AN APPLICATION OF THINKING SKILLS INTERVENTION BASED ON MLE TO ENHANCE COLLEGE STUDENTS' LEARNING POTENTIAL

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Abstract

Under the quickening pace of technological advancement and societal changes, education is faced with the increasingly formidable task of preparing students for a highly challenging and uncertain future. A lot of evidence has shown that thinking skills training enables learners to solve problems efficiently, evaluate their own practice constantly, and explore alternatives to improving their own abilities. Nowadays Taiwanese college students are not only decreasing in Chinese reading and writing proficiency but also lack Chinese cultural cultivation in general. One of the approaches to teaching thinking skills, Reuven Feuerstein's Mediation Learning Experience (MLE), is used here in designing the reading discussion exercise. We hope that the implementation of such kind of reading discussion exercise will enhance college students' Chinese proficiency as well as learning potential.

Keywords: *Thinking skills, Mediation, ZPD, Collaborative learning, Group formation.*

Introduction

Thinking skills programs have been extensively used around the world for a number of years. A lot of evidence has shown that thinking skills are effective at improving learners' performance on cognitive and curriculum tests (Higgins et al., 2005). In New Zealand, the Ministry of Education commissioned a study of the best

practices for quality teaching and discovered that effective teachers taught metacognitively, reflecting on their own thinking as well as their students' thinking as learners (Ministry of Education, 2003; Taggart et al., 2005). Furthermore, Hamers and Van Luit (1999) found that interest in teaching thinking skills is evident among practitioners and educational researchers in many non English-speaking countries.

Interest in teaching thinking skills - enabling learners to solve problems efficiently, evaluating their own practice constantly, and exploring alternatives to improving such abilities - has come from a growing awareness that traditional teacher-centered instruction no longer prepares learners for the dramatically changed world of now and tomorrow. To cope with the challenges of the future, learners will need skills "that will give them control over their lives and their learning, for of their learning there will be no end" (Fisher, 1995). Different approaches to teaching thinking skills have been developed, and one of the approaches, Reuven Feuerstein's (1977) Mediation Learning Experience (MLE), is used here in designing the reading discussion exercise. The structure of this paper is therefore as follows:

- Some key concepts of thinking skills and mediation are introduced
- A reading discussion exercise utilizing thinking skills interventions
- Discussion about the basic principles underpinning these interventions
- Suggestions for practitioners wishing to use the intervention approach.

Review of literature

Thinking skills are expected to be developed at all key stages of education and centre on information-processing skills, reasoning skills, enquiry skills, creative thinking skills and evaluation skills.[1] These have been included in the UK National Curriculum since 1999. The fundamental belief is that thinking ability or intelligence is not fixed, and individuals can learn to enhance their thinking and therefore make an improvement in their scores on standardized tests. Moreover, teaching thinking skills will lead students to become more skilful thinkers. Fisher (1995) said "Learning is best developed through a 'thinking skills' approach, which aims to teach children not only what to learn but how to learn." Contrary to the traditional classroom, where the teacher plays a directive role in the teaching process, thinking skills programs encourage mediation and scaffolding of the students' own mental processes (Higgins, 2003).

Mediation, a cornerstone of Feuerstein's theory of children's intellectual, social, emotional and moral development, has played a central role in all social interactionist theories. Two key features of Feuerstein's theory are that anyone can become a fully effective learner and that people's cognitive structures are infinitely modifiable. Feuerstein suggested that right from birth a child's learning is shaped by the intervention of significant adults. He refers to these important figures in the child's

learning as mediators or mediating adults, and the experiences that they provide as mediated learning experiences. MLE is defined as a quality of interaction between the subject and its environment (Feuerstein and Feuerstein, 1994; Higgins, 2003; Williams and Burden, 1997). “Inadequate MLE leads to cognitive functions at the input, elaboration, or output phases of the mental act that are undeveloped, impaired, or fragile in their presence and contribution to learning and cognitive behavior.” (Feuerstein and Feuerstein, 2000) Besides Feuerstein, Vygotsky is another writer who has stressed the importance of mediated learning interactions.

The Zone of Proximal Development (ZPD) relates to the gap or difference between what the children can learn unaided and what they can learn with the guidance and support of an adult or a more capable peer, and is Vygotsky’s most widely-known concept. Wood (1980) indicated that without help in organizing their attention and activity, children, being novices in life, may be overwhelmed by uncertainty. This idea of assisting the children is known as scaffolding. Furthermore, Bruner used the term ‘laddering’ to refer to the process when teachers set tasks at a level just beyond that which the learners are currently capable of, teaching the principles that will enable them to make the next step unassisted (Bornstein and Bruner, 1989). Mediation and ZPD are the important concepts in social interactionist theories, and Feuerstein and Vygotsky are two prominent figures in the social

interactionist movement. Studies of early childhood development (Bornstein and Bruner, 1989) have shown that within the social context of the family, the actions of children affect those of the parents, as well as vice versa. From a social constructivist theory perspective, it is believed that children develop at their own pace through interaction with the environment, and that significant adults interact with children and thus contribute to their rapid progress developing intellectual and social skills (Birtwistle, 1998).

Collaborative learning is an approach, closely related to cooperative learning, where groups of students work together in searching for understanding, meaning or solutions or in creating a product. Fisher (1995) considered the advantages of working in a group to be the development of social skills, cognitive skills and emotional support. But the benefits do not arise simply by sitting children together; the importance of group work is what kinds of task are best suited for collaborative learning. Fisher suggested interpretative discussion, problem-solving tasks and production tasks.

The following section attempts to design interventions for a reading activity among college students. The following exercise is planned and then discussed as illustrating different ways in which teachers might mediate learning.

Approaches to thinking skills interventions to enhance thinking and learning

The Taiwanese Ministry of Education Guidelines do not require teachers to teach thinking skills, and most teachers are not familiar with the definition and teaching of such skills. Generally speaking, college students have not developed good thinking skills from their elementary and secondary schooling. It is likely that, despite knowing and understanding the textbook, they still cannot solve problems or cope with exams (Mehl, 1994). Successful learners not only have a lot of knowledge, they also know how to think and learn. “The values of thinking skills approaches requiring learners to plan, describe and evaluate their thinking and learning include the emphasis on learner engagement and the development of metacognitive knowledge” (Robson and Moseley, 2005).

A reading activity with group discussion is an appropriate exercise for training thinking skills. According to OECD’s[2] PISA study (Program for International Student Achievement) in 2000, reading literacy is demonstrated by retrieving information, forming an understanding of the text, reflecting on its content and integrating it into the readers’ own world or prior knowledge (Hermes, 2003). These abilities can be developed through thinking skills learning, in which the students go through the steps of different level’s training, such as Bloom’s (1956) ‘Taxonomy of Thinking’ - knowledge, comprehension, application, analysis, evaluation and synthesis.

Due to political ideology and the ‘NetLanguage’ which contains Chinese characters mixed with English letters and words, images, symbols and numbers, Taiwanese college students are not only decreasing in Chinese reading and writing proficiency but also lack Chinese cultural cultivation in general. NetLanguage, a distinctive language becoming more and more popular among young people, is commonly used for online communication. The abusive use of Internet language has undermined standard use of Chinese and many college students do not know how to speak and write proper Chinese.

Sharing language, culture and tradition, even people born and raised in Taiwan are Chinese in blood due to the fact that their ancestors migrated from mainland China over a period of centuries; in addition, the so-called local dialect - “Holo” is original from Fujian province in eastern China. But to cut the cultural affiliation towards China, the Taiwanese government infuses people with the political ideology of Taiwanese independence from China as well as promoting a localization movement involving the teaching of Taiwanese history, geography, and culture from a local perspective, and promoting languages native to Taiwan. The problem of cultural identity fragmentation is increasingly getting worse in Taiwan, especially for young people. Feuerstein emphasizes the importance of the transmission of culture from one generation to the next as a key element in making a task significant (Williams and

Burden, 1997). Prof. Yu Qiuyu is one of the best known Chinese cultural and literary figures. His works have been praised by many Chinese intellectuals and won him prizes and a broad readership in Mainland China, Taiwan, Hong Kong and Singapore (SINA English, 2005). Yu's book 'Stressful Cultural Journeying' systematically combs through various aspects of the profound Chinese culture as well as making penetrating reflections on certain cultural phenomena. Therefore, this author, teaching Chinese Literature in college for many years, has assigned 'Stressful Cultural Journeying' as a reading text. Although Chinese Literature is still a compulsory course for undergraduate students in most colleges, it has been getting neglected in recent years. Reading activity (see appendix 1) can be an ideal supplement to improve Chinese literacy. Four dimensions of learning outcome are expected: Chinese proficiency, Chinese cultural cultivation, thinking skills and collaborative learning.

Thinking skills interventions can be characterized as approaches which identify for learners translatable, mental processes which require learners to plan, describe and evaluate their thinking and learning (Higgins et al., 2005). Used creatively, with appropriate mediation, the core purpose of this exercise is to enhance teaching and learning. The rationale for these possible interventions is based on Feuerstein's MLE theory, which is described in more detail below.

Application of mediation theory

Practitioners can mediate in a number of ways to provide a learning experience and help learners to take control of their learning. Feuerstein identifies twelve ‘parameters’ which guide the initiation and development of responses by the ‘mediator’ as necessary criteria for the quality of MLE interaction. Williams (1997) divides the twelve features into three categories: factors essential for all learning tasks, factors concerned with taking control of learning and factors concerned with fostering social development. The last two categories do not necessarily apply to all learning tasks (see appendix 2).

The following is a summary of the twelve parameters of MLE and a discussion of their possible implications for practitioners. Although some ways of mediation provided by Williams were originally for learners of a foreign language, they may be applied to other fields as well.

1. Factors essential for all learning tasks

- Significance

In order to let learners see the value of learning tasks to them personally and in a broader context, it is the teachers’ responsibility to make learners perceive their significance. If learners fail to find personal significance in a task, then they lack the strong motivation to participate actively. Individuals devoid of this orientation do not search for meaning and are disadvantaged in the cognitive and emotional aspects

which affect the emotional, energetic dimensions of life (Williams and Burden, 1997; Feuerstein and Feuerstein, 1999). Teachers can require learners to think about the significance of a learning task by asking them “Why did I do it?”

- Purpose beyond the here and now

Williams and Burden (1997) points out that the learners need to understand the transcendence of the learning experience, identifying rules and recurring themes, leading to learning beyond the immediate time and place. The learner should learn something of general value. For example, learners might learn a skill for solving problems not just for completing the immediate classroom task but more important ‘real world’ applications in the future.

To mediate transcendence, teachers need to explain the purpose of the exercise and to make learners realize its value to them at a personal level.

- Shared intention

Providing clear communication and direction, teachers should convey to learners the purpose of the learning tasks and tell them precisely what they are required to do. Furthermore, Williams and Burden (1997) extends shared intention to a process of negotiating learning activities to encourage autonomous learning.

Teachers can help students to take on more responsibility for learning in a self-directed way. Common ways of mediation while explaining is to ask learners to

repeat instructions or ask a group to demonstrate what to do.

2. Factors concerned with taking control of learning

- A sense of competence

Learners create the feeling that they possess the abilities and adequate skills to face and accomplish any particular task. Competence does not necessary imply a feeling of competence. Moreover, Feuerstein explains that the generation of an optimistic belief in success is not the direct outcome of the self-perception of an individual's capability, but rather requires the intervention of a mediator bringing people the awareness, feeling and consciousness of their competence. However, learners are assessed solely on the 'product' in much of the present system. Even worse is that some people think the best way to make a learner progress is to give negative feedback when they fail to achieve established standards. A belief in the empowering ability of confidence is the best motivation for learners to undertake a task.

In addition to telling the learners they are all capable of success, teachers may encourage learners to foster a positive self-image, reflecting on competency and achievement.

- Control of own behavior

Mediation here is to give learners experience in using their higher-order skills to provide self-monitoring and make adjustment during the learning process. Many

students do not think they possess the ability to control and regulate their own learning in a self-directed way. Traditional schools tend to discourage thinking in that students are treated as receivers rather than producers and contributors of information and ideas. “Generally teachers have expected children to learn and to reproduce the accepted wisdom, a ‘learn because I tell you’ approach” (Fisher, 1995).

The emphasis of this aspect of mediation is to teach learners how to learn, so they become self-initiated and autonomously controlled.

- Goal-setting

Individuals need to seek realistic and meaningful goals and develop ways of achieving them. According to Feuerstein, this parameter plays as an important role in the development of human modification, flexibility, and learning propensity. Research has shown that people setting their own goals in any learning activity are more likely to achieve them than people whose goals are set by others (van Werkhoven, 1990). In the classroom, however, the teacher usually sets goals for the students, and gives directions as to how to achieve them.

Williams and Burden (1997) suggests many ways in which learners can be involved in goal-setting, including short-term goals and longer-term goals. Learners set themselves a target first, and then evaluate whether their goals are realistic and achievable or not. Teachers may produce formats for students such as:

Short-term goals

This week I shall…

Long-term goals

By the end of this course/ term I want to …

My plan to achieve this is …

- Challenge

Feuerstein believes that the mediation of challenge should be considered in learning and in life in general to prepare the individual for adapting to the novelty and complexity of our world. Erik Erikson (1968) argues that due to the loss of any sense of challenge, many people approaching mid-life display a sense of aimlessness.

Therefore, it is important to structure activities best by allowing the individual to confront novel situations and provide suitable challenges in the tasks by teachers. In other words, challenges need to be sufficiently difficult, but not too difficult. Moreover, teachers also need to help learners to set their own challenges within their capabilities.

- Awareness of change

Feuerstein compares two different views concerning the human as a modifiable entity. One, a passive-acceptance approach, considers the outcome as fixed or predetermined, in which change is unlikely to happen under any conditions. The other,

an active approach, sees humans as accessible to cognitive, emotional, social and physical changes in all possible directions and contexts. Feuerstein strongly agrees with the latter view, and criticizes educational systems that are reluctant to change as likely to become anemic. At worst, such schools reject the individual when their conditions fail to fulfill society's expectations. Toffler (1970) argue that the whole school system should teach people to learn how to learn and so become flexible thinkers to prepare them to cope with the rapidly changing global environment.

In order to mediate learners' awareness of change, teachers normally use grades, praise or test results to inform learners about their progress. However, fostering the ability to self-evaluate is equally important in producing autonomous learners. Students can be aware of their own progress without needing feedback from teachers (Williams and Burden, 1997). The teacher may ask learners to record a self-assessment, such as: "What have I learned?", "How have I performed?", "What difficulties do I still have?", "What can I do now", even "What I learned about myself?"

- A belief in positive outcomes

When people face a task and believe that it is impossible to complete, they automatically give up seeking a solutions. It is obvious that we only believe it is worth trying to solve a problem that can be solved, otherwise we will not even start to think

about it. Just as Feuerstein said, “Knowing that something is possible makes the involved individual become committed to the search for ways to turn the possible into a materialized experience.” Teachers may generate in students the belief that there is always possible to find a solution even if facing intractable problems.

3. Factors concerned with fostering social development

- Sharing

We cannot deny competition is a motivating factor in making progress and thus is encouraged above everything in many classrooms, especially in Taiwan, but sharing and co-operation increase our social networks and help us to create and exchange skills, knowledge and attitudes. Much research has found that working co-operatively can have considerable benefit for all learners at all age levels (Bligh, 1971; Johnson and Johnson, 1987; Smith et al., 1993).

How to interact, share knowledge and experiences in a group should be taught and needs practice. Teachers may arrange the class activities involving sharing behavior which encourages the individual to go out of himself and participate with others and make others participate with him. For example, teachers can mediate individuals to listen and join a group or take part in a whole class discussion exercise or by asking students to brainstorm ideas.

- Individuality

The opposite of sharing behavior, individuality represents the need of the individual to retain his uniqueness - feeling and thinking differently from others, to meet his need for personality growth. From the viewpoint of developing individuation and psychological difference, Feuerstein emphasizes the importance of “sharing behavior, meaning, transcendence, and all the emotional engagement underlying MLE, thus avoiding the feeling of rejection and abandonment.” Mediation of these parameters differ greatly among cultures, for example, for indigenous Hawaiian islanders, this sense of community is so strong that there is a powerful resistance to individualized learning or one person appearing to do better than others (Sugden, 1989; Williams and Burden, 1997).

Williams and Burden (1997) suggests learners can be encouraged to express their own individuality by keeping a diary or personal journal, using activities that require the expression of personal opinions, creative writing, or class discussion.

- A sense of belonging

People need to develop a feeling of their connections at social and emotional levels and validating the importance of going outside the boundaries of the self. Feuerstein argued that mediation of the feeling of belonging is of particular importance at a time when a child is offered little security as to the stability of the framework to which he belongs. Teachers might generate this sense of belonging in

group work programs which require everyone to make a contribution and from which no one is left out.

Suggestions for practitioners applying the intervention approach

1. Sufficient intervention with learners: The areas of mediation for a particular activity depend to some extent on the situation and culture in which the learning is taking place. Contrary to Feuerstein's MLE, some educators believe that encounters between learners and stimuli will produce the autonomous changes and independence that is such an important determinant of the process of individuation. Therefore, they recommend leaving the learners alone and refraining from any unnecessary intervention. The mediation interaction is thus highly restricted, resulting in limited efficiency since it is devoid of the mediation of meaning. Falik said cognitive learning occurs under direct exposure to stimuli and experiences as well as mediated learning experience (MLE). Both are essential to human learning and development. In other words, it should be kept in mind that the influence of intervention approaches varies according to differences in age, gender and culture; the ways of intervention should be modified to each particular learning context.

2. Equip learners with the phase-specific prerequisites of competence: The teacher may announce the learning activity and what tasks are to be completed as well as require students to prepare in advance. Then students can have plenty of time to

gather information, and then to process, analyze and evaluate it. The teacher may also encourage students to organize their individual discovery and to express results by themselves. (Devereux, 2002; Taggart et al., 2005) gives some examples of key questions to stimulate thinking and develop learners' inquisitiveness:

'What will happen if you …?'
'Have you thought about …?'
'What is your problem? How can you find out about …?'
'What happens when you test …? Why do you think this will happen?'
'How can you resolve this problem? What do you notice about these resolutions?'

After such kinds of practice, students have the confidence to face tasks and end up with high performance and profound knowledge.

3. Group formation and appropriate rules for working in a group: In the group, relationships and intimacy have a significant influence on group effectiveness. Members of any new team have to do five basic things immediately after their group is formed. They (Dyer, 1977; Leuser, 1992):

- Become acquainted with each other as individuals:
- Develop an understanding of each others' priority levels for the teams' activities:
- Share expectations regarding what the group should be like:
- Clarify and agree upon the groups' mission:
- Formulate operating guidelines.

Leuser (1992) provided some helpful principles for the group formation stage. Firstly, group members sit in a circle and take turns introducing themselves to the group. Relevant information that might have an impact on the group process and productivity should be shared, such as personal interests, special skills, major/minor,

year in school, career objective, full and part time work experience, current employment status, and any other campus, community, or family commitments. If it is a long-term group, each member should rank the priority of the group activity in comparison to the other priorities across his/her total school, work and social lives, then discuss with the other group members the expected hours per week available for group activity.

Secondly, each member should share their feelings honestly and clearly in response to questions like: What worries you most about working in this team? In an ideal sense, how would this team function? What would this team be like if everything went wrong? What actions need to be taken to ensure the most positive outcomes? During the discussion, the group should summarize two lists: one is the concerns shared by group members, and the other is actions taken to ensure the most positive outcome. Furthermore, group members should discuss those questions focusing on how to accomplish the groups' mission. For example, what do you think the core mission, or "reason for being" of this group should be? While the group activity is a requirement of the course, what potential benefits for you and your team members might accrue from the experience?

Finally, it is necessary to establish guidelines supported by the group members. Questions should be considered including: How will we make decisions? What will

be our basic method for work? How do we ensure that everyone gets the chance to express what is on their mind? How will we resolve disagreements? How will we ensure the completion of work? How will we change things that are not producing results? How will we use the Critical Incident Inventory to enhance our effectiveness? In addition, a record keeper responsible for writing down every group member's opinion must to be assigned. Moreover, rules for group discussion need to be followed as well. Teachers may remind students to listen attentively and allow other people to finish what they are saying, take turns and respond to what people say, avoid aggressive or pushy behavior and check back with the teacher if part of the task cannot be understood.

Self-evaluation: Once teachers become accustomed to mediation, finding appropriate ways to mediate will pervade everything done in class as well as become integral part of their everyday work (Blagg, 1991). There are some questions designed by Warren (1995) that can be used to evaluated teachers' own mediation in classes. Do you:

- Make your instructions clear when you give a task to your learners?
- Tell your learners why they are to do a particular activity?
- Explain to your learners how carrying out a task will help them in the future?
- Help learners to develop a feeling of confidence in their ability to learn?
- Teach learners the strategies they need to learn effectively?

- Teach learners how to set their own goals in learning?
- Help your learners to set their own goals in learning?
- Help your learners to monitor changes in themselves?
- Help your learners to see that if they keep on trying to solve a problem, they will find a solution?
- Teach your learners to work co-operatively?
- Help your learners to develop as individuals?
- Foster in your learners a sense of belonging to a classroom community?

Conclusions

An obstacle to promoting thinking skills in Taiwan is that it is difficult to find extra time beyond regular teaching hours under the formal school system, since the Taiwanese Ministry of Education has not placed great emphasis on thinking skills. Nevertheless, under the quickening pace of technological advancement and societal changes, education is faced with the increasingly formidable task of preparing students for a highly challenging and uncertain future. This reality makes the need for fostering high order thinking skills more salient than ever before (Swartz, 2000). On the one hand, thinking skills enhance students' learning potential, and on the other, aid teachers' professional development. We hope that the implementation of teaching thinking skills will have a great impact on Taiwanese society in the 21st century.

Notes

1. *Information-processing skills:* These enable pupils to locate and collect relevant information, to sort, classify, sequence, compare and contrast, and to analyse part/whole relationships. *Reasoning skills:* These enable pupils to give reasons for opinions and actions, to draw inferences and make deductions, to use precise language to explain what they think, and to make judgments and decisions informed by reasons or evidence. *Enquiry skills*: These enable pupils to ask relevant questions, to pose and define problems, to plan what to do and how to research, to predict outcomes and anticipate consequences, and to test conclusions and improve ideas. *Creative thinking skills:* These enable pupils to generate and extend ideas, to suggest hypotheses, to apply imagination, and to look for alternative innovative outcomes. *Evaluation skills:* These enable pupils to evaluate information, to judge the value of what they read, hear and do, to develop criteria for judging the value of their own and others' work or ideas, and to have confidence in their judgments. (QCA, 2000).

2. The Organization for Economic Co-operation and Development (OECD) is an international organization of those developed countries that accept the principles of representative democracy and a free market economy (Wikipedia).

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Appendix 1

***Reading - Discussion Exercise*:**

In referenced to Lin and Mackay, 2004; Jarvis, 2003; Rockett and Percival, 2002

Reading Text: Stressful Cultural Journeying (1992) by Yu Qiuyu
Activity: reading, small group and entire class discussion, reporting and feedback
Suitable for: undergraduate students in Taiwan
Prior knowledge: Reading and writing skills
Timings: 180 mins total : 20 mins Introduction => 20 mins Group Formation => 50 mins Group Activity => 20 mins break => 30 mins Group Report => 20 mins Feedback => 10 mins Summary => 10 mins Self-assessment

Learning objectives:

Improve Chinese proficiency of listening and speaking

Foster Chinese cultural cultivation

Develop thinking skills

Improve collaborative skills of listening and speaking

Group tasks: Group tasks designed for reading comprehension and providing challenges by way of thinking skills include:

Task 1: outline 'Stressful Cultural Journeying' (**Information processing**)

Task 2: illustrate an aspect of 'Stressful Cultural Journeying' that you found to be the most interesting (**Reasoning**)

Task 3: present a cultural phenomenon described in 'Stressful Cultural Journeying' to compare the difference and similarity between ancient times and the modern world (**Enquiry**)

Task 4: think creatively to find possible solutions for a predicament described in 'Stressful Cultural Journeying' (**Creative thinking**)

Task 5: challenging Yu's argument (**Evaluation**)

According to the capability and interests, group members negotiate the number of tasks to be completed and set the goals for their own group. Afterwards, every group should submit a collaborative writing report and make an oral presentation.

Intervention (teacher/ mediator/facilitator)	**Activity sequence**	
Encouraging learners to make links to existing knowledge and understanding	Connect the Learning ←	**Introduction**
Providing brief background elaboration and explaining activities to be undertaken	Concrete Preparation ←	
Facilitating (guiding or directing) in-group interaction and interjecting critical questions during discussion	Group Formation ← Group Discussion ← Complete Tasks ←	**Group Activities**
Requiring learners to listen carefully to what other groups have produced and discuss the strategies they have used to complete the tasks; helping learners to regulate learning behaviors.	Group Report ← Feedback ← Summary ←	**De-briefing**
Connecting content to a bigger picture; creating an opportunity for students to draw on their experience in the real world and make thinking skills training more meaningful for them.	Bridge to other contexts ← Self-reflection ← Self-assessment ←	**Transfer**

Appendix 2

Feuerstein's parameters of MLE	Williams	
Mediation of meaning	Significance	**Factors** essential for all learning tasks
Transcendence	Purpose beyond the here and now	
Intentionality and reciprocity	Shared intention	
Mediation of feeling competence	A sense of competence	**Factors** concerned with taking control of learning
Mediation of regulation and control of behavior	Control of own behavior	
Mediation of goal seeking, goal setting, and goal achieving behavior	Goal-setting	
Mediation of challenge: the search of novelty and complexity	Challenge	
Mediation of the awareness of the human beings as a changing entity	Awareness of change	
Mediation of the search for an optimistic alternative	A belief in positive outcomes	
Mediation of shared behavior	Sharing	**Factors** concerned with fostering social development
Mediation of individual and psychological differentiation	Individuality	
Mediation of the feeling of belonging	A sense of belonging	

About the author

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