College Students’ Attitude toward Intelligence: In Comparison between Intelligent Quotient (IQ) and Multiple Intelligence (MI) Curriculum

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Abstract

The present paper attempted to explore how college students’ viewpoints toward intelligence could change from an intelligence quotient (IQ) perspective to a multiple intelligence (MI) perspective, discussing how the latter could bring a greater educational potential as to evaluating learners’ achievement. Since Howard Gardner’s first publication of the MI theory in 1983, various educational fields have been adopting this approach to their curriculum. The current study explored college students’ attitude toward IQ, introduced the concepts of MI, and examined how their thinking has been changed qualitatively. The results showed that college student participants generally thought that intelligence is fixed, and hardly changes throughout lifespan. After introducing the eight components of MI, the student participants appeared to learn that there exist more intelligence than ‘logical-mathematical’ and ‘linguistic-verbal’ areas. Relevant implications are discussed.

Keywords: Howard Gardner, Multiple Intelligence(MI) Theory, Curriculum, Multiple Intelligence Approaches, Higher Education

요 약

본 논문은 대학생들이 지능이라는 개념에 대해서 IQ와 가드너의 다중지능이론에 대해 어떻게 다른 관점을 가지고 있는지에 대해 알아보기 위해 수행되었으며, 학습자의 성취여부를 올바른 방법으로 측정하기 위해 다중지능이론이 어떻게 사용될 수 있는지에 대해 논의하였다. 하워드 가드너가 1983년에 다중지능이론을 발표한 이후로 여러 교육 관련 분야 및 교육과정에서 본 개념을 도입해왔다. 본 연구는 대학생들이 가지고 있는 IQ에 대한 자세를 논의하였고, 학생들에게 다중지능이론에 대해 전달하였으며, 대학생들 가진 지능에 생각이 어떻게 바뀌었는지 서술하였다. 다중지능이론에서 설명하는 언어지
College Students’ Attitude toward Intelligence: In Comparison between Intelligent Quotient (IQ) and Multiple Intelligence (MI) Curriculum

능, 논리-수학지능, 음악지능, 신체-운동지능, 자연친화지능, 개인내지능, 개인간지능, 공간지능 등 여덟 가지 분야를 학생들에게 전달하였고, 그 결과 학생들은 언어지능과 논리-수학지능 외에도 다른 지능의 분야가 있다는 사실을 인지하였음을 알 수 있었다. 본 연구에서 도출한 관련된 논의점 및 시사점 역시 서술하였다.

핵심어: 하워드 가드너, 다중지능이론, 교육과정, 다중지능이론 접근법, 고등교육

1. Introduction

1.1 The Fall of Intelligent Quotient (IQ)

Since its first publication of the famous book, Frames of Mind, in 1983 by Howard Gardner at Graduate School of Education at Harvard University, the multiple intelligence (MI) theory has been attracting a number researchers’ as well as educators’ attention [1]. Before then, the majority of people regarded intelligence as a sole innate attribute of learners within themselves, and can hardly – if not ever – be changed in their lifetime. A classic example of such an approach is the theory of intelligent quotient (IQ), which was developed and introduced by Binet and Simon in 1904. The core idea of IQ, or IQ tests, is that individuals’ intelligence could be measured in a ‘unitary’ or ‘monolithic’ fashion, resulting in aligning each of their intelligence level from the first rank to the last. Because of its convenience to rank these intelligence degrees, it had earned a considerable amount of positive consideration of the general population.

This conception, however, has a serious jeopardy: ignoring other possible capabilities that human beings could hold. The major limitation that the conception of IQ holds is that it cannot represent various capacities (talents) that individuals demonstrate [2]. Gardner had opposed this approach of measuring individuals’ intelligence using a single method – mainly because it lacks a variety of potentials – and suggested an alternative by initially asking these following questions: ‘Why are IQ tests unsuccessful as to recognizing the exceptional performances that world-famous violinists and chess champions had achieved?’, ‘How could one explain the extraordinary capabilities that are distinct from the usual intelligence?’, and ‘Why do the conceptions of intelligences not consider the wide range of individuals’ competencies?’. He proposed that all the individuals have their own tendencies in diverse areas of learning, and each has several types of intelligences that are intertwined in different ways of acquiring knowledge and skills [3].

Gardner also has pointed out that it is of core importance to recognize these diverse
intelligences as well as their combination and to develop them to its potential. As aforementioned, he has raised questions about the validity of IQ test procedures whose contents were not performed by the learners outside of the usual learning environment that determine their intelligence in a unitary fashion. Rather, Gardner has asserted that intelligence is more likely to be capacities that help individuals to resolve problems in the societies and to create new values.

1.2 The Rise of Multiple Intelligence (MI) Theory

The main assumption of the MI theory is that intelligence is not a single or monolithic construct, but a multiple one, and it very much depends on the social as well as cultural environment for its growth and development [4]. As previously addressed, the idea of ‘unitary intelligence’ is now generally treated as inadequate approach to deal with intelligence [5].

The first goal of Gardner’s MI theory is to have individuals overcome a notion of ‘I can’t do it because I’m not good at it’ for their intelligence(s) may have not been found yet due to various circumstances they encounter. The second goal is generating products that are of value in a culture and society by maximizing an individual’s intelligences and combining each other’s. Every human being possesses multiple intelligences with a degree of differences; each intelligence could be developed further or even weakened depending on how each component interacts with each other [6]. No two individuals hold identical form of intelligences. If our curriculum focuses on these personal differences and develop evaluation methods accordingly, it would produce a more successful educational results, and it would contribute to the benefits of individuals’ lives [7].

2. The Eight Components of the Multiple Intelligence Theory

2.1 The Notion of Intelligence and Domain

While intelligence is defined as a computational capacity that processes certain types of information, an ‘domain’ refers to activities that experts perform in certain areas. For example, in a music domain, an individual with a high level of musical intelligence would be able to memorize melodies, re-create rhythms he or she hears, and play a song in variations. The terminology, ‘intelligence’, is considered as a bio-psychological concept, while ‘domain’ is
considered as a social concept. Although researchers have discovered a number of interesting correlations between these two, it is hardly known as to how intelligence and domain interact with each other, and how these are combined. Hence, it would be an unfortunate even to observe an educator who fails to this difference, saying “Little Johnny has no spatial intelligence, so he cannot learn geometry”. Though spatial intelligence is helpful in terms of learning geometry, it is not the only method to acquire related knowledge. Every geometry teacher should be able to help the students understand the logics of geometry without having to consider the learners’ spatial intelligence [3].

Furthermore, intelligence is regarded as an ability to resolve particular problems occurring in cultural and social areas. The MI theory certainly assures that every learner is distinct from each other in many ways, and not all of them can learn in the same manner. The major reason why various educational fields accept the MI theory and why they have placed much attention is that it tends to correspond to their existing curriculum [2].

2.2 The Eight Intelligent Components

Musical-rhythmic intelligence refers to the sensitivity to deal with sounds, rhythms, and tones, as well as the ability to appreciate, compose, and perform various types of musical forms. It is the capacity to listen to acknowledge existing patterns, and even manipulate them. One could be considered to hold this type of intelligence if he or she sings songs as a hobby. In terms of the traditional ‘problem-solving’ approach, bodily-kinesthetic intelligence does not seem to be accepted as a form of intelligence because solving a series of mathematical problems seems altogether distinct from hitting a badminton shuttlecock with a racquet. However, expressing emotions using one’s body (e.g., dance), playing games (e.g., sports), and creating a new product (e.g., invention) are all an evidence of using our bodies intellectually, which includes coordination, balance, strength, and flexibility. Those with competent bodily-kinesthetic intelligence are likely to be athletes and stage performers.

Successful inventors and scientists tend to demonstrate a high level of logical-mathematical intelligence; they immediately cope with a number of (unexpected) variables and generate hypotheses that could be either accepted or rejected via evaluation processes. It is the aptitude to deal with reasons, acknowledge patterns and categories by employing symbols to experiment. Their skills are apt for jobs like accountants, mathematicians, scientists, computer analysts, and technicians. Verbal-linguistic intelligence refers to the competence of using written or spoken language. Those who are competent in this intelligence tend to demonstrate efficient skills in
reading, writing, and telling stories. It also is related with acquiring foreign language(s). Their expertise could be found in jobs like librarians, lawyers, writers, and journalists.

Visual-spatial intelligence is individuals’ ability to visualize the visual-spatial world around them, and transform those perceptions in various forms. It is required for explorers, drawing artists, map designers, and hunters. Interpersonal intelligence is the aptitude to accurately perceive others’ moods and feelings in order to make proper reaction for a harmony with them. This intelligence helps individuals to recognize others’ motivations and desires that are hidden, which is considered as an essential skill for teachers, counselors, priests, and politicians. Intrapersonal intelligence is defined as the ability to approach to ones’ own emotions in a subjective fashion, and to differentiate the feelings they have. Its core component is accurately understanding oneself, including strength and weakness, limitations, and likes and dislikes. Those with a high level of naturalistic intelligence can properly recognize and categorize the various types and forms of plants, animals, mountain, and shapes of clouds. It does not rely on visual skills only, but also on auditory senses; individuals with adequate natural intelligence can distinguish various sounds of whales and birds.

Though these eight intelligence components are distinct capacities, more than one of them work together in an individual’s life in a harmonized fashion. The core purpose of applying the MI theory resides not in creating a small number of geniuses or elites, but in helping each individual reach his or her full potential for them to achieve happiness in their lives [3]. It also helps us recognize what strength and weakness the individuals hold, and the fact that no individual has all the components that are in exceptionally high level.

### 2.3 Gender Differences in Multiple Intelligences

Arguably, for teachers and teacher educators to recognize possible gender differences existing regarding multiple intelligence portions may be of important teaching strategy. Pursun and Efilti[8] pointed out that individuals’ gender does not necessarily affect kinesthetic, musical, intrapersonal, and logical and verbal areas from their results, whereas the analyses of the others indicated a significant difference between males and females [9]. Gul and Rafique (2017) suggested that females tend to demonstrate higher levels of MI areas. These mixed results lead to a point where more in-depth studies would be necessary to explore further details about the differences [10].
3. Methods

3.1 Study Setting and Procedure

The current study took its place in a four-year university located in Daejeon, South Korea. 21 male and 32 female freshmen college students participated (N=53). On Day 1, the student participants were given a set of two questions regarding ① how they define intelligence quotient, and ② whether they think human beings’ intelligence can change through the lifespan. The researcher then gave a 35-minutes-long lecture of multiple intelligence theory. On Day 2, the student participants conducted a small group discussion session with four to six members to examine their own strengths and weaknesses in terms of Gardner’s MI theory, then answered a set of two questions regarding ① their viewpoint toward MI theory, and ② whether they think human beings’ intelligence can change through their lifespan. The detailed study procedure is shown in [Table 1].

[Table 1] Study Procedure

<table>
<thead>
<tr>
<th>Day</th>
<th>Contents</th>
</tr>
</thead>
</table>
| Day 1  | · Student participants answered two questions regarding IQ and human beings’ intelligence  
        | · Student participants received a 35-minutes-long lecture about Gardner’s Multiple Intelligence theory. |
| Day 2  | · Student participants conducted a small group discussion session with four to six members to examine strength and weakness portions of Gardner’s MI theory.  
        | · Student participants answered two questions regarding MI theory and human beings’ intelligence. |

3.2 Study Tools

The student participants received a total of four questions: two questions each of prior to and after the MI lecture. Its detailed contents are shown in [Table 2].

[Table 2] Questions Used for the Semi-structured Interviews

<table>
<thead>
<tr>
<th>Stage</th>
<th>Question Number</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior to the MI Lecture</td>
<td>1</td>
<td>· How would you define IQ? How important is it to measure IQ?</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>· Do you think human beings’ intelligence can change throughout their lifespan?</td>
</tr>
<tr>
<td>After the MI Lecture</td>
<td>3</td>
<td>· What are some of impressions you had about Gardner’s MI theory?</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>· Do you think human beings’ intelligence can change throughout their lifespan?</td>
</tr>
</tbody>
</table>
4. Results

4.1 Responses - Impressions on IQ (Day 1)

The following contain a few notable comments regarding their impressions on IQ.

“I used to think that IQ is always important because it tells how smart people are. But now I think it’s not that important.” - Student 10 (male)

“If someone has a higher IQ than I do, that person should be smarter than me.” - Student 4 (male)

“IQ tells how smart we are.” - Student 39 (female)

“I think IQ is important because we want to know who is smarter than other people.” - Student 24 (male)

4.2 Responses - Whether Intelligence can Change (Day 1)

The following contain a few notable comments regarding their whether human beings' intelligence can change throughout their lifespan.

“It’s almost impossible to change how smart people are. Look at me, I was not smart when I was younger, and I am not smart today” - Student 12 (male)

“I don’t think I have seen anyone who was not smart before became smart later.” - Student 9 (female)

“My parents keep telling me that I can become smarter I work harder, but I don’t believe it now.” - Student 31 (male)

“It is possible, but it takes too much time and energy. People around me don’t put that much effort” - Student 13 (female)

4.3 Responses - Impressions on Gardner’s MI (Day 2)

The following contain a few notable comments regarding the impressions they had regarding Gardner’s MI theory.

“I may not be good at [academic] studying, but I know I am good at other areas like interpersonal skills and naturalistic skills.” - Student 23 (male)

“My teachers did not tell me that I can be bad at one thing, but can be good at something else. It’s a big encouragement because I thought bad IQ means I am not good at other things.” - Student 51 (female)
“My parents or teachers should have told me about it when I was in an elementary school. It would have taught me that I can do certain things better than others who have higher IQ than me.” - Student 33 (female)

“Now I see how smart people can be bad at something. It’s a comfort to me because they cannot be good at everything. Same thing applies to me, too.” - Student 12 (male)

4.4 Responses - Whether Intelligence can Change (Day 2)

The following contain a few notable comments regarding their whether human beings' intelligence can change throughout their lifespan.

“I don’t think it can be easily changed because once people are born with that level, it sticks in their brain for their lifetime” - Student 34 (male)

“I was not good at music when I was young. I am still bad at it. These things hardly change” - Student 15 (male)

5. Discussion and Conclusion

Gardner’s multiple intelligence (MI) theory proposes eight distinct components of human beings’ intelligence: namely, musical-rhythmic, bodily-kinesthetic, logical-mathematical, verbal-linguistic, visual-spatial, interpersonal, intrapersonal, and naturalistic intelligences. Since the MI theory pursues to identify and categorize different components of intelligence that individuals hold in a wide range, it had received a significant amount of educational attention. MI theory also underscores the importance of interaction among these components for understanding how people’s minds work [8]. Educators and researchers as well are required to develop various methods to incorporate this approach in their own settings to achieve this purpose.

The student participants’ responses on Day 1 showed that most of them acknowledge IQ as a factor that determines individuals’ level of intelligence, and believe that intelligence is innate gifts that hardly change through their lifespan. This is rather a worrisome finding mainly because those with fixed mindset [9] are not motivated to develop their skills and tend to easily give up on challenges they may encounter. The student participants’ responses on Day 2 demonstrate how they appreciate the intentions MI theory originally pursues (i.e., evaluating individuals’ capabilities in accordance with their own pace and development). However, the
student participants who learned about MI theory did not necessarily change their attitude toward the intelligence; they still tend to believe that human beings’ intelligence is not malleable and hard to change.

It is considered as an unfortunate phenomenon that almost all social systems evaluate individuals’ competences in relations to a unitary approach, barely categorizing them as ‘below-average’, ‘average’, and ‘above-average’. Such manner tends to impose a fixed format of learning, resulting in limiting their academic achievements. Because there must exist more than one way for an individual to learn effectively, it is educators’ vital responsibilities to help them to explore and discover the most appropriate manner of learning [10].

Further fields of relevant researches can be discussed through the following authors’ findings and suggestions. Pursun and Efıltı (2019) attempted to analyze the multiple intelligence strengths and weaknesses of special education teachers, and their results showed that whereas variables of optimism score could significantly predict optimism and emotion evaluations appeared to be significant variables that predict the determination of individuals whose predominant intelligent is both visual and not [8]. Additionally, Sener and Çokçağ ilekan (2018) suggested that individuals’ learning styles and their intelligent types they prefer to implement are positively correlated; this opens a field of research for teacher education [9]. The findings of Gul and Rafıique also indicated that addressing teachers’ different intellectual areas in relation to MI can help teacher educators develop training modules that are appropriate for certain groups of teachers or pre-service teachers [10]. Such adaptation and implementation of MI would be necessary in order to ensure quality teaching as well as student learning.
References


