Multiple Intelligences Profiles of Junior Secondary School Students in Indonesia

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Abstract

This study aimed to investigate the Multiple Intelligences profiles of the students at junior secondary school in Makassar. The Multiple Intelligences Inventory was used to identify the dominant intelligence among the students. The sample of this research was 302 junior secondary schools students in Makassar Indonesia who willing to participated in this study. Descriptive and inferential statistics were used to investigate the students' MI profiles. The results of this study showed that all intelligences were possessed by the students either in strong, moderate, or weak category. Existential intelligence became the strongest intelligence among the nine types of multiple intelligences. Moreover, other types of multiple intelligences in strong category were interpersonal intelligence and verbal-linguistic intelligence. They were the second and the third intelligence of the strongest intelligences. The other types were in moderate category, were intrapersonal intelligence, musical intelligence, visual-spatial intelligence, logical mathematic intelligence, bodily-kinesthetic intelligence, and naturalist intelligence. In terms of gender, the study revealed, male students significantly possessed stronger in logical-mathematic intelligence, bodily-kinesthetic intelligence, and intrapersonal intelligence, Meanwhile, Female students were significantly stronger in musical intelligence, interpersonal intelligence, and existential intelligence. The results also showed that there was no significant difference between male students and female students in verbal linguistic intelligence, visual-spatial intelligence, and naturalist intelligence.

Keywords: multiple intelligences, students' profile

1. Introduction

Gardner (1983) views intelligence as a biological factor bound in the environment where the individual lives, the culture which she or he acquires, and the surrounding communities, with whom she or he interacts. Those factors play a great role in shaping her or his intelligences. Gardner also defines intelligences as a bio-psychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in community. Moreover, It is also differs from traditional view in which intelligence was considered as a fixed or static entity where people were only classified as either dull or bright in various degrees of intelligences (Gardner, 1993). Therefore Lazear (1999, p. 2) believe the intelligence was something stuck with in people life.

Several efforts have been done to identify the students' intelligence which is considered as the predictor of students' success in the school and his or her future life, such as using IQ or Intelligence Quotient'. The IQ test was developed by Binet in the early of 1900's and other scholastic tests assumed that person intelligence will drive their ability in learning process. However, the IQ tests only measure linguistic and logical-mathematical intelligence (Berman, 1998, p. 3). Gardner (1983, p. 18) argues that the IQ test reveals little about an individual's potential for further growth, rarely assesses skill in assimilating new information or in solving new problem for each individual. It cannot highlight the potential or the competence of an individual in a particular field of expertise. Therefore, referring to Gardner's definition of intelligence, it is needed appropriate adjustment of measuring the human intelligence which can be potentially developed in the future.

Redefining the definition of intelligences, Gardner (1999) strongly imposes the theory of Multiple Intelligences. He suggest that all individuals have personal intelligence profiles which consist of combinations of nine different intelligence types, namely verbal-linguistic, mathematical-logical, visual-spatial, bodily-kinesthetic, musical-rhythmic, interpersonal, intrapersonal intelligence, naturalist intelligence, and existential intelligence.

Such profiles differ to various degrees from person to person, and it is probably rare for anyone to have only one predominating intelligence type.

Multiple Intelligences theory provides a dimension on which human beings differ with the others. No one, not even identical twins possess exactly the same profile of intelligences (Gardner, 2004). In relation to education, especially education at schools, it is realized that each student in the classroom differs in nature, in terms of their intelligences. These MI profile may influence the students' learning preferences, process and also learning outcome. The following table description provides the nature of multiple intelligences and the ways of learning preferences.

Table 1. The Nature of multiple intelligences and the ways of learning preferences

Learner who are highly	Think	Love
Verbal-linguistic	In words	Reading, writing, telling stories, playing word games
Logical-mathematic	By reasoning	Experimenting, questioning, figuring out logical puzzles, calculating
Visual-spatial	In images and pictures	Designing, drawing, visualizing, doodling
Bodily-kinesthetic	Through somatic sensation	Dancing, running, jumping, building, touching, gesturing
Musical	Via rhythms and melodies	Singing, whistling, humming, tapping feet and hands, listening
Interpersonal	By bouncing ideas off other people	Leading, organizing, relating, manipulating, mediating, partying
Intrapersonal	In relation to their needs, feelings, and goals	Setting goals, meditating, dreaming, planning
Naturalist	Through nature and natural forms	Playing with pets, gardening, investigating nature, raising animals, caring for planet earth
Existential	In collective consciousness and values, summative and intuitive iteration	Seeking meaningful learning, looking for connection, synthesizing, having strong connection with family and friend, expressing a sense of belonging to a global community

Adapted from Armstrong (2009).

Sternberg (1999) and Hasan (2010) argues that students will learn better when using their preferences in which they are successful, students will be better learners when they can expand their subject preferences in learning process, when teachers accommodate students various preferences in learning. Therefore, it is necessary for teachers to understand their students' multiple intelligences profiles in order to provide appropriate learning activities in classrooms which accommodate their multiple intelligences.

In Indonesian context, national education goals stated that students should be able to improve their knowledge and attitudes. They also should have comparative advantages and competitive advantages in facing the era of globalization. Teacher as an educator in this regard should be able to apply a model that can integrate high curiosity character (exploratory), creative, critical thinking, potential opportunities, self-efficacy of students. It is also needed to integrate the attitudes of the students such as: honest, responsible for duties, cooperative, discipline, hard working, able to organize themselves, cooperate with others and reflection to achieve the goal (self-regulatory), as mandated by the Law no. 20 of 2003 on National Education System (Education Law) Article 3. Therefore it is needed to implement multiple intelligences profile of students due to improving learning activities in the classroom that may meet the national education goals (Hasan, 2010).

Various studies revealed the benefits of multiple intelligences in learners' achievement (Razmjoo, 2008; Gupton, 2011), learning strategies (Hajhashemi, Ghombavani, & Amirkhiz, 2011). Therefore this study was aiming to measure multiple intelligences profiles of junior secondary school students that is important due to improve the classroom activities. It also becomes a starting point of designing effective classroom activities. The purpose of

the study is to describe the profiles Multiple Intelligences in terms of the dominant intelligence and gender differences of the Junior Secondary Schools students' specifically at Madrasah Ibtidaiah (MI) in Makassar.

2. Method

This research is a quantitative research. This research was conducted at Junior high school, Makassar

2.1 Participants

The number of participants of the study was 302 Junior Secondary School (MI) students in Makassar City that consisted of 125 male students and 177 female students.

2.2 Instrument

Multiple Intelligences inventory questioner has been distributed to the participants in order to find out the students' Multiple Intelligences profile. The questionnaire of Multiple Intelligences inventory was adapted from Berman (1998), McKenzie (1999), and Armstrong (2009). Then, it was translated into Indonesian, as the students' national language, in order to make it easy to respond the questionnaire. It consisted of 72 items which covered nine types of Multiple Intelligences. Each type of intelligence consisted of 8 statements. In this questionnaire, students were asked to respond every item of the questionnaire in related to what they are really feel and related with their real lives. The responses were 0 and 1 in which 0 showed the statement that *was not* in accordance with the participant, and 1 showed the statement that *was* in accordance with the participant.

3. Results

The results of this study revealed the the rank of the intelligence of all participants, the categories of each type of intelligence, and the categories of intelligences based on gender. The analysis of this study revealed that all intelligences were possessed by the students either in strong, moderate, or weak category. The descriptions of the intelligences possessed by students in Makassar are presented in Table 2.

The analysis revealed that the highest score as reported by students through responses to the questionnaire was existential intelligence. Other types of multiple intelligences in strong category were interpersonal intelligence and verbal-linguistic intelligence. They were the second and the third intelligence of the strongest intelligences. The other types were in moderate category. In sequence from the strongest to the weakest at moderate category, were intrapersonal intelligence, musical intelligence, visual-spatial intelligence, logical mathematic intelligence, bodily-kinesthetic intelligence, and naturalist intelligence.

Table 2. Rank of multiple intelligences of the students

MI	MEAN (scale 0–8)	CATEGORY
Existential	7.9946	Strong
Interpersonal	7.4695	Strong
Verbal-Linguistic	6.6795	Strong
Intrapersonal	6.3135	Moderate
Musical	5.9751	Moderate
Visual-Spatial	5.8267	Moderate
Logical-Mathematic	5.8172	Moderate
Bodily-Kinesthetic	4.8841	Moderate
Naturalist	4.5287	Moderate

In detail, each category for intelligence and the number of the students in Makassar for each of intelligence are presented in Table 3. The description of the analysis revealed that 143 out of 302 students (or 47.35% of the participants) possessed strong verbal-linguistic intelligence, 145 out of 302 students (48.01% of the participants) possessed moderate category of verbal-linguistic intelligence, and 14 out of 302 students (4.64%) were in weak category of verbal-linguistic intelligence.

As can be seen also on the Table 3, the Logical-mathematical intelligence in strong category was possessed by 94 students (31.13%), moderate category was possessed by 170 students (56.29%), and weak category was possessed by 38 students (12.58%). Furthermore, Visual-spatial intelligence in strong category was possessed by

106 students (35.10%), in moderate category was possessed by 162 students (53.64%), and in weak category was possessed by 34 students (11.26%). In addition, about 43 (14.24%) students possessed Bodily-Kinesthetic intelligence in strong category, 199 students (65.89%) in moderate category, and 60 students (19.87%) in weak category.

Musical intelligence was possessed by 128 students (42.38%) in strong category, in moderate category was possessed by 131students (43.38%), and in weak category was possessed by 43 students (14.24%). Other category such as Interpersonal intelligence was possessed by 206 students (68.21%) in strong category, 94 (31.13%) students in moderate category, and 2 students (0.66%) in weak category. Moreover, intrapersonal intelligence in strong category was possessed by 116 students (38.41%), in moderate category was possessed by 174 students (57.62%), and in weak category was possessed by 12 students (3.97%).

Naturalist intelligence was possessed by 33 students (10.93%) in strong category, in moderate category was possessed by 200 students (66.23%), and in weak category was possessed by 69 students (22.85%). The last intelligence which was identified in this study is Existential intelligence which was possessed by 228 students (75.50%) in strong category, 64 students (21.19%) in moderate category, and 10 students (3.31%) in weak category. The result of this part is also presented in Figure 1.

Table 3. Category of MI of the students

Category / MI	Strong		Moderate		Weak	
	N	%	N	%	N	%
Verbal-Linguistic	143	47.35	145	48.01	14	4.64
Logical-Math	94	31.13	170	56.29	38	12.58
Visual-Spatial	106	35.10	162	53.64	34	11.26
Bodily-Kinesthetic	43	14.24	199	65.89	60	19.87
Musical	128	42.38	131	43.38	43	14.24
Interpersonal	206	68.21	94	31.13	2	0.66
Intrapersonal	116	38.41	174	57.62	12	3.97
Naturalist	33	10.93	200	66.23	69	22.85
Existential	228	75.50	64	21.19	10	3.31

The information presented in Table 3 shows that most students (228 out of 302 students or 75.50%) were in strong category of existential intelligence comparing with the other types of multiple intelligences. In moderate category, naturalist intelligences was the most possessed by the students in which the number of students were 200 out of 302 students (66.23%) comparing with the other types of multiple intelligences. Then, the least was interpersonal intelligence possessed by students (2 out of 302 students or 0.66%) in weak category.
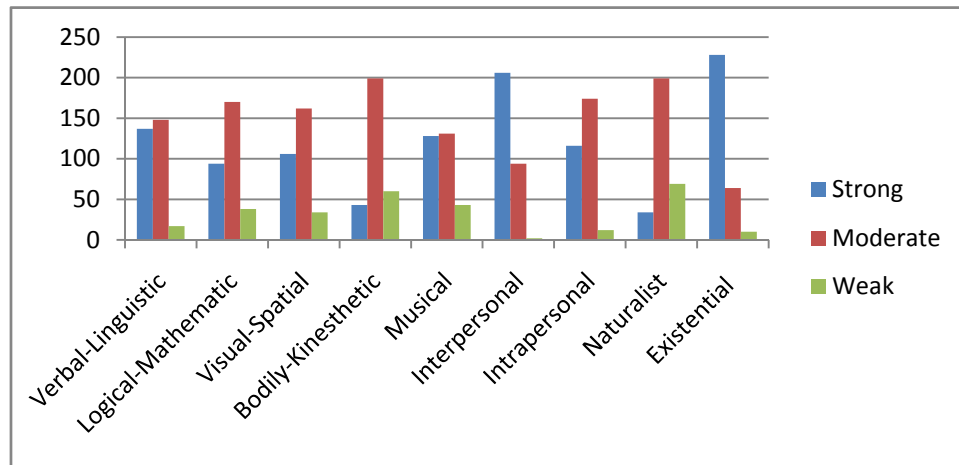
Figure 1. Category of MI of junior secondary school students in Makassar

In terms of gender, Table 4 shows that generally male students possessed four types of multiple intelligences in strong category. They were verbal-linguistic intelligence, interpersonal intelligence, intra personal intelligence, and existential intelligence. The rests of intelligences were in moderate category. The female students only possessed two types of multiple intelligences in strong category, namely interpersonal intelligence and existential intelligence. The other types of intelligences possessed by female students are in moderate category. In detail, descriptive statistic analysis resulted male students is stronger than female students in verbal-linguistic intelligence, logical-mathematic intelligence, bodily- kinesthetic intelligence, intrapersonal intelligence, and naturalist intelligence. Female students were stronger than male students in visual-spatial intelligence, musical intelligence, interpersonal intelligence, and existential intelligence.

Table 4. Category of junior secondary school students' MI based on gender

	Gender	N	Mean	Std. Deviation	Std. Error Mean	Category
X1	Male	125	6.8900	1.99934	.17883	Strong
	Female	177	6.4689	2.02867	.15248	Moderate
X2	Male	125	6.1400	2.12403	.18998	Moderate
	Female	177	5.4944	2.06068	.15489	Moderate
X3	Male	125	5.7000	2.25850	.20201	Moderate
	Female	177	5.9534	1.95391	.14687	Moderate
X4	Male	125	5.0200	1.76765	.15810	Moderate
	Female	177	4.6681	2.23074	.16767	Moderate
X5	Male	125	5.3400	2.46127	.22014	Moderate
	Female	177	6.6102	2.08635	.15682	Moderate
X6	Male	125	7.3400	1.76760	.15810	Strong
	Female	177	7.5989	1.66134	.12487	Strong
X7	Male	125	6.7300	1.57782	.14112	Strong
	Female	177	5.8969	1.77747	.13360	Moderate
X8	Male	125	4.7000	2.01056	.17983	Moderate
	Female	177	4.3573	1.69132	.12713	Moderate
X9	Male	125	7.6700	2.14955	.19226	Strong
	Female	177	8.3192	1.79759	.13512	Strong

4. Discussion

The finding showed that the students possessed all nine intelligences either in strong, moderate, or weak category. Generally, from the strongest to the weakest type of multiple intelligences possessed by the students are existential intelligence, interpersonal intelligence, verbal-linguistic intelligence, intrapersonal intelligence, musical intelligence, visual-spatial intelligence, logical-mathematic intelligence, bodily-kinesthetic intelligence, and naturalist intelligence. The combination of variations of the intelligences are in line with the theory of multiple intelligences. According to the theory, everyone possesses all types of multiple intelligences: however, the extent to which each is developed in an individual varies from person to person (Gardner, 1983). This is supported by the findings of the research done by Chan (2005) which the strongest intelligence was verbal-linguistic intelligence and the weakest intelligence was naturalist intelligence. It proves that the strongest types of intelligences and the combination of intelligences differ from person to person.

The finding of the study that existential intelligence becomes the strongest intelligence among students in general, provides information that basically the Junior Secondary Students in Makassar potentially possess high curious on something. Existential intelligence means the ability of macro-viewing and understanding in a large context, sensitivity and capacity to tackle deep questions about human existence, such as the meaning of life, why do we die, and how did we get here (Gardner, 1991). On the Contrary, the naturalist intelligence was the weakest intelligence possessed by students is in line with the definition proposed by Gardner (1983, X; 1993, 7). Gardner defines naturalist intelligence as a bio-psychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture. Moreover, the students live in Makassar as an urban area therefore the students possess limited exposure on nature. This might be the reason why, in general, students possess weak naturalist intelligence. This statement strongly support by Armstrong (2009) that stated, a key point in Multiple Intelligences theory is that most people can develop all their intelligences to a relatively competent level of mastery. Whatever intelligences develop depends on three main factors, namely:

Biological endowment that includes hereditary or genetic factors and insults or injures to the brain before, during, and after birth.

Personal life history that includes experiences with parents, teachers, peers, friends, and others who either awaken intelligences or keep them from developing.

Cultural and historical background that includes the time and place in which human being were born and raised and the nature and state of cultural or historical developments in different domains.

In relation to gender, the study revealed, that male students significantly possessed stronger logical-mathematic intelligence, bodily-kinesthetic intelligence, and intrapersonal intelligence than female students. Meanwhile, female students were significantly stronger than male students in musical intelligence, interpersonal intelligence, and existential intelligence. On the other category, it was also showed that in verbal-linguistic intelligence and naturalist intelligence, even though descriptive statistically male students were stronger than female students, but the counted significance difference was higher than $\alpha = 0.05$. It means there was no significant difference between male students and female students in verbal linguistic intelligence and naturalist intelligence. The study also found that through descriptive statistic analysis, in general female students were stronger than male students in visual-spatial intelligence. However, there was no significant difference in visual-spatial intelligence between female students and male students. The finding is in contrast with the study done by Hanafiyeh (2013) and McClellan (2006, p. 198). Hanafiyeh found only linguistic intelligence that was statistically significant difference between gender. McClellan found Multiple Intelligences are not influenced by age, race, or gender.

The finding of the study is almost in line with the study done by Göğebakan (2003) in which he found, in terms of gender, the male students' logical-mathematical and bodily kinesthetic intelligence mean scores were higher than female students' whereas the female students' musical intelligence mean score was higher than male students'. A little bit difference is the study done by Saricaoğlu and Arikan (2009). They found that there is no significant gender differences in the intelligence types held by the participants except for that between gender and linguistic intelligence which was positive.

The finding that male students are stronger than female students in logical-mathematic, bodily-kinesthetic, and intrapersonal intelligences supports the idea of (Hermann, 1995) that men are significantly more left brain than women, while women are significantly more right brain than men.

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