing scientific and technological advances have led to changes in social structure. For the past two decades, the volume of information and knowledge in the world has increased, making the world a knowledge-based society (Mehdi and Sadat, 2011). Knowledge has become an important factor that determines the strength of any community. Information producing communities have a voice in the world. To get to this level, individuals living in these communities should be involved in research, have access to life-long resources and information and above all,

should be able to learn for life.

With the emergence of life-long learning concept, factors such as differences in the learning needs of individual financial problems, changes in education management and communication, increase in technological possibilities, opening of new career area, increased competition in business life, changes in the expectations of employees and the necessity of acquiring new knowledge and skills play a significant role (Knapper and Cropley, 2000). Individuals' renewal of existing knowledge and the requirement of developing their skills

E-mail: aysederyaisik@gmail.com.

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have made life-long learning mandatory (Gündüzet al., 2009). Peters (2009) indicates that life-long learning would manifest quickly in all educational institutions, and traditional institutions would have to keep up with this. The 21st century successful people and life-long learners are required to constantly renew themselves (Erdogan, 2002).

The European Commission (2001) defines life-long learning as "all learning activities undertaken throughout life, with the aim of improving knowledge, skills, and competence within a personal, civic, social, and/or employment-related perspective". Life-long learning is a deliberate learning that can and should occur throughout each person's lifetime (Knapp and Cropley, 2000). It involves people of all ages learning in a variety of contexts - educational institutions, work, home and leisure activities; it focuses mainly on adults returning to organised learning rather than the initial period of education or incidental learning (Schuller and Watson, 2009). Life-long learning means to invest more on knowledge and human beings; to promote basic knowledge and acquire skills, including digital writing and reading; to expand flexible and innovative learning opportunities (Lambeir, 2005; Akkoyunlu, 2008; Polat and Odabas, 2008). The aim of basic education is to train individuals who are life-long learners. Budak (2009) says individuals indulging in life-long learning must have specific skills (Commission Européenne, 2008, as cited in Budak, 2009): The four main language skills required for proficient communication, adequate communicate in a foreign language to a level of understanding other cultures, have basic competence in mathematics, science and technology, able to make ingenious use of information to adapt to digital technology, be involved in individual or group learning, have organizing and learning competence, be able to effectively participate in professional and social life, have creativity competence, be involved in innovation, risk-taking, project development and implementation of enterprise and have self-expression in artistic ways.

Besides, Kanpper and Cropley (2000) state that individuals with life-long learning skill should be individuals that can plan their own life-long learning, determine learning skills, learn actively, learn in formal and informal context, learn from their peers, teachers, integrate different subject areas when required and use a variety of teaching strategies for different situations. Information society facilitates individuals' lifelong learning skills and ability to cope with changes (Demiralay and Karadeniz, 2009). Learning is a process of mental and social change in one's entire lifetime (Sharples, 2000). In today's rapid and developing technology, the ingenious

use of digital technologies as part of the skills of individuals involved in life-long learning is expected. Digital technologies are used in many areas such as communication, research, polling and learning, and have led to a change in the skills needed in these areas. Future successful people will be individuals who can use technology effectively to access information, solve problems and learn on their own (Demirel, 2009).

Especially, access to information using computers is the most common means of getting knowledge, skills and attitudes expected to affect the level of life-long learning. This is reflected in different studies. Kirby et al. (2002) state that there is a lifetime prevalence of individuals' access to information, the workforce has increased, while computers improve the quality of individuals' learning by saving time and allowing them to work more efficiently. Gunduz et al. (2009) argue that to be able to perform life-long learning, e-learning environment is needed, which is not dependent on time and place. Laal (2011) argues that online courses can replace more traditional approaches to teaching and learning in the 21st century; this can be done by drawing on the experience of educational facilitators worldwide and evaluation of learners' experience with computer mediated communication. World Wide Web (WWW) has increased noticeably, particularly in higher education institutions. People can create learning environments; they use the most portable and available tools for many purposes in everyday life. This makes persistent learning to occur.

For individuals, life-long learning starts at school and continues in the family environment to gain skills. In the school atmosphere, the availability of the appropriate curriculum and the people responsible for the teaching and learning process will make the students to acquire certain skills. During the skills acquisition phase, teachers are the ones who provide the information the students need and also take the necessary measures to control it (Isik, 2013). With time, as the classrooms continue to become more inclusive and diverse, the number of students needing differentiated and personalized attention increases, as do the pressures on teachers to meet their needs (Looi et al., 2009). The teachers increasingly play the role of a planner, developer, organizer, educator, counselor, diagnostician, therapist and forecaster; coordinator, researcher (Jovanova-Mitkovska and Hristovska, 2011). In this regard, there are important roles and responsibilities of life-long teachers in creating a society of individuals with learning skills. Especially, the task of primary school teachers involved in the acquisition of basic skills such as learning is greater.

Teachers' ability to inculcate these skills into their students is very important. If the teachers do not have the knowledge or skills, they will not be able to give them to their students. Thus, it is important for our teachers to have these knowledge and skills. At the same time, these knowledge and skills should also be supported by the faculties of education as teacher training institutions. As a result, the study tries to identify primary school teacher candidates' maintenance of life- long learning and their perception of computer self-efficacy.

In several studies (Mehdi and Sabad, 2011;Looi et al., 2009;Dearnley et al., 2008;Nordin et al., 2010), it was argued that using computer affected learning and life-long learning. So, the aim of this study is to determine the relation between primary school teacher candidates' propensity for lifelong learning and their perception of computer self-efficacy.

METHOD

In this section, the research model, the working group, the data collection tools and data analysis will be described.

Model of research

The main purpose of this study is to determine primary school teacher candidates' lifelong learning propensity and perception of computer self-efficacy and the relationship between them. General screening model was used (Karasar, 2005). The research is a descriptive study, which aims to reveal the current situation and give detailed description (Cepni, 2005). In this study, the difference between primary school teacher candidates' tendencies of lifelong learning and their perceptions of computer self-efficacy was examined based on independent variables such as sex, class, type of high school graduated from, location of the high school, general point average, teachers' satisfaction from studying primary school teaching and desire to obtain postgraduate education. While independent variables were determined, the study of Gunuc et al. (2012) and samples' characteristics were taken into account. The study's design is correlational. Correlational studies aim to show correlational relationships between variables (Balci, 2011). So, it is determined that there are correlational relationships between the primary school teacher candidates' lifelong learning tendencies and their perceptions of computer self-efficacy.

Working group

The study group consists of Faculty of Education students doing undergraduate programs at Bartin University, in 2014-2015 academic year. 164 students of 92 (56.10%) who continued in this program were enrolled in the working group. Details of the study group are shown in Table 1.

From Table 1, it is seen that of the 92 people in the working group, 68 (73.91%) were women; 24(26.09%), men; 31(33.70%), 1st grade students; 26(28.26%), 2nd grade students; 22(23.91%), 3rd

grade students; 13 (14.13%), 4th grade students; 46(50.00%), high school graduates; 36(39.13%), Anatolian High School graduates; 10(10.87%), other high schools' graduates; 29(31.52%), graduated from high schools in big cities, 25(27.17%), graduates of high schools in provinces; 38 (41.30%), graduates of high schools in districts; 40(43.48%) have GPA between 3.01 and 4.00; 52(56.52%) have GPA between 2.01 and 3.00; 70(76.09%) are satisfied with studying primary school teaching; 19(20.65%) are partially satisfied with studying primary school teaching; 3(3.26%) are not satisfied with studying this course; 36(39.13%) want to do postgraduate education; 45 of (48.91%) are undecided; 11 (11.96%) do not want to do postgraduate education.

Data collection tools

Personal information questionnaire, Lifelong Learning Trends Scale developed by CoskunDiker (2009) and Computer Self-Efficacy Scale developed by Askar and Umay (2001) were used to collect data.

The personal information questionnaire used in the study contains the following items: sex of the students, classes, types of high schools graduated from, location of the high school, grade point average, being pleased to study primary school teaching or not; there are 7 items in the questionnaire on determining the students' desire for postgraduate study.

The lifelong learning trends motivation scale developed by CoskunDiker (2009) consists of 4 parts: motivation, persistence, deprivation and lack of interest in learning arrangement. It is a 3 points-likert scale consisting of: "Very satisfied", "Partially satisfied" and "not satisfied". In the first two dimensions of the scale, 12 elements are positive and 15 substances are negative; the scoring was done accordingly. The reliability of the scale was calculated as 0.89 (CoskunDiker, 2009), which beats Nunnally (1978)'s 0.7 acceptable reliability coefficient.

Computer self- efficacy scale developed by Askar and Umay (2001) was prepared on a 5 Likert point. There are 10 positive and 8 negative material substances in the scale, and scoring was made accordingly. The reliability of the scale was calculated as 0.71 (Askar and Umay, 2001). According to Nunnally (1978), reliability coefficient of this scale is acceptable. Further information on the lifelong learning trends and computer related self-efficacy scales is shown in Table 2.

As seen in Table 2, in the lifelong learning trends scale, motivation dimension consists of 6 items; persistence dimension, 6, regulation of learning dimension, 6. The lowest score that can be taken from these dimensions is 6, the highest score is 36, while the median score is 21. In the deprivation dimension, the lowest point obtained is 9, the highest score is 54, and the median score is 31.5. The lowest points that can be taken from life-Learning Trends Scale is 27, the highest score is 162, while the median point of the scale is 94.5. The lowest possible score of Computer Self Efficacy Scale is 18, the highest score is 90, and the median point of the scale is 54.

Data analysis

Normality analysis was conducted to know if there is a normal distribution for each variable of the data collected in the research. After the analysis, the non-parametric tests were performed using the Mann-Whitney U and Kruskal-Wallis tests because Life-long

Table 1. Working group.

Variable	Sub variables	N	%
Sex	Woman	68	73.91
	Man	24	26.09
Class	1 st Class	31	33.70
	2 nd Class	26	28.26
	3 rd Class	22	23.91
	4 th Class	13	14.13
Type of High School Graduated from	High School	46	50.00
	Anatolian High School	36	39.13
	Other	10	10.87
Location of the high school education	Metropole	29	31.52
	Province	25	27.17
	Town	38	41.30
General point average	3.01 to 4.00	40	43.48
	2.01 to 3.00	52	56.52
Teachers' satisfaction from studying primary school teaching	Yes	70	76.09
	Partially	19	20.65
	No	3	3.26
Desire to obtain postgraduate education	Yes	36	39.13
	Maybe	45	48.91
	No	11	11.96
Total		92	100.00

Table 2. Information relating to the scale used in this study.

Scale and Sub- dimensions	No of Items	Lowest score that can be taken	Median Score	Highest Score that can be taken
Motivation Dimension	6	6	21	36
Persistence Dimension	6	6	21	36
Deprivation Dimension of Regulation of learning	6	6	21	36
Deprivation of Curiosity Dimension	9	9	31.5	54
Lifelong Learning Trends Scale	27	27	94.5	162
Computer Related Self-Efficacy Scale	18	18	54	90

Learning Trends analysis did not demonstrate normal distribution of the total score of dimensions and sub dimensions of the variables.

The computer related self-efficacy scale scores exhibit normal distribution based on the variables, and variances were homogeneous. So analyses were performed using t-test and one-way

analysis of variance parametric test. After reaching a significant difference in the results from one way variance analysis, Bonferroni test is preferred to post-hoc tests. As one of the scales used could not give normal distribution of the scores of the variables, Spearman rank difference correlation factor was calculated.

Table 3. Lifelong learning trends scale score of Mann-Whitney U test results.

Ratings	Variable	Sub variable	N		Sd	U	p
Motivation size	Sex	Woman	68	32.69	3.36	815.000	0.993
		Man	24	33.00	2.48		
	GPA	2.01 to 3.00	52	32.83	3.37	988.000	0.679
		3.01 to 4.00	40	32.70	2.87		
Persistence size	Sex	Woman	68	29.41	5.04	800,000	0.886
		Man	24	29.17	4.99		
	GPA	2.01 to 3.00	52	29.10	5.36	987.000	0.675
		3.01 to 4.00	40	29.68	4.54		
Withdrawal size of regulation of learning	Sex	Woman	68	30.22	5.96	696.500	0.285
		Man	24	28.17	7.41		
	GPA	2.01 to 3.00	52	29.17	7.19	1002.000	0.763
		3.01 to 4.00	40	30.35	5.21		
Curiosity withdrawal Size	Sex	Woman	68	41.69	9.54	644.500	0.127
		Man	24	37.63	11.53		
	GPA	2.01 to 3.00	52	39.62	11.24	945.000	0.454
		3.01 to 4.00	40	41.95	8.59		
Lifelong Learning Trends	Sex	Woman	68	134.01	19.31	665.000	0.179
		Man	24	127.96	20.37		
	GPA	2.01 to 3.00	52	130.71	21.67	960.500	0.531
		3.01 to 4.00	40	134.68	16.70		

$p < 0.050$.

FINDINGS

The results of Mann Whitney U test which was applied to determine whether the points from lifelong learning trends scale differed according to gender and GPA variables are shown in Table 3.

In Table 3, the values indicate that students' life-long learning propensity to study primary school teaching program does not vary according to gender and GPA. The lifelong learning trends descriptive statistical results obtained from the *motivation size* and the results of the Kruskal-Wallis test conducted to determine whether it differed according to variables are shown in Table 4.

In the *motivation dimensions*, gender, grade point average, class, type of high school graduated from, location of the high school, satisfaction from studying primary school teaching and desire to study postgraduate education seem to be close to each other. This indicates that the students' motivation to do life-long learning is

very high (Table 4).

The values in Table 4 indicate that, the students' motivation for lifelong learning vary according to class, type of high school graduated from, location of high school, and satisfaction from studying primary school teaching. According to the analysis results, motivation of the students to study primary school teaching differs according to their desire to do postgraduate education in a meaningful way ($p < 0.050$). These differences were formed between those who wish to receive postgraduate training and those who think of postgraduate education. When the average scores are examined, the motivated people who want to get postgraduate education ($\bar{X}=33.86$) seem to be higher than those who think of getting post graduate education ($\bar{X}=31.45$).

Descriptive statistical results of the persistence dimension and Kruskal-Wallis test conducted to determine whether these points differ according to variables of the score or not are shown in Table 5.

Table 4. Motivation size scores of Kruskal-Wallis test.

Variable	Sub variables	N		Sd	X ²	p	Significant difference
Class	1 st Class	31	32.16	3.01	2,838	0.417	
	2 nd Class	26	32.88	3.79			
	3 rd Class	22	33.18	2.82			
	4 th Class	13	33.31	2.63			
Type of high school graduated from	High School	46	32.87	3.31	0.412	0.814	
	Anatolian High School	36	32.72	3.11			
	Other	10	32.50	2.72			
Location of the high school	Metropole	29	33.07	2.48	4.410	0.110	
	Province	25	31.44	4.27			
	Town	38	33.42	2.48			
Satisfaction from studying primary school teaching	Yes	70	32.91	3.30	1,517	0.468	
	Partially	3	32,33	3.51			
	No	19	32.32	2.58			
Desire to obtain postgraduate education	Yes	36	33.86	2.34	8.091	0.018 *	Yes-maybe
	Maybe	11	31.45	5.07			
	No	45	32.22	2.92			

*p<0.050.

Table 5. Persistence size points of the Kruskal-Wallis test.

Variable	Old variables	N		Sd	X ²	p	Significant difference
Class	1 st Class	31	29.06	5.46	0.890	0.828	
	2 nd Class	26	28.81	5.55			
	3 rd Class	22	29.95	4.60			
	4 th Class	13	30.08	3.43			
Type of high school graduated from	High School	46	29.52	5.07	0,100	0.951	
	Anatolian High School	36	29.42	4.50			
	Others	10	28.30	6.65			
Location of the high school	Metropole	29	29.86	4.31	2,497	0.287	
	Province	25	27.64	6.52			
	Town	38	30.08	4.14			
Teachers' satisfaction from studying primary class department	Yes	70	29.47	5.29	1,204	0.548	
	Partially	3	29.67	3.79			
	No	19	28.84	4.18			
Desire to do postgraduate education	Yes	36	31.03	3.83	9.418	0.009 *	Yes-Maybe
	Maybe	11	25.73	8.21			
	No	45	28.89	4.35			

* p<0.050.

Table 6. Deprivation size points of learning regulation test results of Kruskal Wallis.

Variable	Sub variables	N		Sd	X ²	p	Significant difference
Class	1 st Class	31	30.48	5.63	3.328	0.344	
	2 nd Class	26	27.31	8.48			
	3 rd Class	22	31.14	5.27			
	4 th Class	13	30.08	3.82			
Type of high school graduated from	High School	46	29.22	6.46	3.781	0.151	
	Anatolian High School	36	31.03	5.90			
	Other	10	27.00	7.30			
Location of high School	Metropole	29	30.86	5.74	1.539	0.463	
	Province	25	29.04	6.16			
	Town	38	29.21	7.03			
Teachers' satisfaction from studying primary school teaching	Yes	70	30.81	5.57	7.803	0.020 *	Partially yes
	Partially	3	25.33	5.51			
	No	19	26.21	7.97			
Desire to do postgraduate education	Yes	36	30.06	5.96	0.410	0.815	
	Maybe	11	30.09	7.08			
	No	45	29.29	6.68			

When the values are examined in the *Persistence dimension*, the scores obtained in the lower variable (GPA) seem to be close to each other (Table 5). The scores of 4th grade students, high school students and Anatolian High School graduates, students who have completed high school in the country, students who are satisfied partially from studying primary school teaching and those who want to get postgraduate education are higher than the others. Generally, the values indicate that the students' persistence scores are high.

The students' persistence scale scores vary according to class, type of high school graduated from, location of the high school and being satisfied with studying primary school teaching. From the analysis results, it is seen that, there is a meaningful difference between the scores of the students studying primary school teaching and the students who want to get postgraduate training ($p < 0.050$). These differences were formed between the students who wish to receive postgraduate training and those who think of getting postgraduate. When the average scores were examined in the persistence scale, the ratings of those who want to get postgraduate education ($\bar{X} = 31.03$) seem to be higher than those who consider taking post-graduate education ($\bar{X} = 25.73$).

Descriptive statistical results of the scores obtained

from deprivation of learning regulation and Kruskal-Wallis test performed to determine whether it differed according to variables of the points are shown in Table 6.

In the deprivation of learning regulation scale, female teacher candidates' scores are higher than those of male teachers. Teachers with general point average of 3.01 and 4.00 are higher than the teachers with 2.01 and 3.00. 1; and 4th year students are higher than 2nd and 3rd year students (Table 6). Anatolian High School graduates are higher than graduates from high school and other schools. Students who completed high school education in provinces and districts are higher than those who completed theirs in cities. Students who are satisfied with studying primary school teaching are higher than the ones who are partially satisfied and dissatisfied with the discipline. Students who want to receive postgraduate education are higher than those that do not want. Generally, the values indicate that the students' desire for learning of skills is higher. Values in Table 6 show that the students' editing skills differ according to class, type of high school graduated from, location of the high school, the desire to get post graduate education. According to the analysis results, it is determined that the organizational reading skills of the students studying primary school teaching program differ in a meaningful

Table 7. Withdrawal size points of Kruskal-Wallis test results.

Variable	Sub variables	N		Sd	X ²	p	Significant difference
Class	1 st Class	31	42.16	9.83	5.430	0.143	
	2 nd Class	26	36.96	11.95			
	3 rd Class	22	43.64	8.30			
	4 th Class	13	39.23	8.61			
Type of high school graduated from	High School	46	40.09	10.52	0.457	0.796	
	Anatolian High School	36	41.75	9.39			
	Other	10	39.10	12.02			
Location of the high School	Metropole	29	42.03	9.65	1.463	0.481	
	Province	25	38.68	10.59			
	Town	38	40.84	10.39			
Teachers' satisfaction with studying primary school teaching	Yes	70	41.61	9.63	2.498	0.287	
	Partially	3	41.67	12.34			
	No	19	36.84	11.55			
Desire to obtain postgraduate education	Yes	36	42.42	9.68	1.850	0.396	
	Maybe	11	39.36	10.91			
	No	45	39.51	10.43			

p < 0.050.

way from the students who are satisfied with studying primary school teaching (p < 0.050). These differences were formed between the students who are pleased with studying primary school teaching and the students who are satisfied partially. When the average scores were examined, it was seen that the students who are satisfied with studying primary school teaching (\bar{X} =30.81) seem to be higher than those who are satisfied partially (\bar{X} =25.33).

The Lifelong Learning Trends Scale of deprivation descriptive statistical results and Kruskal-Wallis test results conducted to determine whether it differed according to the points of variables are shown in Table 7.

When the values in Table 7 were examined, it was observed that in Lifelong Learning Trends Scale of deprivation, the higher average grade, 3rd grade students, Anatolian High School graduates, those who have completed high school in big cities, those who are partially satisfied with studying primary school teaching and those who want to get postgraduate training scores are higher than the others. The values show that generally the students are keen on learning.

In Table 7, the values show that the students' curiosity for life-long learning does not vary according to class, type of high school graduated, location of high school,

the state of being happy studying primary school teaching and the desire to have post graduate education.

The total scores of descriptive statistical results and the determination of whether scores differed according to variables using the Kruskal-Wallis test results are shown in Table 7.

When the values are examined in Table 8, those with higher GPAs, 3rd grade students, Anatolian High School graduates, those who have completed their education in high school in big cities, those who are pleased to study primary school teaching, and those who want to get post graduate education were found to be positive than others. The values show that the students have positive attitude towards lifelong learning trends.

Students' desire to study primary school teaching program for life does not vary according to class, type of high school graduated from, location of the school, the state of being pleased with studying primary school teaching and the desire to get post graduate education.

The results of t test performed to determine whether computer Self-Efficacy Scale points differed according to variables or not are shown in Table 9.

The values in Table 9 show that the perception of the students doing primary school teaching programs about

Table 8. The lifelong learning trends scale score using Kruskal-Wallis test results.

Variable	Sub variables	N		Sd	X ²	p	Significant Difference
Class	1 st Class	31	133.87	20.32	3.769	0.288	
	2 nd Class	26	125.96	23.13			
	3 rd Class	22	137.91	16.28			
	4 th Class	13	132.69	13.04			
Type of high school graduated from	High School	46	131.70	20.25	1,509	0.470	
	Anatolian High School	36	134.92	18.32			
	Other	10	126.90	22.20			
Location of the high School	Metropole	29	135.83	18.62	2.227	0.328	
	Province	25	126.80	21.66			
	Town	38	133.55	18.77			
Teachers' satisfaction with studying primary school teaching	Yes	70	134.81	19.06	4.563	0.102	
	Partially	3	129.00	17.58			
	No	19	124.21	20.80			
Desire to obtain postgraduate education	Yes	36	137.36	17.01	3.547	0.170	
	Maybe	11	126.64	24.13			
	No	45	129.91	20.06			

p < 0.050.

Table 9. T Test results of computer self-efficacy scale score.

Variable	Sub variables	N	\bar{X}	Sd	t	p
Sex	Woman	68	57.66	11.80	-2.381	0.019 *
	Man	24	64.00	9.27		
GPA	2.01 to 3.00	52	57.80	10.93	-1.443	0.153
	3.01 to 4.00	40	61.28	12.04		

* P < 0.050.

values show that students' perception of computer self-efficacy is high, generally. Table 10 shows that the students' desire for life-long learning does not vary based on class, type of high school graduated from, location of school, and the desire to get post graduate education. At the end of the analysis results, the students' perception of computer self-efficacy differed in a meaningful manner according to the variable of being pleased with studying primary school teaching ($p < 0.050$). This difference was found among those who are pleased with the primary school teaching, ($\bar{X} = 60.11$), those who are not satisfied with the primary school teaching ($\bar{X} = 59.16$) and, those

who are partially satisfied with the primary school teaching ($\bar{X} = 41.67$). = 59.16). When the average scores were analyzed, it was seen that those who were satisfied partially with studying primary school teaching had the lowest average.

The Spearman rank different correlation analysis results are shown in Table 11, which was conducted to determine the relationship between the scores they received from the sub-dimensions of computer Self-efficacy and students' lifelong Learning trends scale.

The values in Table 11 show a low and non-significant relation between the scores obtained from computer self-

Table 10. Results of variance analysis of computer self-efficacy scale scores.

Variable	Sub-variables	N		Sd	F	p	Significant difference
Class	1 st Class	31	55.23	12.32	2.262	0.087	
	2 nd Class	26	60.31	10.29			
	3 rd Class	22	61.55	10.83			
	4 th Class	13	63.31	11.18			
Type of high school graduated feom	High School	46	58.46	10.86	0.964	0.385	
	Anatolian High School	36	59.11	12.62			
	Other	10	64.00	9.90			
Location of high school	Metropole	29	60.27	9.42	2.696	0.073	
	Province	25	54.92	12.00			
	Town	38	61.47	12.08			
Teachers' satisfaction with studying primary school teaching	Yes	70	60.11	10.88	3.947	0.023 *	Yes No Partially-No
	Partially	3	41.67	9.07			
	No	19	59.16	12.28			
Desire to obtain postgraduate education	Yes	36	59.97	12.45	0.296	0.745	
	Maybe	11	56.91	8.34			
	No	45	59.38	11.51			

* P <0.050.

Table 11. Relationship between the ratings of the scales.

Perceptions of computer -self-efficacy scale ratings	
Motivation size ratings	r 0.341 **
	p 0.001
	N 92
Persistence size ratings	r 0.364 **
	p 0.000
	N 92
Deprivation of learning regulation size ratings	r 0.186
	p 0.077
	N 92
Curiosity for withdrawal size ratings	r 0.253 *
	p 0.015
	N 92
Lifelong learning trends scale ratings	r 0.316 **
	p 0.002
	N 92

* P <0.050; ** P <0.010

efficacy scale of the students and that of motivation and persistence dimensions; there was also a low and non-significant relation between the students' computer self efficacy scale and deprivation learning regulation scores. The results of motivation dimension scores of 11% ($r = 0.341$), persistence dimension scores of 13% ($r = 0.364$), worrying over deprivation scores of 6% ($r = 0.253$) and a lifetime learning curve scale of 10% ($r = 0.316$) can be explained by the score of computer self-efficacy scale.

DISCUSSION AND RECOMMENDATIONS

In this work, it was determined that the desire for lifelong learning by the students studying primary school teaching does not change according to gender and grade point average. Kirby et al. (2010) determined that university students' lifelong learning tendency does not differ according to age and gender. Kiliç and Tunceli (2014), in their research with teachers, have set that lifelong learning trends are significantly more favorable to female teachers than male teachers. In this sense, it can be said that teachers carrying on their education for the future are doing self –development, irrespective of the sex.

Motivation scale in the sub-variables points was determined to be close to each other. The values indicate that students' motivation for lifelong learning trends is very high. The students' motivation does not differ according to class, type of high school graduated from, location of high school, being satisfied with studying primary school teaching, but it differs significantly according to the students' desire to obtain postgraduate education ($p < 0.050$). This difference was formed between the graduates who wish to receive post graduate education and those who think of postgraduate education. Results obtained show that the students with high motivation for life-long learning want to take postgraduate education.

The point of the students' persistence for life-long learning is high. Their persistence does not differ according to class, type of high school graduated from, location of high school, being satisfied with studying primary school teaching, but it differs significantly according to the students' desire to obtain postgraduate education ($p < 0.050$). This difference was formed between the graduates who wish to receive post graduate education and those who think of postgraduate education. Results obtained show that the students with high persistence for lifelong learning want to obtain post-graduate education.

It was shown that the candidates' skills of editing are high. This does not differ according to class, type of high

school graduated from, location of high school, being satisfied with studying primary school teaching, but it differs significantly according to the students' desire to obtain postgraduate education ($p < 0.050$). This difference was formed between the graduates who wish to receive post graduate education and those who think of postgraduate education. Results obtained show that the students with high skills of editing want to take postgraduate education.

It was found that generally primary school teacher candidates are keen on learning and their lifelong learning trends are positive. Coskun (2009)'s findings revealed that university students' life long learning trend was not at the desired level. The curiosity of the students studying primary school teaching education for life does not differ according to class, type of high school graduated from, location of high school, being satisfied with studying primary school teaching and desire to do postgraduate education.

Kara and Kurum (2007) concluded in their study that for primary school teaching candidates, life long learning is necessary and important for rapid increase of information and people's adaptation to rapid developments. Kilic and Tuncer (2014), in their study, identified that teachers who have been working for 20 and more years have more negative attitude towards lifelong learning than the other teachers. In the literature, it is discovered that young teachers' and teacher candidates' lifelong learning ideas as individuals who learn their whole lives seem to be similar. Primary school teacher candidates' perspectives tend to be positive towards life-long learning and whatever their situations, their ideas are not differentiated. This information in the literature supports this dimension of the present paper.

The students' perception of computer self-efficacy is high. This does not differ according to gender, GPA, class, type of high school graduated from, location of high school, being satisfied with studying primary school teaching and the desire to study post graduate education. It differs according to the students' status in a meaningful way ($p < 0.050$, $\bar{X}_Y = 60.11$, $\bar{X}_P = 59.16$, $\bar{X}_N = 41.67$).

Akkoyunlu and Kurbanoglu (2003), in their study, determined that the computer self-efficacy of teacher candidates studying Computer and Instructional Technology Teachers, Science and Math Teaching Programs is at the medium level, and when grade level increases, self-efficacy also increases. Tekinarslan and Gurer (2009) have shown that the teachers doing computer course have high computer self-efficacy in a meaningful way, but is based on gender, statistically and significantly. Today, especially in faculties of education, many projects on technological development have been conducted by the Ministry of Education train teachers. It is very important to

support school courses with technology materials.

There is a positive and significant correlation between the students' score obtained from computer self-efficacy scale with motivation and persistence dimension scores; and also between it and deprivation scores, but on average level; there is non-significant correlation between the students' computer self efficacy and deprivation scores

The results of motivation dimension scores of 11% ($r=0.341$), persistence dimension scores of 13% ($r=0.364$), deprivation scores of 6% ($r=0.253$) and 10% of lifetime learning scale scores ($r=0.316$) can be explained by the score of computer self-efficacy scale. The results obtained in this work have proven there is a significant correlation between computer self-efficacy and life-long learning tendency. Similarly, in their study, Kirby et al. (2002) stated that there is a significant relationship between life-long learning skills and computer use skills.

This is the reason for the formation of the lifelong learning concept that depends on the extent of the use of information technology.

Conflict of Interests

The author has not declared any conflicts of interest.

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Full Length Research Paper

Teachers' development model to authentic assessment by empowerment evaluation approach

Charin Charoenchai^{1*}, Songsak Phuseeorn¹ and Waro Phengsawat²

¹Department of Education Research and Development, Faculty of Education, Mahasarakham University, Thailand.

²Department of Education Administration, Faculty of Education, Rajabhat Sakhonnakhon University Thailand, 47000.

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The purposes of this study were 1) Study teachers authentic assessment, teachers comprehension of authentic assessment and teachers needs for authentic assessment development. 2) To create teachers development model. 3) Experiment of teachers development model. 4) Evaluate effectiveness of teachers development model. The research is divided into 4 periods. The first period comprises 900 sample primary school teachers in Sakhonnakhon province. The second comprises 15 evaluation experts. The third comprises 32 sample teachers in small, medium and large primary schools. The fourth period comprises the same 32 sample teachers to gather survey data, meeting seminars to arrive at conclusion from survey, literature analysis and observations. Statistical analysis is performed to find percentage, means, median, inter-quartile range, standard deviation, dependent sample t-test, while qualitative data is subjected to content analysis. The results revealed that 1) 900 primary school teachers in Sakhonnakhon Province undertaking and comprehension of authentic assessment were at the medium level while the expectation was higher than reality at .01 significant level. 2) The model which revealed 4 relationships: prior development study, teachers development planning, teachers development implementation and teachers development evaluation. 3) Experiment of teachers development model to authentic assessment revealed that understanding, attitude and capability to carry out authentic assessment were all higher than before at .01 significant level. 4) Evaluation of effectiveness of teachers development model to authentic assessment by empowerment evaluation approach found the model have utility, feasibility, accuracy, propriety and high teachers' satisfaction.

Key words: Teachers development, authentic assessment, empowerment evaluation, model.

INTRODUCTION

Education evaluation has gone through extensive development and experiments for quite a long time and is now adopted and used widely. Initially, evaluation was done through standardized tests, but these tests could not provide all the answers, necessitating the rise of new

approaches (Kanchanawasi, 2009). Authentic assessment is an alternative approach which stresses natural learning and can genuinely develop learners (Department of Curriculum and Instruction Development, 1999). Even though authentic assessment began in Thailand in 1993,

*Corresponding author e-mail: charinjrc@gmail.com.

some teachers still had reservations and wanted clarification (Chalasthian, 2007). Various studies revealed that teachers lacked understanding and skills in implementing authentic assessment, posing an interesting question on how to devise an approach that can develop teachers to be capable of carrying out authentic assessment so as to continually develop learners in a sustainable manner.

Empowerment evaluation approach was proposed by Fetterman (1993), based on community psychology, sociology and practical research. This innovative approach has been widely implemented in a variety of contexts. It is different from the traditional standardized tests in that it is a continuous process, undergoing continual adjustment and life-long learning, helping learners acquire learning techniques, feeling being stakeholder and realizing the value and necessity of evaluation, leading to sustainable and lifelong implementation (Wonggom, 2004).

Empowerment evaluation approach has an outstanding feature of being flexible and suitable for any context. The approach helps staff in an organization carry out self-evaluation, can be applied in many situations. If it is widely adopted in education context in Thailand, the researchers believe that it would genuinely help teachers implement authentic assessment. The researchers are interested in using empowerment evaluation approach to develop teachers' authentic assessment to stimulate teachers to want to develop themselves and carry out authentic assessment.

Objective

The four research objectives were 1) Study teachers' authentic assessment, comprehension of authentic assessment and needs for authentic assessment development. 2) To create teachers development model through authentic assessment by empowerment evaluation approach. 3) Experiment of teachers development model to authentic assessment by empowerment evaluation approach. 4) Evaluate effectiveness of teachers development model to authentic assessment by empowerment evaluation approach.

METHODOLOGY

The study was divided into 4 periods:

The first period comprised survey of authentic assessment studies to form a database for teachers development model. Samples comprised 900 primary school teachers in Sakhonnakhon province. Study variables were authentic assessment conditions, comprehension of authentic assessment and the needs for authentic assessment development.

The second period was the teachers Development Model through Authentic Assessment by Empowerment Evaluation Approach. The

researcher was synthesized base on the concept teacher development, the concept empowerment evaluation. And synthesize information obtained from the study of the conditions and problems with authentic assessment in schools. Analysis Study P. R. I. The National Education Policy Act involved. Retrieved from the Internet, including databases and documents related research. Used to determine the structure of the model developed to evaluate teachers based on actual conditions. Based on the concept of developing teacher form Teeravut Pratoomnoparath (Thayotyngyong, 2007).

In the design of structures relationship 4 parts. The subjects were 15 evaluation experts, comprising education administrators, teachers' development experts, and classroom learning and evaluation experts. Education variable under study was the suitability of teachers' development model through authentic assessment by empowerment evaluation approach. Research devices comprised assessment form of the suitability and feasibility of the model and meeting records. Data were obtained using Multi-Attribute Consensus Reaching (MACR) technique. Descriptive statistical analysis was performed to find median, inter-quartile range. Conclusion was drawn from content analysis, while suitability and feasibility of the model were done by MACR

The third period was the experiment of teachers development model. Samples comprised 32 teachers in small (A), medium (B) and large (C) primary schools. Study variables were knowledge, attitude and capability in carrying out authentic assessment. Teachers were assessed pre-and post-experiment of teachers development model. Statistical analysis was performed to find percentage, means, median, inter-quartile range, standard deviation, pre-and post-experiment model dependent sample t-test.

The fourth period was evaluation of teachers' development model. Samples comprised the same 32 teachers in the second period. Study variables were evaluation standards of utility, feasibility, accuracy, propriety (The Joint Committee on Standards for Educational Evaluation, 1994; Cited in Stufflebeam and Shinkfield) and teachers' satisfaction of the model. Research tool was opinion survey of model characteristics and satisfaction. Descriptive statistical analysis was performed to find means and standard deviation to be compared with the criteria for meaningful interpretation (Sisa-at, 2011).

RESULTS

The results research on teachers development model to authentic assessment by empowerment evaluation approach raised several issues as follows:

The first period comprises 900 sample primary school teachers in Sakhonnakhon province. They gather survey and test data. Statistical analysis is performed to find percentage, means, standard deviation and Comparison Mean difference for the need for authentic assessment development between Expectation and Reality by dependent sample t-test the review of authentic assessment revealed (Tables 1 and 2).

Tables 1 and 2 showed that 900 sample teachers under the condition of authentic assessment undertaking authentic assessment were at the medium level (Mean = 3.09, S.D. = 0.35). Dependent sample t-test found average expectation value (mean = 4.70, S.D. = 0.34) was higher than reality (mean = 2.58, S.D. = 0.33) at .01 significant level. The teachers' comprehension of

Table 1. Mean and standard deviation of authentic assessment conditions, mean difference of the need for authentic assessment development.

Authentic assessment aspects	Authentic assessment condition		Mean difference for the need for authentic assessment development				t
			Expectation		Reality		
	Mean	S.D.	Mean	S.D.	Mean	S.D.	
Assessment objectives	3.76	0.30	4.62	0.48	2.80	0.40	87.84**
Work scope	2.62	0.35	4.81	0.45	2.66	0.47	89.89**
Evaluator	3.54	0.34	4.64	0.48	2.73	0.44	77.26**
Method and tool	2.91	0.31	4.68	0.46	2.62	0.50	82.80**
Time and place	3.44	0.37	4.63	0.48	2.64	0.50	76.40**
Criteria	2.50	0.34	4.87	0.39	2.38	0.48	100.54**
Result presentation	2.84	0.31	4.80	0.33	2.27	0.44	117.52**
Total	3.09	0.35	4.70	0.34	2.58	0.33	123.66**

Note : 1) Scores of authentic assessment and difference between expectation and reality are measured by 5 levels 1.00-1.50= very low, 1.51-2.50 = low, 2.51-3.50= medium, 3.51-4.50 = high, 4.51-5.00 = very high.
2) ** Significant at .01level.

Table 2 Quantity, Percent, mean standard deviation of differentiated by low, medium, high authentic assessment comprehension.

Authentic assessment Comprehension	Quantity / Percent			
	Quantity	Percent	Mean	S.D.
Low	156	17.33	8.01	2.10
Medium	430	47.78	14.06	2.56
High	314	34.89	23.50	2.47
Total	900	100	15.19	2.38

Note : Scores of authentic assessment comprehension derived from 30-items tests: 0-10 low, 11-20 medium, 21-30 high.

authentic assessment was at the medium level, 47.78 %. The study of authentic assessment implementation yielded the following:

Authentic assessment implementation was at medium level . Empirical evidence during teachers development found teachers could not determine assessment method in line with what to be assessed, which may be due to teachers' lack of comprehension, high workloads of teaching and non-teaching activities.

Needs assessment study found teachers wanted to develop authentic assessment capability (Office of National Education Council, 1999; Yothasing, 2003). However, after training on authentic assessment, most teachers failed to implement the method, which may be due to the fact that teachers' training was not comprehensive enough and training duration was inadequate.

Authentic assessment comprehension was at medium level, 47.78 % (Sakulsong, 2001; Phuviphadavat, 2001), which may be due to teachers' lack of comprehension and the authentic assessment needs planning and

several steps for implementation.

The second period was to create teachers development model through authentic assessment by empowerment evaluation approach, the researchers applied teachers development through authentic assessment to come up with 4 related components: (1) Prior development study (2) Teachers development planning (3) Teachers development implementation and (4) Teachers development evaluation.

On empowerment evaluation, there were 3 related components (1) Mission (2) Taking stock and (3) Planning for the future. The under study was the suitability of teachers development model through authentic assessment by empowerment evaluation approach. Research devices comprised assessment form of the suitability and feasibility of the model and meeting records. Data were obtained using Multi-Attribute Consensus Reaching (MACR) technique (Figure 1).

The teachers' development model comprises of 4 steps of development.

The first step is prior development study, comprising

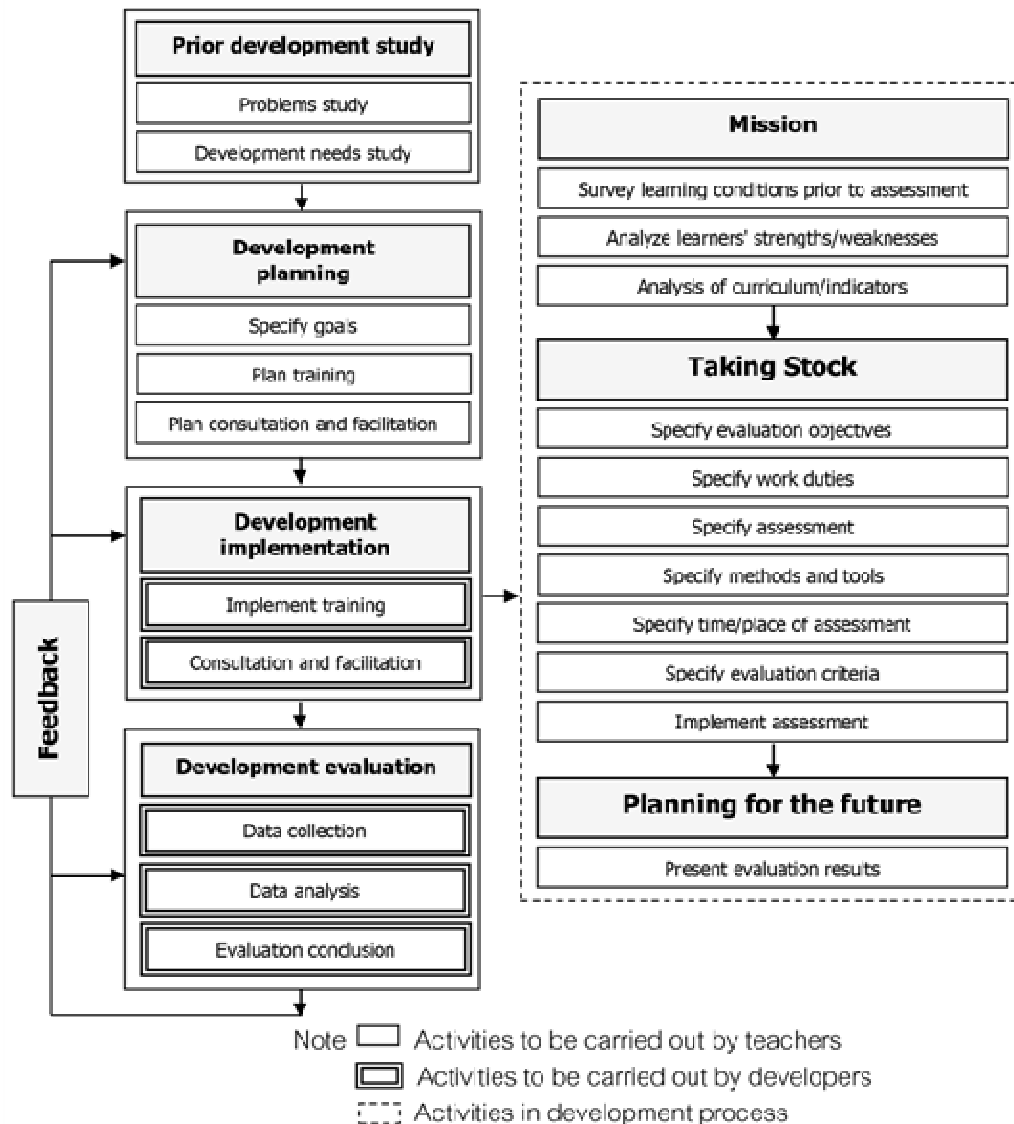


Figure 1. Teachers development model through authentic assessment by adopting empowerment evaluation approach.

nature of problems and development needs. In teachers' development, researchers play a role of consultation, facilitation and motivation so that teachers can evaluate themselves through authentic assessment of the current situation, and formulate development goals.

The second step is teachers' development planning, comprising setting goals, training methods, consultation and facilitation. Researchers play a role of consultation and facilitation during brain-storming session and motivate teachers to feel that they are stakeholders in teachers' development and joint evaluations, which is in line with a practical research on empowerment that creates intimacy and ownership feelings (Fetterman,

1998).

The third step is teachers' development implementation, comprising training to equip teachers with skills and procedures to carry out authentic assessment, as well as providing consultation and facilitation to impart evaluation experiences to teachers. It is essential that school administrators realize that they need to provide adequate material support and facilities as authentic assessment needs more resources than traditional method (Hart, 1994; Virginia Education Association and the Appalachia Educational Laboratory, 1992; Department of Curriculum and Instruction Development, 1999).

The fourth step is teachers' development evaluation,

Table 3. Difference between pre and post-experiment development model on comprehension, attitude, capability.

School	n	Pre		Post		t
		Mean	S.D.	Mean	S.D.	
Comprehension						
A (S)	5	2.85	0.20	4.05	0.19	9.63**
B (M)	11	2.81	0.27	4.16	0.20	11.47**
C (L)	16	2.67	0.14	4.38	0.19	27.58**
Total	32	2.75	0.21	4.25	0.23	23.34**
Attitude						
A (S)	5	3.40	0.28	4.37	0.14	5.36**
B (M)	11	3.04	0.69	4.40	0.13	6.15**
C (L)	16	3.15	0.36	4.41	0.15	13.22**
Total	32	3.15	0.49	4.40	0.14	13.29**
Capability						
A (S)	5	2.05	0.27	3.87	0.31	7.43**
B (M)	11	1.89	0.13	4.21	0.24	35.08**
C (L)	16	2.00	0.18	4.35	0.17	43.30**
Total	32	1.97	0.18	4.23	0.27	38.03**

comprising data collection/analysis and evaluation conclusion. The researchers play the role of data collection/analysis, conclusion as well as provide consultation and facilitation during implementation and after development so as to be able to adjust development plan and monitor progress.

The third step consists of developing teachers through authentic assessment by empowerment evaluation.

The first stage is to determine mission, comprising survey of students' competencies prior to assessment, analysis of students' strengths and weaknesses, analysis of curriculum and indicators, all of which stakeholders must jointly determine mission goals so that group of people can generate learning and express a variety of opinions. This can be done via practice workshop which facilitates team building to implement the next step (Fetterman, 1996).

The second stage is taking stock, comprising specifying objectives, work duties, evaluation tools and methods, time and place, evaluation criteria. During this stage, we must be able to answer where we stand in relation to the stated mission, and to take stock what we have in the project or organization in order to identify the strengths and weaknesses of what we are doing.

The third stage is planning for the future. This stage reveals evaluation results of students' advance by documenting progress. After project evaluation, stakeholders may pose a question "From this point on, how to make for successful project?" so that they can jointly determine the objectives in line with the mission,

choose and plan for the future through brain-storming session to arrive at consensual strategies to be implemented (Fetterman, 1996).

The third period was the experiment using teachers development model with 32 sample teachers in small (A), medium (B), and large (C) primary schools to gauge authentic assessment comprehension, attitude and capability pre and post-experiment. (Table 3)

Table 3 shows the experiment using teachers development model with 32 sample teachers in small (A), medium (B), and large (C) primary schools to gauge authentic assessment comprehension, attitude and capability pre and post-experiment, which yielded higher development at .01 significant level were knowledge (pre = 2.75, S.D.=0.21, post = 4.25, S.D.=0.23), attitude (pre = 3.15, S.D.=0.49, post = 4.40, S.D.=0.14) and capability (pre = 1.97, S.D. = 0.18, post = 4.23, S.D.=0.27). It also shows the effectiveness of teachers' development model to authentic assessment by empowerment evaluation approach found teachers' authentic assessment comprehension, attitude and capability higher after the experiment. This may be due to the empowerment model that was designed to support self-help, decision and realization of the need for assessment and teachers feel being a stakeholder (Fetterman, 1996).

The fourth period was the evaluation of teachers' development model. Samples comprised the same 32 teachers in the second period. Study variables were evaluation standards of utility, feasibility, accuracy,

Table 4 Teachers development model's utility, feasibility, propriety, accuracy and satisfaction scores.

School	n	Utility		Feasibility		propriety		Accuracy		Satisfaction	
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
A (S)	5	3.99	0.45	3.81	0.36	3.69	0.54	3.75	0.40	3.56	0.51
B (M)	11	3.63	0.55	3.63	0.61	3.69	0.49	3.63	0.56	3.63	0.52
C (L)	16	3.62	0.51	3.60	0.54	3.70	0.75	3.60	0.60	3.70	0.48
Total	32	3.79	0.54	3.71	0.51	3.70	0.58	3.68	0.53	3.62	0.49

Note : 1) Scores of authentic assessment are measured by 5 levels: 1.00-1.50= very low, 1.51-2.50 = low, 2.51-3.50= medium, 3.51-4.50 = high, 4.51-5.00 = very high, 2) A (S)=Small, B (M) = Medium, C (L) = Large school.

propriety and teachers' satisfaction of the model (Table 4).

Table 4 shows the evaluation of experiment model results. Sample teachers gave high scores for model's utility (Mean = 3.79, S.D. = 0.54), feasibility (Mean = 3.71, S.D. = 0.51), propriety (Mean = 3.70, S.D. = 0.58), accuracy (Mean = 3.68, S.D. = 0.53) and satisfaction (Mean = 3.62, S.D. = 0.49). The teachers' development model experiment was found to help teachers' comprehension and realization of the need for authentic assessment. The model was valuable, feasible, propriety, reliable and helpful in carrying out authentic assessment in line with students' conditions, which was in accord with (the Joint Committee on Standards for Educational Evaluation, 1994; Cited in Stufflebeam and Shinkfield.) Teachers expressed satisfaction with the development model as it helped them to comprehend and implement authentic assessment by themselves and they could design authentic assessment in accord with students' capability and potentials. The model strengthened teachers' confidence in carrying out teaching innovation and that they received material support from higher-ups.

Conclusion

The results of this study have shown that primary school teachers did not use authentic assessment results to develop learners. Therefore, those responsible for teachers' training and development should encourage teachers to use assessment results to help develop students and that school administrators should specify that assessment results be used to improve learning and they must continually monitor teachers to make sure that it is carried out (Wongwanich, 2000).

To utilize teachers' development model through authentic assessment, detailed plans and work scope must be specified to make it clear for teachers to implement. Plans must come from teachers' consensus so that they feel they are stakeholders (Wonggom, 2004).

It is essential that teachers development researchers convince school administrators the need to provide adequate material support and facilities and that schools

must bear responsibility and learning together with teachers, not abandoning teachers to learn and carry out evaluations on their own (Prawanphruek, 2004).

Empowerment evaluation approach needs teamwork. Before it is used for teachers development in authentic assessment, teachers must be trained to work co-operatively, democratically and with reasons (Fetterman, 1993).

It was found that teachers had high workloads in teaching and non-teaching activities. To effectively carry out teachers development model, teachers should be encouraged to learn authentic assessment in synergy with other skills.

RECOMMENDATIONS

This research was carried out for a single learning subject so as to get accurate results of authentic assessment. To shed light to total learning picture, other subjects should be researched as well as including secondary school teachers.

Empowerment evaluation approach stresses joint planning and problem-solving to create sustainable development. This approach can be applied in several teachers development contexts including ideas, analysis, and written communication.

Conflict of Interests

The authors have not declared any conflict of interests.

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