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SCHOOL ADMINISTRATORS' OPINIONS OF THEIR 'MULTIPLE INTELLEGENCE AREAS' LEVELS

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ABSTRACT

This study was conducted to determine the views of administrators, who work in the schools affiliated to the Ministry of Education, on their intelligence areas based on the multiple intelligence theory. The research population consists of the principals and assistant principals who work in the public schools (primary and secondary) in Nevşehir province between 2012 and 2013. Since the whole population was reached, there was no need to a sample to represent it. In this study, "the Multiple Intelligence Assessment Survey", which was developed by Gülşen (2012) on five-point Likert scale with '0,965' Cronbach's Alpha value, was adopted to determine the administrators' 'multiple intelligence areas'. According to the findings, there seemed no differentiation in the administrators' intelligence area in terms of gender variable. As a result of the research, it has been seen that the school administrators see their 'verbal/linguistic intelligence' as the most developed with a 55,4% participation rate and they think they have other intelligence areas at different rates. Considering these results, it is suggested for the Ministry of Education to determine the policies encompassing the activities that may help the school administrators be better equipped about multiple intelligence types.

Key Words: Multiple Intelligence, School, Education, Educational Administration, School Administrators.

INTRODUCTION

The fact that what intelligence is and how it should be defined has attracted many educators for a long time and each discipline dealing with 'intelligence' defines it accordingly. Binet, who developed Psychometric approach, suggests that the intelligence manifests itself in complex high-level processes such as understanding, judgment and reasoning, while Piaget, who brings a developmental-based approach to intelligence, defines intelligence as the mind's power of change and renewal (Bümen, 2005; Selçuk et al., 2004). Ceci (1990) developed "bio-ecologic theory" and suggested that the intelligence concept also includes biologic, environmental, metacognitive and motivational variables (Demir, 2014; Elibol, 2000; Selçuk et al., 2004). Sternberg (1988) who developed triarchic intelligence theory defines intelligence as the individual's mentally self-executing capacity in his work "Triarchic Mind" (Demir, 2014; Eskisözlük, 2015; Selçuk et al., 2004).

Gardner who proposed multiple intelligence theory defines intelligence as the individual's capacity to create products that are of value in one or more cultures, the skill to produce effective and efficient solutions to real life problems and the ability to discover new or complex structured problems that need to be resolved (Checkley, 1997; Gardner, 2004). With his intelligence definition, Gardner named individuals' different abilities, potentials or skills as "intelligence areas" providing a broader view on intelligence (Gardner, 2004; Saban, 2005).

The innovations proposed by Gardner on intelligence definition and its process of development have resulted in the invalidation of other views discussing intelligence as one way. (Atik, 2003). According to Gardner, IQ

tests and other intelligence tests only measure verbal and logical-mathematical skills. The individuals, however, have eight different intelligence areas (Checkley, 1997).

Gardner defines intelligence areas as verbal-linguistic, logical-mathematical, visual-spatial, bodily-kinaesthetic, musical-rhythmic, intrapersonal-introspective, and social-interpersonal intelligences in his epochal book "Frames of Mind" in 1983 (Gardner, 2004; Karatekin, 2006). Gardner has added the eighth area as naturalistic intelligence in 1995 (Gülşen et al., 2014a; Yavuz, 2005). Gardner describes multiple intelligence areas to be used in the management of teaching and learning process as the following (Demir, 2014; Gardner, 1999; Gardner, 2004; Gülşen et al., 2014a; Karatekin, 2006):

Verbal/Linguistic Intelligence: Linguistic intelligence is the ability to use both spoken and written words effectively. For example, those verbally storytelling, making presentations and politicians as well as poets, playwrights, editors, journalists displaying linguistic intelligence are categorized in this group.

Logical/Mathematical Intelligence: This area has to do with the abilities such as logical thinking, using numbers efficiently, suggesting cognitive solutions to problems, distinguishing the relations between concepts, sorting, generalizing, formulating (mathematically), counting and hypothesis testing.

Visual/Spatial Intelligence: This is the ability to visualize the shape and image of a three-dimensional object, to perceive the world accurately and to reflect one's imagination after the perception/understanding. Spatial intelligence includes the behaviours such as visual thinking, expressing the shape/space features of objects with shapes and graphics, drawing, painting and shaping.

Bodily/Kinaesthetic Intelligence: This ability is the control of one's bodily motions in expressing opinions and feelings and in solving problems. The individuals who have high bodily-kinaesthetic intelligence display a facility with sporting movements and rhythmic games.

Musical/Rhythmic Intelligence: This area has to do with the ability to use music as a tool in transferring feelings, sensing the music and performing it. The people who have high musical/rhythmic intelligence are musicians, conductors and composers.

Intrapersonal/Introspective/Individual Intelligence: This ability is one's understanding of the self, strengths or weaknesses, mood, desire and intentions; planning and routing one's life in this regard. The individuals having high intrapersonal intelligence know how to deal with their feelings, solve their individual problems, and determine their own objectives; being disciplined and self confidence are also the characteristics of this area.

Social/Interpersonal Intelligence: This ability has to do with interacting with other people, understanding others' mood, feelings and intentions, and interpreting their behaviours.

Naturalistic Intelligence: This is the eighth intelligence area suggested by Gardner in 1995. The people having this intelligence are interested in natural resources and a healthy environment.

It is possible to say that there is always an interaction between intelligence areas. They work together in a harmonious way. For example, in order to cook, the recipe is read first (verbal intelligence); if necessary the recipe is divided in half (mathematical intelligence); and a menu is prepared to satisfy all family members (social intelligence) and to appease the appetite (internal/intrapersonal intelligence). Similarly, when a child plays with ball, s/he uses bodily intelligence to run and catch and hit the ball; visual intelligence to ensure the compliance with the field and to predict the direction of ball; linguistic and social intelligences to argue successfully about a dispute in the game (Armstrong, 2000).

The basis of multiple intelligences is based on the suggestion that the majority of people have creativity in a specific field and each individual has a predominant skill in a field. According to Gardner, one displays more improvement in one or two intelligence compared to other intelligence areas. This is because there are

individual differences and they have different way of thinking (Demirel, 2003). If the educational administrators take these differences into careful consideration, they will serve most efficiently for all individuals.

Since the administrators and the teachers have a constant professional and hierarchical communication and interaction, they experience some problems depending on the individual differences. The intelligence areas and learning styles of the administrators are key to overcoming these problems. If the administrators can identify different intelligence components, they may have more opportunities to overcome the potential problems. Having seen the administrators' learning styles together with their intelligence areas the importance of multiple intelligences increases in guiding teachers (Gülşen, 2014a).

Creating a positive organizational climate at school is the responsibility of administrators. Managing the educational resources in accordance with the organization's objectives, coordinating them to achieve the goals of the curricula are of the most fundamental duties of administrators; however, achieving the goals depends on the effective communication between administrators and teachers (Gülşen, 2014b).

Administration and perceptions of leadership are important as well as the effect of the administrators' having different intelligence areas on their behaviour patterns to carry out administrative functions and to find solutions to the problems. The administrators' perceptions of leadership also make positive or negative contributions in achieving the organizational goals. Taken into consideration that the administrators are those who guide their subordinates to help them reach their goals in a direct, healthy and safe way, it is possible to say that the administrators' foremost duty is to integrate organizational goals and the group's objectives (Ergezer, 1995; Coleman, 1999).

It can be said that there is a linear relationship between the administrators' ability to create a shared vision with the people s/he works and to impress them and their knowledge about multiple intelligences. Therefore, learning the school administrators' opinions about multiple intelligences was regarded important and such a research was seen necessary.

METHOD

Model, Population and Sample of the Research

General screening model was used in the conduct of this research. The population of the research, which was conducted to determine the views of administrators –working in the schools affiliated to the Ministry of Education– on their intelligence areas, consists of the principals and assistant principals who work in the public schools (primary and secondary) in Nevşehir province between 2012 and 2013 (Nevsehirmem, 2012). Since the whole population was reached, there was no need to a sample to represent it. The return rate of the questionnaires was 80.72%. The study group consisted of 21 women (9,5%) and 201 men (90,5%).

Data Collection Instrument

First of all, the related literature was reviewed to achieve the goals of the study. "The Multiple Intelligence Assessment Survey", which was developed by Gülşen (2012) on five-point Likert scale with '0,965' Cronbach's Alpha (α) value, was adopted to determine the administrators' opinions on 'multiple intelligence areas'. The administrators' opinions on 'multiple intelligence areas' were determined thanks to this survey consisting of 10 statements for each of the eight intelligence areas (80 statements in total). The Hotelling's T-square test results for "Multiple Intelligence Areas Assessment Survey" were measured fairly high (5793,435). According to the results of ANOVA test and Tukey's additivity test (KT: 21771,949), the significance level of the survey is $p<0,05$ and this means the survey has "the additive property"; overall, it has been shown that the survey is valid, reliable and applicable.

The survey was conducted in accordance with five-point Likert scale. Weights and weight limits related to the participation degrees on the statements are as the follows: "Absolutely inappropriate for me: 1.00–1.80", "Very little appropriate for me: 1.81–2.60", "Slightly appropriate for me: 2.61–3.40", "Highly appropriate for me: 3.41-4.20", "Absolutely appropriate for me: 4.21–5.00". The development levels of intelligence areas were

determined as the follows: "Undeveloped" for 10-17 points; "Slightly Developed" for 18-25 points; "Moderately Developed" for 26-33 points; "Developed" for 34-41 points; and "Very Developed" for 42-50 points.

FINDINGS AND COMMENTS

This section includes the statistical analysis tables of the data obtained from "Multiple Intelligence Assessment Survey". The survey data were analyzed and evaluated through computer software packages. Following are the tables that were created with the help of the data and the evaluations based on these findings.

Table 1: Statistics of Multiple Intelligence Areas Assessment Survey (Verbal/Linguistic Intelligence)

Statements related to Intelligence Areas	**Level of Intelligence**	**f**	**%**
1. Writings are more attractive than pictures for me. 2. I have a good memory for names, places and dates. 3. I like to read books. 4. I can easily express my oral or written opinions by pronouncing words accurately 5. I like riddles and word games and I perform successfully. 6. I can easily remember what I read or heard and I learn better by listening. 7. I have a good vocabulary for my age. I can easily express problems and solutions verbally. 8. I enjoy writing and I use words accurately when writing 9. I like to use the new words I learned and I try to use them. 10. I impress my interlocutors with my speech at verbal debates.	Undeveloped	0	0,0
	Slightly developed	4	1,8
	Moderately Developed	32	14,4
	Developed	63	28,4
	Very Developed	123	55,4
	Total	**222**	**100**

Table 1 shows the frequency information about the administrators' levels of verbal/linguistic intelligence. It is seen that the administrators have quite high verbal/linguistic intelligence levels. Of the participants, it seems that 28,4% is "Developed" and 55,4% is "Very developed" for their verbal intelligence. Interestingly, the rate of "Undeveloped" and "Slightly developed" is 1,8%.

Table 2: Statistics of Multiple Intelligence Areas Assessment Survey (Logical/Mathematical Intelligence)

Statements related to Intelligence Areas	**Level of Intelligence**	**f**	**%**
1. I make meaningful classifications while learning and I can distinguish similarities or differences between ideas. 2. I like math games and I calculate arithmetic problems in my head. 3. I can quickly develop strategies for the solution of problems by finding different alternatives 4. I enjoy chess and other mind games. 5. I enjoy jigsaw puzzles and mental gymnastics and I can easily solve logical problems. 6. I like computer games. 7. I like experiments and doing new experiments; I can easily notice the contradictions. 8. I can think more discretely compared to my friends and I ask exploratory questions 9. I ask questions about how a vehicle/machine works and I can easily understand its operating system. 10. I enjoy establishing cause-and-effect relationships and I can easily find main and side ideas of events.	Undeveloped	4	1,8
	Slightly Developed	0	0,0
	Moderately Developed	29	13,1
	Developed	99	44,6
	Very Developed	90	40,5
	Total	**222**	**100**

Table 2 shows the frequency information about the administrators' levels of logical/mathematical intelligence. It is also seen that the administrators have quite high logical/mathematical intelligence levels. They seem to have "Developed" (28,4%) and "Very developed" (55,4%) logical/mathematical intelligence. It is also interesting that the rate of "Undeveloped" and "Slightly developed" is 1,8%.

Table 3: Statistics of Multiple Intelligence Areas Assessment Survey (Visual/Spatial Intelligence)

Statements related to Intelligence Areas	**Level of Intelligence**	**f**	**%**
1. I am very sensitive to colours and I can easily find a combination between colours.	Undeveloped	4	1,8
2. I remember any information easier by schematizing since I comprehend easier the materials such as plans, sketch and map.	Slightly Developed	4	1,8
3. I dream more compared to my friends and I give importance to the details in my dreams			
4. I enjoy painting, I find images more meaningful than texts and I much prefer to use images to express myself	Moderately Developed	28	12,6
5. I like the games like puzzles, Lego and I can easily find the necessary parts in these games.	Developed	94	42,3
6. I easily remember where I went before.			
7. I like to solve puzzles.			
8. I remember my dreams in a clear and detailed way and I easily portray the objects when I close my eyes.	Very Developed	92	41,4
9. I like illustrated books more.			
10. I doodle when studying and I draw or take notes on my books, notebooks and other materials.	**Total**	**222**	**100**

Table 3 shows the frequency information about the administrators' levels of visual/spatial intelligence. It is seen that the administrators also have quite high visual intelligence levels. They seem to have "Developed" (42,3%) and "Very developed" (41,4%) visual/spatial intelligence. It is seen that the rate of "Undeveloped" and "Slightly developed" is 3,6%. This result is similar to the results of logical/mathematical intelligence area.

Table 4: Statistics of Multiple Intelligence Areas Assessment Survey (Bodily /Kinaesthetic Intelligence)

Statements related to Intelligence Areas	**Level of Intelligence**	**f**	**%**
1. I feel mentally relaxed when I do sport and so I enjoy sports including running and jumping.	Undeveloped	2	0,9
2. I fidget and I can't stand still for long			
3. I express my thoughts comfortably with mimics/behaviours.	Slightly Developed	3	1,4
4. I enjoy learning by moving and performing rather than reading or thinking.			
5. I like to examine the things I wonder by taking in my hand.	Moderately Developed	68	30,6
6. I like to spend my spare time outdoors.			
7. I enjoy playing physical games with my friends.	Developed	63	28,4
8. My hand skills are advanced and I can fix when a vehicle breaks down.	Very Developed	86	38,7
9. I can comfortably use my body moves and body language while expressing my problems or any word.			
10. I like to touch people and objects. I learn better when I touch, interact and examine.	**Total**	**222**	**100**

Table 4 shows the frequency information about the administrators' levels of bodily/kinaesthetic intelligence. It is seen that the administrators have yet still high bodily/kinaesthetic intelligence levels, though not as the previous three intelligence areas. It is observed that the density is concentrated on "Moderately developed". The participants seem to have 38,7% of "Developed", 28,4% of "Developed" and 30,6% of "Very developed" visual/spatial intelligence.

Table 5: Statistics of Multiple Intelligence Areas Assessment Survey (Musical/Rhythmic Intelligence)

Statements related to Intelligence Areas	**Level of Intelligence**	**f**	**%**
1. I can easily remember the melodies of songs and I can complete the tune when I hear a small part of it.	Undeveloped	33	14,9
2. I sing beautifully and I create simple compositions. 3. I play a musical instrument or I would love to play it. 4. I love the music lessons and I can understand rhythmic problems in a musical composition.	Slightly Developed	64	28,8
5. I talk or move in a rhythmic way. 6. I mutter without realizing it. I also create a rhythm when I try to remember anything.	Moderately Developed	52	23,4
7. I keep the beat with my hands or feet when studying or focusing on a topic.	Developed	20	9,0
8. Surrounding sounds draw my attention a lot and I can easily imitate them.	Very Developed	53	23,9
9. I enjoy listening to music when I study or I'm tired. 10. I like to deal with music and I love to share the songs I learned.	**Total**	**222**	**100**

Table 5 shows the frequency information about the administrators' levels of musical/rhythmic intelligence. It is possible to say that the administrators' musical intelligence is slightly developed compared to the previous intelligence areas. The participation rate (level of intelligence) is the highest with 28,8% "Slightly developed" and it is lowest with 9,0% "Developed".

Tablo 6: Statistics of Multiple Intelligence Areas Assessment Survey (Social/Interpersonal Intelligence)

Statements related to Intelligence Areas	**Level of Intelligence**	**f**	**%**
1. I like playing with my friends and I like to get involved in different organizations held as a group.	Undeveloped	0	0,0
2. I am seen as a natural leader and I take the leading role by myself in the groups 3. I help the people around me about their problems and I give advice to my friends who have problems.	Slightly Developed	5	2,3
4. My friends value my thoughts and I can easily guide the people around me.	Moderately Developed	25	11,3
5. I am the indispensible person of the organizations since I have a harmonious personality in group studies. 6. I enjoy attempting to meet new people and telling them something.	Developed	94	42,3
7. I establish close relationships with the people I get in touch and I often call them. 8. I like to help my friends about their problems.	Very Developed	98	44,1
9. The people around me want to build friendship with me. 10. I salute people and I ask after them.	**Total**	**222**	**100**

Table 6 shows the frequency information about the administrators' levels of social/interpersonal intelligence. It is seen that the administrators have quite high social intelligence levels. They seem to have 44,1% "Very developed", 42,3% "Developed" and 11,3% "Moderately developed" social intelligence. It is seen that the rate of "Undeveloped" and "Slightly developed" is 2,3%.

Table 7: Statistics of Multiple Intelligence Areas Assessment Survey (Internal/Introspective Intelligence)

Statements related to Intelligence Areas	**Level of Intelligence**	**f**	**%**
1. I can reveal the reasons and results of my behaviours without being affected by the people around me and I like thinking and acting independently.	Undeveloped	0	0,0
2. I set short and long term goals for my life since I know my strengths and weaknesses.	Sligthly Developed	10	4,5
3. I like spending time alone and so I like working alone more.			
4. I mostly like to be alone and I keep a journal to express my feelings.	Moderately Developed	62	27,9
5. I like to share my works with my friends.			
6. I can easily express my feelings and thoughts by seeing myself objectively since I am aware of what I am doing.	Developed	44	19,8
7. I mostly don't ask for advice to anyone and I analyze my ideas and events by myself.	Very Developed	106	47,7
8. I sometimes ask the question "Why?" to myself since I have high self-esteem.			
9. I am extensively interested in a field and I have a hobby.	**Total**	**222**	**100**
10. I like to solve problems on my own and produce something without asking for help.			

Table 7 shows the frequency information about the administrators' levels of internal/introspective intelligence. The highest participation rate among the administrators is 47,7% on "Very Developed". They also seem to have "Developed" (19,8%) and "Moderately developed" (27,9%) internal intelligence. It is seen that the rate of "Undeveloped" and "Slightly developed" is 4,5%.

Table 8: Statistics of Multiple Intelligence Areas Assessment Survey (Naturalistic/Natural Intelligence)

Statements related to Intelligence Areas	**Level of Intelligence**	**f**	**%**
1. I follow the behaviours of animals closely and gather information about their lives since I am very curious about the animals..	Undeveloped	3	1,4
2. I follow closely the causes and effects of the incidents in nature and I try to raise awareness about the nature.			
3. I keep (or would love to keep) a pet; I can easily recognize and categorize animals.	Slightly Developed	21	9,5
4. I love to play with soil and plants in garden; I can easily identify different types of plants.	Moderately Developed	42	18,9
5. I like to examine and cultivate different types of plants.			
6. I am sensitive to the changes occurring around me and I would fight against the environmental pollution.			
7. I like watching documentaries about plants or animals.	Developed	65	29,3
8. I like sightseeing tours and examinations about nature and I am interested in seasons and climatic events.			
9. I am interested in different fruits and vegetables.	Very Developed	91	41,0
10. I am interested in natural events and I do my best to protect the wildlife.	**Total**	**222**	**100**

Table 8 shows the frequency information about the administrators' levels of nature/naturalistic intelligence. The highest participation rate among the administrators is 41,0% on "Very Developed". They also seem to have "Developed" (29,3%) and "Moderately developed" (18,9%) naturalistic intelligence. It is seen that the rate of "Undeveloped" and "Slightly developed" is 10,9%.

Table 9: T-Test Table Related to Gender Variable in Multiple Intelligence Areas

		Levene's Test for Equality of Variances		T -test			
		F	Sig.	t	df	Sig. (2-tailed)	
Verbal/Linguistic Intelligence	Default equal variances	,145	,704	1,445	220	,150	
	Default unequal variances			1,450	24,411	,160	
Logical / Mathematical Intelligence	Default equal variances	,021	,884	,772	220	,441	
	Default unequal variances			,839	25,417	,409	
Visual/Spatial Intelligence	Default equal variances	2,070	,152	1,451	220	,148	
	Default unequal variances			1,839	28,136	,076	
Bodily/Kinaesthetic Intelligence	Default equal variances	,153	,696	,577	220	,565	
	Default unequal variances			,611	25,076	,547	
Musical/Rhythmic Intelligence	Default equal variances	2,121	,147	-,104	220	,917	
	Default unequal variances			-,124	26,806	,902	
Social/Interpersonal Intelligence	Default equal variances	,047	,828	1,295	220	,197	
	Default unequal variances			1,253	24,011	,222	
Internal/Introspective Intelligence	Default equal variances	1,693	,195	-,031	220	,975	
	Default unequal variances			-,033	25,157	,974	
Nature/Naturalistic Intelligence	Default equal variances	,062	,803	-1,246	220	,214	
	Default unequal variances			-1,337	25,244	,193	

Having examined the answers given by the administrators on multiple intelligence areas assessment survey, it is seen in that there is no statistically significant difference (P>0,05) between male and female teachers (Table 9). In other words, the gender difference among the participants has no effect on intelligence areas.

RESULTS AND RECOMMENDATIONS

The following results have been reached upon the findings of this study:

1. It is seen that gender difference has no significant effect on any of the intelligence areas.
2. More than a half of the administrators have specified that they have "very developed" verbal/linguistic intelligence.
3. The second highest "very developed" intelligence area is "internal intelligence" (47,7%) following verbal/linguistic intelligence.
4. It is seen that the lowest "very developed" intelligence area among the administrators is "musical/rhythmic intelligence" (23,9%). The second lowest intelligence area is "bodily/kinaesthetic intelligence" (38,7%).
5. Having regarded the administrators' intelligence areas as the sum of "developed" and "very developed" levels, it is seen that "logical/mathematical intelligence" (85,1%) is the highest; "verbal/linguistic intelligence" follows it with 83,8% participation rate.
6. Having regarded the administrators' intelligence areas as the sum of "developed" and "very developed" levels, it is seen that "musical/rhythmic intelligence" is the lowest (32,9%); "bodily/kinaesthetic intelligence" follows it with 67,1% participation rate.

The following suggestions are proposed based on the survey results:

1. In determining the policies about administrator assignments, it is suggested for the Ministry of Education to determine the policies encompassing the activities that may help the school administrators be more sensitive and better equipped about multiple intelligence types.
2. Developing appropriate methodologies in accordance with multiple intelligence areas for educational activities, the curriculum should be improved to make it possible gaining appropriate outcomes about these intelligence areas in educational environments.

3. Given that there is a positive relationship between management models and intelligence areas of the administrators, it is suggested that there should be legal regulations for the administrators to complete postgraduate educations (encompassing multiple intelligence trainings) in the field of educational administration and inspection.
4. Arrangements should be made to ensure the contents of the lessons include the outcomes related to multiple intelligence areas.

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