

A Review of Multiple Intelligences Education Programs of Interpersonal Intelligence

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Abstract

Since Howard Gardner's introduction of multiple intelligences (MI), a variety of education programs based on MI have been developed and implemented. The programs have a wide spectrum of aims, content, methods of instruction, testing and, evaluation. A review of those programs of interpersonal intelligence of MI was felt necessary in order to have clearer ideas about our position in applying multiple intelligences to education.

The review was undertaken following the steps of why, what, when, where, who, and how in regards to the characteristics of the MI programs examined. The results are as follows.

The objectives of educational programs of MI can be divided into two categories: Firstly, to improve the quality of teaching subject matters through or by using MI. Secondly, to improve and develop MI itself. The contents of the reviewed programs were focused either on the roles (or end-state) or the components of the interpersonal intelligence domain. Some programs used both as contents for teaching. For the better MI program, the symbol system in that domain should be considered as the content. The environment in which the programs were conducted was mostly in ordinary classrooms equipped with MI materials or MI-specific learning centers. The effects of the programs were generally better when the students were younger. The methods of instruction used in the programs focused either on providing experiences or direct teaching /training of MI using intellectual strengths. The roles of teachers of the program were mostly those of evaluators, observers or facilitators.

In conclusion, the educational programs of MI reviewed here have shown a remarkable progress in both the extent and quality over a comparatively short period. However, it is worth mentioning that the programs should entail clearer and more idiosyncratic identity: They should differ from the educational programs of IQ, creativity, morality, Emotional Intelligence, or simply academic improvement. This means that the programs

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seem to be not entirely faithful to the authentic theory of MI and that they should henceforth seek to apply more closely authenticity of MI theory which underpin multiple intelligences.

Key words: multiple intelligences education program, interpersonal intelligence program

I . Introduction

It is more than one century since Binet explored the concept of human intelligence scientifically. The remarkable levels of interest in this field have produced hundreds of kinds of the definition of intelligence. Among them, multiple intelligences theory, introduced in the 「Frames of Mind」 of Gardner's (1984), has appeared as the newest and most convincing model alongside Sternberg's Triarchical intelligence theory, both of which are shown as the concept of intelligence most appropriate for the new Millennium.

According to the multiple intelligences theory, human intelligence is not singular but plural. It includes linguistic, logical-mathematical, Spatial, Musical, Bodily-Kinesthetic, Interpersonal, Intrapersonal, and Natural Intelligences (Gardner, 1999).

This concept of plural intelligences has attracted very much the interest of teachers, parents and scholars. Gardner's multiple intelligences has become more and more famous and popular. The application and modification of this theory has been tried through a number of different intelligence programs.

According to an international newsletter in 2001 on multiple intelligences published in the United States, multiple intelligences programs have been conducted in many countries such as Malaysia, Singapore amongst others. In the United States and Australia, a number of teachers have applied it practically to their classrooms.

Compared with the number of trials made in realizing the idea of multiple intelligences as an educational program, the development of appropriate contents and methodology for such programs has remained elusive, especially in relation to the choice and application for specific and diverse educational situations. With this in mind, it would therefore be meaningful to analyze multiple intelligences programs. It can make us acquire more appropriate points of thinking for education programs to improve multiple intelligences.

We will focus on the interpersonal intelligence, especially among eight domain intelligences (Gardner, 2000). This is caused in part from our desire to analyze only one intelligence more closely, in part from our personal interest as educational psychologists, which have been interested in the concept of 'personal and character education'. Following the analysis on interpersonal intelligence, we would like to suggest the educational implications for multiple intelligences programs.

II . Concept of Interpersonal intelligence

Gardner defined the concept of intelligences follows: 'intelligence is the ability to solve the problems in a specific domain, which is considered valuable in the culture and the ability to create new things, which are considered valuable in this domain.' In this context, Gardner presented seven intelligences; Linguistic, Musical, Logical-Mathematical, Spatial, Bodily-Kinesthetic, Interpersonal, and Intrapersonal Intelligences. In 2000, in his book of 'Intelligence Reframed', Gardner added another intelligence, Natural Intelligence.

Among these eight intelligences, Interpersonal Intelligence, which is composed of personal intelligence with intrapersonal intelligence, is a core capacity to notice distinctions among others, particularly to compare in their moods, temperaments, motivations, and intentions. So an interpersonally intelligent person can read the intentions and desires of others, even when these have been hidden and can skillfully deal with the role of religious or political leaders, teachers, therapists, and parents (Walters, & Gardner, 1995).

Interpersonal Intelligence can be also explained as a way of connecting 'social ability' with intelligence. Meanwhile, both concepts have been studied differently. In the area of personal education, there have been many trials to develop children's social abilities (Barnes, and Sternberg, 1989; Ford, and Tisak, 1983; Keating, 1978). The concept of Gardner's interpersonal intelligence can be considered as another distinctive, different, and special trial, which connects intelligence with social abilities (Ryue, 1999; 2001).

III . Review of the Interpersonal Intelligence Education Program

Many multiple intelligences programs including interpersonal intelligence have been developed by teachers, psychologists, and educational researcher (Phipps, 1997; Campbell, Campbell, & Dickinson, 1992; Fogarty and Stoehr, 1995; Chapman, 1993; Chapman and Freeman, 1996; Offutt, 1997; Nicholson-Nelson, 1998; Burke, 1992; English, 1995). Some programs were made with specific aims, for example, improving children's literacy (English, 1995), for science learning (Barkman, 1999), or for students' special needs (Burke, 1992). Some programs were oriented into the new assessment trial (Burke, Fogarty, & Belgrad, 1994).

Among these, we would like to review MI programs focusing on five performed practically programs in Korea, the United States, and Australia. Through this, it is hoped that we can discern the current status of interpersonal intelligence programs practiced in the world. Those programs are Project Spectrum in the United States, Key

School Program in the United States, Cook Primary School Program in Australia, Interpersonal Intelligence Program by Moon and others in Korea, and the Interpersonal Intelligence Program by Jung in Korea.

The two programs in the USA are useful in that they were organized and carried out by Gardner himself. Project Spectrum, based on the multiple intelligences theory, was launched in 1984, and lasted for 9 years (Chen, Isberg, & Krechevsky, 1998) with the small sample size of 39 subjects (Feldman, 1998, p. 27). The Key School Program (Indianapolis Public Schools, 1989) was operated for elementary students in Indianapolis, with the aims of applying MI at the elementary level.

The Multiple intelligences program in Australia is unique, in that it applied multiple intelligences theory to the whole curriculum. The Cook Primary School Program in Australia was introduced by Vialle and Perry (1995) for the primary school level. They modified MI to classroom conditions in Australia. It was conducted in a small school with a wide range of socio-economic backgrounds, with 10% non-English speaking in the ACT in Australia, and to combine MI with the nationally - developed Statements and Profiles (Vialle and Perry, 1995).

The last two programs which tried to improve the personal intelligence of student's in Korea, are of particular interest to Korean scholars. Moon and others' program (1999) identified the effectiveness of interpersonal and intrapersonal intelligence program qualitatively and quantitatively. This research was conducted with 410 students from 9 elementary schools across the entire country.

In Jung (1998)'s interpersonal intelligence program, (which was part of her doctoral thesis), Jung reported, 'under achieving students participated in class activities eagerly, and after the instruction designed to increase personal intelligence, students' capacities to care for and understand others were developed.' The first grade students (two classes) in Hanyang elementary school took part in this study. This study was carried out from September 1997 through January 1998.

Considering the 5Ws1H; why, what, who, when, where, and how, this framework has already been used by scholars like Mayer (2000), and Davis and Rimm (1998) in order to analyze intelligence programs. Mayer proposed four criteria for teaching intelligence; what to teach, how to teach, where to teach, and when to teach, collating classical views to recent views. And Davis and Rimm (1998) suggested four criteria given below as main components of intelligence education program. Four criteria adjusted from 5Ws1H were program philosophy and goals, definition and identification, instruction, evaluation, and modification.

WHY? As a tool or as an aim?

Why do we teach interpersonal intelligence? After reviewing the goals of existing multiple intelligences programs, we can divide them into two kinds of aims; 'the improvement of education efficacy through interpersonal intelligence' and 'the improvement of the interpersonal intelligence itself'. The former sought to use students

interpersonal intelligence as a tool for enlarging the efficiency of general education, the latter saw the improvement itself as an aim.

In regards to the 'improvement the education efficacy through interpersonal intelligence' goal, the Cook Primary School Program in Australia is an important example. The goal was the application of multiple intelligences theory into the classroom in order to improve the efficacy of education. Staff and parents adopted MI theory as an operating educational concept to improve the levels of academic achievement and to address certain social justice issues. This took into consideration those children who might be marginalized by the traditional school system. Multiple intelligences were used in this case as a method for improving education.

With respect to 'the improvement of interpersonal intelligence itself', we can allude to the goals of Project Spectrum etc. The goal of Project Spectrum was the development of interpersonal intelligence. It was designed to foster cognitive skills in multiple intelligences in a systematic way (Feldman, 1998, p. 29). In Moon etc's program, interpersonal intelligence was defined as a kind of sensitivity to others' motivations, intentions, feelings, as well as problem solving abilities related to human relationships. This program focused on the improvement of intellectual features in the interpersonal domain.

This topic forces us to consider the argument on nature versus nurture with regards to intelligence. Scholars like Chomsky who consider growth rather than learning, argued for providing all children with an intellectual environment as rich as we possibly can (Schank & Birnbaum, 1994). From this perspective, the goal of education programs is not to improve intelligence itself. However, scholars such as Snow (1982) indicated that improving intelligence was the most important product, as well as its most important raw material of education, so intelligence development itself has been considered an educational goal.

As long as 'taught intelligence' improves people's ability to think and act better in terms of culturally valued tasks, then the question as to whether 'taught intelligence' is 'real intelligence' could be considered as being more important.

Although the important question as to whether the improvement of intelligence is possible or not will be discussed later, we should understand that although MI is a new and distinctive intelligence theory, it cannot be detached from in the long history of discussions on intelligence.

At this point it may prove instructive to consider the following issues; which program is efficient, on which intellectual ability may it be most effective, which method is best, where and at what time could it be best undertaken? etc.

WHAT? Roles or components or symbols in the interpersonal domain?

What should we teach to improve interpersonal intelligence? The end state or role was taught in some programs, and components of interpersonal intelligence were handled by other programs. Both roles and components were taught in other programs.

A. The role in the interpersonal domain

Teaching the end state or roles in interpersonal domain was done as follows. Project Spectrum, with the name of Social Understanding, suggested in all four kinds of contents; three roles and the 'understanding of others'. Those were roles as a leader, a facilitator, and a friend. They are explained in greater detail as follows:

Leader - often initiates and organizes activities, organizes other children, assigns roles to others, explains how activity is carried out, oversees and directs activities

Facilitator - often shares ideas, information, and skills with other children, mediates conflict, invites other children to play, extends and elaborates other children's ideas, provides help when others need attention

Caregiver/Friend - comforts other children when they are upset, shows sensitivity to other children's feelings, shows understanding of friends' likes and dislikes

In the Key School (Indianapolis Public Schools, 1989) program, contents for teaching the interpersonal intelligence were roles as citizen and leaders.

Citizen - cooperates with teacher, cooperates with classmates, meets responsibilities, sets goals, participation

Leader - uses influence for the greater good, provides service

In the Cook Primary School Program in Australia (Vialle & Perry, 1995), they suggested 'communication with others', which was a role of communicator.

Communicator - make friends easily, like to be with other people, love cooperative games, enjoy group problem solving, feel a lot for others

B. Intellectual components of the interpersonal domain

Most interpersonal intelligence programs included behaviors that students had to perform in order to play the role very well. In contrast, concrete definitions of the concept of 'interpersonal intelligence' on the programs were related with intellectual components of interpersonal intelligence like cognitive skills, emotion, sensitivity, and preference.

In relation to knowledge and cognitive skills, Spectrum Project suggested these parameters;

Demonstrate knowledge of peers and their activities

Pay close attention to others

Recognize other's thoughts, feelings and abilities

Draw conclusions about others based on their activities

In Key School, the contents for teaching interpersonal intelligence were as follows;

show respect for basic human rights
recognize patterns and connections with other cultures

In the relation to the cognitive components which were considered the core of intelligence, suggestions for establishing general intelligence programs were helpful, since those intelligence programs have tried to enhance general intelligence across domains for some time.

Most intelligence programs teaching many kinds of cognitive skills and knowledge like Structure of Intellect (SOI, Meeker, 1969)¹⁾, Philosophy for Children (Lipman, 1976)²⁾, Cognitive Research Trust (CoRT, de Bono, 1987)³⁾, ThinkerTools Program (White and Frederiksen, 1998)⁴⁾, Project Head Start (Caruso, Taylor & Detterman, 1982; Zigler & Muenchow, 1992)⁵⁾ etc. suggested principles for adopting good content materials for intellectual development. We could synthesize principles for improving intelligence as follows; firstly, mental management is important. The magnitude, persistence, and transfer of the intelligence program to develop real intelligence requires attention to mental management in addition to cognitive skills and strategies (Grotzer & Perkins, 2000). Secondly, the programs have to include substantive training on the component processes, skills, and super ordinate executive and control strategies involved in guiding performance and in generalizing and transferring trained skills to new settings (Snow, 1982).

Briefly, as in multiple intelligences programs and general intelligence programs, we cannot fail to consider cognitive process, component process than products, super ordinate executive, and control strategies, mental management (than subordinate skills) for contents of intelligence program.

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- 1) Structure of Intellect (SOI, Meeker, 1969) focus on foundational abilities such as visual closure, judgment of similarities, comprehension of verbal relations and later on developing higher level skills such as analytic, inferential, inductive and deductive reasoning and decision making.
 - 2) Philosophy for Children (Lipman, 1976) engages students in philosophical discussions to cultivate their ability to draw inferences, make analogies, form hypotheses etc.
 - 3) The CoRT Program teaches cognitive skills through a series of lessons that teach targeted thinking skills for dealing with various problem types.
 - 4) ThinkerTools Program (White, and Frederiksen, 1998) added a reflective self-assessment component to their inquiry-based physics program.
 - 5) This program did not target individual cognitive processes but rather was aimed mainly at reducing school failure through improved motivation and health. Additionally, its curriculum didn't focus on improving individual cognitive processes. It lacked an agreed-upon instructional approach as well as a procedure for quality control and thus it remains unclear as to whether the program focused on process rather than product. Finally, it did not target individual cognitive processes in specific school subject areas.

Contents were also related with emotional aspects like preference and sensitivity. In the Moon and others' and Jung's program, they alluded to the following: exchanging feedback, understanding other's emotion, sympathy, cooperative attitude, positive attitude to take part in a group, consideration and understanding of others etc.

C. Symbols in the interpersonal domain.

We have discussed two kinds of contents; roles and components. In fact, if we consider two more closely, we can find that they are not in fact separate from each other. In order to perform a given role very well, we have to keep components of intelligences. Except for the above contents, we have to consider the question of Symbols. In the multiple intelligences theory, symbols are important.

In Gardner's concept of multiple intelligences, symbols or symbol systems are considered as the ground of the theory. Gardner, in his book (1983), took symbol systems as an important criterion to select his multiple intelligences. In another work, (Gardner, 1983; 1993A; 1998), Gardner clarified meanings and research on the symbol system and the relationship between symbol and intelligence. He stipulated the ability to deal with specific symbol system as an intelligence. Symbols should be the goal and the most important content in multiple intelligences programs (Gardner, 1993a, 1998). If this is the case, what is the place of the symbol system in the interpersonal domain? In the interpersonal Intelligence domain, interpersonal symbol systems include gestures, facial expressions and communication skills (Gardner, 1983, Ryue, 2001). In the context of the culture of Korea especially, the research team of Yonsei University (Cognitive Science Institute of Yonsei University, 1998) identified a number of kinds and features of gestures and facial expressions.

However, topics like gestures, facial expressions etc. contain too much information to explain through written and spoken language (Rasmussen, 1974; Ryue, 2001; Whitehead, 1959). At this point, we don't seem to have the academic tools to explain such concepts. Therefore, it is very difficult to incorporate interpersonal symbols into interpersonal intelligence programs at present.

Nevertheless, to secure the rationale and power to explain, trials of the inclusion of the consideration of symbol systems in interpersonal intelligence programs are needed. For example, it will be possible to include conversations, gestures, and using different tone to create mood/character, classifying according to criteria, identifying and classifying the feelings of characters and their reactions to situations/settings, and discussing human emotions etc. This is not enough by itself; we have to explore interpersonal symbols in the culture on a continuous basis.

WHERE? In the general classroom or specialized center ?

All programs can be undertaken with special materials or activities in both a general classroom and specialized classroom. Most interpersonal intelligence programs have

been performed in both environments.

The learning center of the Project Spectrum was organized for students to gain interpersonal experience. In the Key School, students could have experiences of interpersonal intelligence in the flow center during both the special group time and collective time. In the case of the Cook Primary School Program in Australia, special preparations to practice MI were made in special learning centers. Scholars like Mayer (2000) have argued for specific contexts rather than general ones in order to operate the target intelligence .

Moon and others' program and Jung's interpersonal intelligence program have been applied to common Korean classrooms with special materials. In the Cook Primary School Program in Australia, teacher adjusted MI in the time of the national curriculum classroom. Here, education materials must be included as an expansion of the concept ambience.

Briefly, the desirable environment for teaching interpersonal intelligence should be organized as a special learning center or at least with specific materials that can give children the chance to operate their interpersonal intelligences.

WHEN? Appropriate age?

According to Grotzer and Perkins (2000), when considering the question of when to start intelligence programs contended that 'Starting young is important'. They believed that earlier teaching of intelligence is more efficient.

In Project Spectrum, the authors affirmed that 'the sooner children's strengths were identified, the more time children, teachers, administrators and parents would have to work together to develop them, and the less time there would be for children with strengths in nontraditional areas to fall through the cracks (Feldman, 1998, p. 2). Lastly, if it is possible to identify children's intellectual strengths earlier, programs can be operated for younger children.

As a special aim, trials for older ages (like elementary higher students) have been undertaken. In Moon etc's program, the program was continued for four weeks for about 10 minutes each day, to improve children's interpersonal sensitivity. The results were positive.

Is only age good for teaching intelligence? In relation to this, Mayer (2000)'s allusion is plausible. He argued that later (rather than earlier) mastering of low level basic skills was desirable. To learn basic skills might be a prerequisite to teach knowing how to learn in a given domain. Therefore, younger is better to teach intelligence; but after mastering of low level basic skills, we are in a better position to teach interpersonal intelligence.

HOW? Through experience or training by using intellectual strength?

How can we improve interpersonal intelligence? Grotzer and Perkins (2000) argued that trying to improve intelligence should aim to make children develop expertise and

become expert novices. This means they consider the experience in the domain as an important thing. Experience means exposure and opportunities for practice (Grotzer and Perkins, 2000, p.498).

In Spectrum Project, around 20 activities like 'Who is missing?', 'Telephone' etc. were included. They were made on the assumption that children learn best through regular interaction with stimulation materials and the Intelligence-fair method and opportunities were used to deal with domain-specific problems (Chen, Krechevsky, Viens & Isberg, 1998, p.27).

In the Cook Primary School Program in Australia, Integrated Units of work (Vialle and Perry, 1995, p. 117) were operated. This came from the idea that through the concept of Units, nationally -developed statements could be combined with multiple intelligences more easily. This was done to assess the child's ability to observe and analyze social events and experiences in their classrooms. (Vialle and Perry, 1995, p. 140). Here experiences were considered as important too.

In Moon etc's program, experiences of observing other people were given for improving the observation ability and sensibility to other persons.

In Jung's interpersonal intelligence program, the topics of instruction developed and practiced in the study were 'autumn', 'winter', 'old stories' and 'ending first grade'. The teaching-learning experiences to improve interpersonal intelligence used were jigsaws, group investigations and discussions, group rule making, making stories, completing interpersonal checklist, making common productions, dealing with division of labor, cooperative learning strategies and working on group projects.

Although most programs argued for experiences more voluntary in nature and which elicit open reactions by children, we can enlarge the effectiveness through direct training with more delicate planning. The introduction of simple and interpersonal activity into the irresistible restricted ambiances can give a chance to improve interpersonal intelligence. However, intrusive training is unhelpful and actually seems to be harmful for more able learners. We have to take care of the interaction according to ability, strategies, and methods of training (Snow, 1982).

Finally, another report of Spectrum Project was instructive. It was contended that learning using strength was a better method. Snow(1982) also agreed on this in the context of general intelligence teaching. Therefore, teaching interpersonal intelligence through strong intelligence could be effective.

Briefly, a good method to teach interpersonal intelligence can be experience rather than training. Therefore, using the strengths of the learner's, and considering the interaction among abilities, strategies and methods of training could be said to be important.

WHO? Observer and evaluator?

Interpersonal intelligence programs have stressed the role of the teacher as an evaluator or observer on children's intelligence or idiosyncratic intelligent profiles.

In Project Spectrum, the teacher was an observer of the children and a provider to

provide the children with diverse activities, and an evaluator for discerning the children's intelligence profile. In the Cook Primary School Program in Australia, teachers met regularly to improve their educational MI practice, and attempted to be a multiple intelligences expert-teacher (that is a programmer and observer of children's profiles). In comparison with other intelligence programs, the teachers in multiple intelligences programs seem to prefer operating at the back of the classroom rather than leading from the front. Their role was an observer and evaluator.

IA. Conclusion

The issue of teaching intelligence' represents a different intellectual challenge to thinking about 'intelligence itself'. This is a problem with regards to the pedagogy of intelligence, the theory of intelligence education, not of the concept of intelligence which has been already dealt with over a long time in thousands of thesis. Although general consensus or operational definitions can partly give a framework for what it means to teach for intelligence development, the question of which criteria and which principles we use to teach intelligence remains. It would be more pragmatic to shift the view from 'what intelligence is ' to 'how we make children more intelligent or smarter'. We can concentrate on this more practical problem.

In this context, we would like to review multiple intelligences programs in regards to 5Ws1H. This framework is useful to analyze these programs and evaluate and choose a multiple intelligences program, which can be applied to diverse educational conditions, diverse learners and diverse educational aims. The foregoing discussion according this idea can be summarized as follows.

First, the goal of teaching multiple intelligences is to improve multiple intelligences. Sometimes, however, education through multiple intelligences can be useful for specialized aims. Whether multiple intelligences aims at improving multiple intelligences, or enlarging general educational efficacy, it should be appropriate for the intentions of what the program seeks to produce.

Second, we can teach an end state or roles in domains such as that of leader, facilitator and friends. Additionally, it can be taught as components of cognitive skills process, super ordinate executive, control strategies, mental management, sensitivity and inclination in the interpersonal domain. At the extremities, without any trial to teach interpersonal symbols, we can't improve multiple intelligences intrinsically. We have to explore symbols, especially in regards to interpersonal or intrapersonal domains, which have not yet been informed to the same degree as linguistic, musical and logical domains etc.

Third, Multiple Intelligences were taught in the specific context with specific materials or specific learning centers etc. Sometimes it is possible for the special aims to be

realized in the general classroom.

Fourth, starting at a younger age is also better for teaching multiple intelligences, but after mastering of low-level basic skills on each domain, we can teach authentic multiple intelligences.

Fifth, the best method to teach multiple intelligences is using the intellectual strength of the learner's through both experience and as direct training. Using these strengths can ensure that children gain positive emotions about learning and themselves.

Sixth, in multiple intelligences programs, the role of the teacher as an evaluator or observer plus provider or lecturer should be considered as being most important.

In conclusion, the educational programs of MI reviewed here have shown a remarkable progress in their extent and quality for such a comparatively short period. However, it is worthwhile to say that the programs would entail clearer and more idiosyncratic identity: They should differ from the educational programs of IQ, creativity, morality, EQ(Emotional Intelligence) or those simply aimed at academic improvement. This means that the programs seem not to be entirely faithful to the true original core theories of MI and that they therefore should seek to apply more concretely these core values and theories.

References

- Barkman, R. (1999). *Science through multiple intelligences Patterns That Inspire Inquiry*. Zephyr Press INC.
- Barnes, M. L., & Sternberg, R. J. (Eds.). (1989). *Social Intelligence and Decoding of Nonverbal Cues. (Vol. 13)* .
- Bono, E. d. (1987). *CoRT Thinking Program: Workcards and teacher notes*. Chicago: Science Research Associates.
- Burke, K. (1992). *What to Do with the Kid Who: Developing Cooperation, Self-Discipline, and Responsibility in the Classroom*. Illinois: IRI SkyLight Training and Publishing INC.
- Burke, K., Fogarty, R., & Belgrad, S. (1994). *The Mindful School: The Portfolio Connection*. Illinois: IRI SkyLight Training and Publishing INC.
- Campbell, L., Campbell, B., & Dickinson, D. (1992). *Teaching and Learning through multiple intelligences*. Stanwood: New Horizons For Learning.
- Caruso, D. R., Taylor, J. J., & Detterman, D. K. (1982). Intelligence research and intelligent policy. In D. K. Detterman & R. J. Sternberg (Eds.), *How and how much can intelligence be increased?* (pp. 45-66). Norwood, NJ: Ablex.
- Chapman, C. (1993). *If the Shoe Fits...: How to Develop multiple intelligences in the Classroom*. Illinois: IRI SkyLight Training and Publishing INC.
- Chapman, C., & Freeman, L. (1996). *Multiple intelligences Centers and Projects*. Illinois: IRI SkyLight Training and Publishing INC.

- Chen, J., Isberg, E., & Krechevsky, M. (1998). *Project Spectrum: Early Learning Activities*. Teachers College Press of Columbia University.
- Chen, J., Krechevsky, M., Viens, J., & Isberg, E. (Eds.). (1998). *Building on Children's Strengths: The Experience of Project Spectrum (Vol. 1)*. New York and London: Teachers College Press of Columbia University.
- Davis, G., & Rimm, S. (1998). *Education of the Gifted and Talented. (4th ed.)*. MA: Allyn & Bacon.
- English, E. W. (1995). *Gift of Literacy for the multiple intelligences Classroom*. Illinois: IRI SkyLight Training and Publishing INC.
- Feldman, D. H. (1998). How Spectrum began. In C. J. Krechevsky, M. J. Viens, & E. Isberg (Eds.), *Building on Children's Strengths: The Experience of Project Spectrum. Vol. 1*. (pp. 1-17). Teachers College Press of Columbia University.
- Fogarty, R., & Stoehr, J. (1995). *Integrating Curricula with Multiple Intelligences: Teams, Themes, and Threads*. Illinois: IRI SkyLight Training and Publishing INC.
- Ford, M. E., & Tisak, M. S. (1983). A Further Search for Social Intelligence. *Journal of Educational Psychology*, 75(2), 196-206.
- Gardner, H. (1983). *Frames of Mind*. New York: Basic Books.
- _____ (1993a). *Creating Minds*. New York: Basic Books.
- _____ (1993b). *Multiple intelligences: The Theory in Practice*. New York: Basic Books.
- _____ (1998). *Extraordinary Cognitive Achievements (ECA): A Symbol Systems Approach (5th ed.)*. New York: John Wiley & Sons Inc.
- _____ (2000). *Intelligence Reframed (Moon Y-I, Trans.)*. New York: Basic Books.
- Grotzer, T.A., & Perkins, D.N. (2000). Teaching Intelligence: A Performance Conception. In R. J. Sternberg (Ed.), *Handbook of Intelligence* (pp. 519-533). Cambridge: Cambridge University Press.
- Jung, T.-h. (1998). *Teaching-Learning Activities Development Based on multiple intelligences Theory and Its Effects: Focusing on Personal Intelligence*. A doctoral dissertation, Hanyang University.
- Keating, D. P. (1978). A Search for Social Intelligence. *Journal of Educational Psychology*, 70(2), 218-223.
- Lipman, M., Sharp, A. M., & Oscanyon, F. (1980). *Philosophy in the Classroom*. Philadelphia: Temple University Press.
- Mayer, R. E. (2000). Intelligence and Education. In Sternberg, R. J. (Ed.), *Handbook of Intelligence* (pp. 519-533). Cambridge: Cambridge University Press.
- Meeker, M. N. (1969). *The Structure of Intellect: Its interpretations and uses*. Columbus, OH: Charles Merrill.
- Moon, Y.-l., Ryue, S.-h., Kim, H.-j., & others (1999). *A Study on the Effectiveness of Personal Intelligence Program*. A monograph in the Institution for the study of Educational Administration, Seoul National University.
- Nicholson-Nelson, K. (1998). *Developing Students' multiple intelligences*. New York:

Scholastic Professional Books.

- Offutt, E. R. (1997). *An Elementary Teacher's Guide to multiple intelligences*. Torrance: Good Apple.
- Phipps, P. A. (1997). *Multiple intelligences In the Early Childhood Classroom*. Columbus: SRA McGraw-Hill.
- Rasmussen, D. M. (1974). *Symbol and Interpretation*. Hague: Martiuns Nijhoff.
- Ryue, S.-h. (1996). *A study on Group Differences in Perceived multiple intelligences(PMI) and relationships among PMI, IQ and School Achievement*. Master's degree, Seoul National University.
- _____ (1999). Symbol System Theory: New Paradigm for Cognition. *Educational Research*, 34 (Sung-shin Women's University), 23-43.
- _____ (2001). *The Symbol in the Interpersonal Domain of Gardner*. A monograph in the Institution of Asia Pacific Education Research of Brain Korea 21, Seoul National University.
- Schank, R., & Birnbaum, L. (1994). Enhancing Intelligence. In Khalfa, J. (Ed.), *What is intelligence?* GB: Cambridge University Press.
- Schools, I. P. (1989). *Key School Option Program*. Indianapolis Public Schools.
- Snow, R. S. (1982). The Training of Intellectual Aptitude. In Detterman, D. K. & Sternberg, R. J. (Eds.), *How and How Much Can Intelligence Be Increased* (pp. 1-40). New Jersey: ABLEX Publishing Corporation.
- University, C. S. I. I. Y. (1998). *Development of emotion measurement technology & DB through facial expression/gesture*. A monograph, Yonsei University.
- Vialle, W. (1991). *Tuesday's Children: A study of five children using multiple intelligences theory as a framework*. A dissertation of Doctor of Philosophy, University of South Florida.
- Vialle, W., & Perry, J. (1995). *Nurturing multiple intelligences in the Australian Classroom*. Hawker Brownlow Education.
- Walters, J., & Gardner, H. (Eds.). (1995). *The Development and Education of Intelligences (5th ed.)*. Illinois: IRI/Skylight Training and Publishing, Inc.
- White, B., & Frederiksen, J. (1998). Inquiry, modeling, and metacognition: Making science accessible to all students. *Cognition and Instruction*, 16(1), 3-118.
- Whitehead, A. N. (1959). *Symbolism: Its Meaning and Effects*. New York: G. P. Putnam's Sons.
- Zigler, E., & Muenchow, S. (1992). *Head Start: The inside story of America's most successful educational experiment*. New York: Basic Books.