

The Powerhouse for Mediated Learning Experience

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### Abstract

As far back as 1994 I developed what I call “a new paradigm in education”. In this paradigm the aim of education is to maximise the enormous inherent potential in learners. This aim is shared as a common goal by this paradigm and Structural Cognitive Modifiability (SCM) through Mediated Learning Experience (MLE). From the perspective of this paradigm valuable suggestions are made to improve the achievement of this common goal. Three power generators that supply the required energy, as a prerequisite for maximising human potential, are revealed.

## The Powerhouse for Mediated Learning Experience

### Introduction

When we observe our global society we recognise that, in spite of desperate attempts to the contrary, the persistent view of people who are mentally, physically and emotionally challenged is that they are incompetent and should be excluded from “normal” society and its education, because it is very unlikely that they could benefit from it. The obvious detrimental consequence of such a passive acceptance is that development and improvement is prevented and the *status quo* is maintained. On the other hand, “normal” society is characterised by persistent and growing poverty, crime, corruption, murder, violence, addiction, immorality and suicide – to name but a few. Most of this is evident even in the most affluent societies. This is a manifestation of an inability to create and live in a “normal” society despite many years of continuous “normal” education. Even apparently “normal” learners severely lack basic competence when confronted with real-life situations. It seems as though, whether excluded from - or included in “normal” education, the outcomes of it perpetuate and even produce incompetence on a scale that simply cannot be tolerated.

Although there may be many reasons for this, the most fundamental and basic of these has been shown through research to be: a misconception about what education really is; who the learners actually are (their human make-up and psyche); what they are actually capable of; and how the aim of education should be achieved in view of this (Slabbert, 1997).

One of the most crucial and important contributions to expose some of the major misconceptions about education – is the concept of Structural Cognitive Modifiability (SCM) and its associated theory of Mediated Learning Experience (MLE) developed by Reuven Feuerstein and his co-workers (Feuerstein, Rand & Hoffman, 1979; Feuerstein, Rand & Rynders, 1988; Feuerstein, Klein & Tannenbaum, 1991; Feuerstein, Rand, Haywood, Kyram & Hoffman, 1995; Tzuriel, in press). Most importantly, Feuerstein and his co-workers

exposed the enormous potential of human beings to learn even if they are severely mentally, physically and emotionally challenged because of their cognitive structural modifiability – something that has been thought impossible in education. Although SCM and MLE were developed with regard to the challenged learner, it revealed some of the major deficiencies in “normal” education. The consequence is that that we must accept that MLE is for everyone, and not only for the “challenged” (Feuerstein, Rand & Rynders, 1988).

SCM holds the view that every human being is capable of modifying his or her cognitive structure, no matter the severity of the challenge (mental, physical or emotional), through adequate mediated learning experience (MLE). MLE in its most elementary description is a direct intentional intervention to help the learner to increase his or her learning potential – and not simply to regurgitate what has been learnt on command.

Since its inception, SCM through MLE has been extremely successful and results were obtained that stunned even the researchers. In spite of this success, the committed researchers are continuously pursuing the improvement of their work. As an “objective” observer, and one who also pursues the highest possible quality of education, I may detect issues in SCM and MLE that need to be addressed and I may provide valuable suggestions to achieve a common goal in view of my own research. This is the aim of this paper.

### A New Paradigm in Education

My own research resulted in 1994 in postulating, what I called, a new paradigm in education: Maximising human potential through facilitating lifelong learning towards a safe, sustainable and prosperous universe for all. This also constitutes the aim of education. It is a new paradigm insofar that it replaces the traditional thinking in education with something completely new and exactly the opposite: The paradigm that something or someone on the outside of the learner has to feed something into the learner, has been replaced by the paradigm that the learner has been created with enormous inherent potential that has to be

maximised. This shift is thus from an outside in to an inside-out paradigm. Since its postulation in 1994, it has been continuously updated through action research and is still developing (Slabbert, 1997).

The main thrust of this paradigm is that the potential is situated inside the learner and he or she is the only one who can maximise it. The only thing that someone on the outside of the learner can do is to facilitate this process. Facilitating lifelong learning, although simple in its concept, is a highly professional and extremely demanding task. It involves only two aspects: *Initiating learning* through always confronting the learner with a challenging, real life problem that is above his or her current problem-solving ability, but that ultimately needs to be solved by the learner himself or herself. It is only such a learning task that will make learning meaningful and that will ensure that potential is being maximised. The other aspect is *maintaining learning* where the facilitator has to ensure that the learner keeps on learning until the highest possible quality of learning has been achieved. This is obtained through compelling the learner to meta-learn. *Meta-learning* constitutes reflection and sharing meaning with oneself and is described as the process where the learner is in complete control of his or her own learning: Being able to plan, execute, monitor and assess his or her own learning as an individual. Only then will a meta-learner be an active, effective, independent, lifelong learner who, through thinking skills and creative problem solving, acquires all the necessary intra-personal life skills. The second aspect of maintaining learning is when learners share their constructed meaning with their peers through *cooperative learning* where small groups of learners help one another to learn. Only through the demanding criteria for cooperative learning will the learner acquire the interpersonal life skills to fulfil positive interdependency as the highest human value. But most demanding is the way in which the facilitator needs to ensure the maintenance of learning with his or her interaction with the learners. It is this *feedback* action that characterises the new paradigm and distinguishes it

ultimately from the old paradigm. Instead of being a source of information and imparting knowledge, the facilitator of learning refrains from every form of teaching and only fulfils the role of an *affective* encourager and supporter. His or her feedback to learners is a continuous challenge to increase the quality of their learning until the highest possible quality outcome is obtained.

The relationship of this paradigm with SCM and MLE is obvious. In the paragraphs that follow, some aspects of SCM and MLE will be highlighted and suggestions for improvement will be made from already existing research in SCM and MLE as well as what I have learned from this new paradigm in education, which is so well supported by a review of the most recent research in learning and brain functioning authored by Claxton (1999).

#### Highlighting some Issues in SCM and MLE

Feuerstein, Rand, Haywood, Kyrman and Hoffman (1995) suggested 13 criteria of MLE but only the first three, namely intentionality and reciprocity, meaning, and transcendence is seen as necessary and sufficient to be classified as MLE.

Mediation of intentionality and reciprocity refers to a mediator who alerts a learner towards a stimulus and compels the learner to respond (Feuerstein, Rand & Rynders, 1988). It wants to create vigilance on the part of the learner through facilitating efficient registration of information (input) adequate processing (elaboration) and efficient response (output) (Tzuriel, 1999).

Mediation of meaning involves labelling of information (Tzuriel, 1999), and also “represents the energetic, affective, emotional power that will make the mediation interaction overcome resistance on the part of the learner and thereby ensure that the stimuli mediated will indeed be experienced by that learner”. (Feuerstein, Rand & Rynders, 1988, p. 66).

In mediation of transcendence, the mediator goes beyond the concrete context or immediate experience and teaches the rules and generalisations that govern the experience (Tzuriel, 1999).

Since transcendence appears to be the strongest predictor of learner's cognitive modifiability, it must be of crucial importance (Tzuriel, 1999). Additionally, transcendence depends on intentionality and reciprocity, and meaning (Tzuriel, 1999). This relationship is significant and needs to be explored through a simple example.

One of the fundamental developmental aspects of early childhood is spatial perception, i.e. "front" vs. "back". This is a simple, straightforward and unambiguous concept. Mediation of intentionality and reciprocity might be done by the mediator through requesting a learner to come to the front of the class. The learner may be required to observe his or her position carefully (input) and is then told that he or she is in "front" of the class upon which the learner is supposed to relate his or her position to "front" (elaboration). Then the mediator may request the learner to stand in "front" of the desk, upon which the learner himself needs to respond appropriately (output). Mediation of meaning may extend the previous request to one or two more after which it is assumed that the learner will know what "front" is. It means that both the mediator and the learner will be able to express what "front" means (labelling information). Such a simple concept must carry an equally simple meaning. You are encouraged to express the meaning of "front" right now before you continue reading. As soon as we try this, we run into a little trouble. We discover that it is not so easy. We may say: "Front is a specific position in space relative to an object". To bring this into the sphere of comprehension for early childhood, it becomes very difficult. One might say: "Front is a specific place in the space around something". Defined in this way, it seems very simple again, but still completely incomprehensible to a learner in early childhood who may immediately ask: "But *where* is *front*?" The learner would rather be confused by such an

abstraction relating to some concrete experience – which constitutes meaning (or meaninglessness regarding this example). An abstraction is made either through a mental image in very early childhood or labelling through language, when this becomes available to the learner a little later in life. A learner being mediated by this description of “front” as it’s meaning, will certainly have fundamental problems in grasping what “front” is. In addition, “front”, in this regard, also constitutes a concept that consequently renders it a rule or generalization. The same fundamental problem will emerge when transcendence is to be mediated through teaching this “simple” concept as a rule or generalisation.

Furthermore, this description is obviously not the full story. “Front” as a specific place in the space around something, does not indicate exactly where front is except when front is described as one place in space around something, *only when all the other places around that thing is already known*. In better conceptual language “front” is a specific position in space relative to an object and in relation to all the other places in space around the object. This places mediation in a crucial dilemma because, according to the latter description, “all the other places around something” (like back, top, bottom, side) need to be known and understood before “front” can be known and understood. This is a clear Catch 22 situation.

But it becomes even more complicated. “Front” may be determined by the object itself (its position in space), or by an observer of the object (its relation in space) or by the relationship between two or more objects, i.e. a row of objects – which complicates it even more. The row of objects may be considered head-on or from the side - then an entirely new set of determinants for “front” come into play, regardless of any of the previous ones. When objects also consist of an interior and an exterior, i.e. like a building, further complications are added. A building, like a hall, might have a “front” and a “back” on the exterior, but as soon as one enters such a building from the “front”, you find yourself actually (and usually)

at the “back” of the hall, facing the stage in “front” which is directed to the “back” where you are standing facing the “front”.

But “person” or “people” can also replace “object”. Then an entirely new set of criteria and determinants come into play and everything that was said previously about “objects” has to be reconsidered now, and complications increase. In addition, although a person is normally regarded as someone who possesses a natural “front”, his/her “back” may also be regarded as “front” when an observer refers to a person standing with his or her “back” towards the observer with an object between the observer and the person.

From this “simple” example, it should be obvious that MLE through such a (“deterministic”) process as described here, is not only virtually impossible, but may even be dangerously counterproductive (Claxton, 1999) and a hindrance to cognitive modifiability (Slabbert, 1997). The question is therefore: What represents adequate MLE?

#### The Question of Adequate MLE

After reviewing many decades of research in MLE, Tzuriel (1999) also wrestles with the question of adequacy when, referring to MLE interactions, he asks the question: When does quantity become quality? Of course, the question of adequacy cannot be answered through such a distinction between quality and quantity of MLE interactions. It can only be answered in terms of what the outcome of interactions should be. According to Feuerstein, Rand and Hoffman (1979), adequate MLE help learners to internalise learning mechanisms. Internalised MLE will therefore help the learner to use them independently later on in diverse contexts by means of self-mediation or learning-how-to-learn (Tzuriel, 1999). This is characterised by “how to gather information they need in order to solve a problem, how to organise information so that they will become generators of new information, creative organizers and skilful modifiers of their environment” (Feuerstein, Rand & Rynders, 1988, p. 46).

Learning-how-to-learn or meta-learning will only be internalised if it is experienced as something that enhances maximising of the entire human potential (Slabbert, 1997). The obvious question is how is this internalisation achieved?

#### Requirements for Internalization

Internalization is freely mentioned in SCM and MLE, but exactly how this is achieved is not explicated. I will maintain that this is of crucial importance if MLE is to be improved. It is not the quality or the quantity of the MLE interactions that matter. “It is rather *how* we interact with the child that characterises MLE” (Feuerstein, Rand & Rynders, 1988, p. 59).

This means that there are requirements for the interaction to be successful (Slabbert, 1997). The desire to solve this problem is very well expressed by Tzuriel (1999) after he reviewed the research over a number of decades and proposed the directions for future research when he says: “What other ingredients are required to catalyse the mediation process?” (p. 36).

#### What is the Context Requirement?

When the active modification approach is compared with the passive acceptance approach, the latter is criticised as being “devoid of novelty and lacking in innovation” (Feuerstein, Rand & Rynders, 1988, p. 20) and that such conditions “do not attain the desired goals and are frequently counterproductive because they are continuously made obsolete by encounters with the requirements of real life”. (Feuerstein, Rand & Rynders, 1988, p. 11). Some very important research findings were that mediation during free-play, which depicts real life situations in its more ambiguous and undefined character, elicited a 5 times higher mediation for meaning than regulation of behaviour. It seems therefore that real life situations inherently demand more vigilance from learners (Tzuriel, 1999). Klein (1996) also found the mediation in real life situations by Ethiopian mothers as crucial for effective SCM. In reviewing research, Tzuriel (1999) finally calls for natural conditions (real life) in future

research rather than the unnatural laboratory - and semi-natural conditions normally used in studies.

Why is the real life context so important? My own research has revealed the answer to this question very clearly: education has become completely detached and artificial to learners and they find it meaningless.

Our research shows that, of all the places that teenagers prefer, the school is the one place where they least wish to be. Moreover, when they are in school, the classroom is the one place they strongly wish to avoid. They far prefer the cafeteria, the library, or the hallways (Csikszentmihalyi, 1991, p. 48).

The reason for this preference is obvious: in these places can they can at least conduct and discuss real life in a way that is most meaningful to them.

It is only when the learners experience the impact of education as a personal and direct improvement of their lives, that learning is meaningful to them. It is the meaningful personal involvement that has direct bearing on their lives that secures the appropriate internalisation of events (Slabbert, 1997).

### The Problem of Transfer

Only if appropriate internalisation is secured will transfer be possible. It is well known that the brain is a self-regulatory system and cognitive changes are therefore conceived as self-perpetuating, autonomous, and self-regulatory. (Tzuriel, 1999). In MLE, transfer seems to be an implicit assumption, but research has shown that “the particular wrapping in which a learning task appears may alter dramatically how, and how well people go about it, and what attributes they consequently appear to possess” (Claxton, 1999, p. 199).

What is the most ideal wrapping for a learning task, one might ask? Research has again slashed conventional educational mediation because it was found that “even those who do well in conventional examinations can display an alarming lack of common sense when

asked to use those skills in out of school contexts” (Claxton, 1999, p. 275). The reason is two-fold: traditional teaching methods, regardless of the explicit content, are not building the learning requirements that the real world requires. Secondly, if a learner knows how to do something, it cannot be assumed that he or she can also do it. Two completely different areas in the brain occupy “Knowing how” and “doing” and its link is not a simple causal canal from knowing to doing. The neural connections are operating in the exact opposite way than assumed, namely through the experience of the doing (Claxton, 1999).

The wrapping of learning tasks in traditional education, is in the form of analytical problems that is suitable for test construction and they tend to (a) have been formulated by other people, (b) be clearly defined, (c) come with all the information to solve them, (d) have only a single right answer which can be reached by only a single method, (e) disembodied from ordinary experience, and (f) have little or no intrinsic interest. But the wrapping that is ideal is found in practical real life problems that tend to (a) require problem recognition and formulation, (b) be poorly defined, (c) require information seeking, (d) have various acceptable solutions, (e) be embedded in and require everyday experience, and (f) require motivation and personal involvement (Claxton, 1999).

Both internalisation and transfer require the relevance of real life context (Slabbert, 1997). Relevance - learning not only what and how, but also when, where and why – is not (and should never simply be) magically “given”; “it has to be discovered, and is often only gradually realised as a result of further [real life] experience and reflection” (Claxton, 1999, p. 12). In fact, the discovery of relevance through internalisation and transfer is the vehicle for the mediation of transcendence. That is probably why Feuerstein, Rand and Rynders (1998) regard transcendence as the most humanising and the most powerful predictor of change (TzurieI, 1999). Change is the ultimate aim of MLE.

What is the Prerequisite for Change?

What is the prerequisite for change to take place? Change will take place only when disequilibrium that exists or is created, is so uncomfortable that the need to equalise the situation becomes overpowering. The learning task, through its novelty and complexity, should therefore require the learner to exceed his or her present capability and capacity. It has already been established that this novelty and complexity has to be wrapped in a challenging practical real life problem to be solved by the learners themselves. Only this kind of challenge will ensure not only learning, but also human potential to be maximised (Slabbert, 1997).

But this is probably the most crucial, and at the same time, the most controversial requirement for MLE. It means that even challenged learners have to be challenged above their ability. Furthermore, when the learners are struggling with the problem, it should not be “watered down” to accommodate the learner’s current capacity because that will render it “uninteresting and meaningless from the standpoint of learning”. (Feuerstein, Rand & Rynders, 1988, p. 81). This leaves the mediator with a grave dilemma because the moment he or she intervenes/mediates in a manner that the stimulus itself is tampered with or modified, the following might happen: (a) the stimulus is removed from its context and internalisation remains superficial and meaningless, (b) the stimulus might not be contextually “true” and therefore transfer becomes problematic, and (c) the challenge of the task is reduced with the consequent sacrifice of change.

In this regard, it is more accurate to say that the mediator has to bring the learner closer to the stimulus, rather than the stimulus closer to the learner because the degree of challenge has to be maintained above the ability of the learner to have the eventual effect of the learner becoming self-directed in this regard, because “an individual will seek out a new challenge

only if, after having struggled in order to reach some degree of competency, he is enticed to pursue greater achievements” (Feuerstein, Rand & Rynders, 1988, p. 79-80).

Mediation of feelings of competence is very closely related to this requirement of change. An optimal degree of novelty, complexity and challenge in a problem is required to feel competent (Feuerstein, Rand & Rynders, 1988). Feedback as mediation strategy should be provided “not only to successful solutions but also partially successful performances and for attempts at mastery” (Tzuriel, 1999, p. 4). “In many cases it will even require mediating the right to fail temporarily, as a way to reach out to higher levels of functioning”. (Feuerstein, Rand & Rynders, 1988, p. 80). This is in accordance with Claxton (1999) who says: “Interpretations of success and failure in terms of ‘ability’ need to be replaced with encouragement for sustained engagement” (p. 34).

But even more controversial is the fact that even challenged learners need to be confronted by potentially “dangerous” psychological and emotional situations like death and other traumas. A concerned father protected his autistic daughter from her mother’s death, “But this protection, ...deprived her of the vital opportunity to learn to experience sadness and grief, as well as joy and happiness”. (Feuerstein, Rand & Rynders, 1988, p. 77).

Not only is this last remark significant in terms of the necessary and sufficient risks that mediators need to take, but it is also the epitome that challenges are only really meaningful if they are problems in real life context that need to be solved (Slabbert, 1997).

### The Essential Foundation of Learning

After reviewing the research in SCM through MLE during the last three decades, Tzuriel (1999) comes to the conclusion that very important prerequisite factors for determining the required nature of MLE, have not been taken into consideration. He therefore calls on future research to consider a more ecological, transactional model where MLE is only one component within a holistic framework, which includes the most important

affective–motivational factors. In this regard, it is important to take a closer look at some remarks made about SCM in the literature.

The *structure* in SCM refers to the psychological structure of a learner that consists of many elements and as a structure is also linked with a variety of other structures in the learner. The psychological structure functions as a whole and tends to change. This will also influence other structures it is linked to. In addition, “Structural modifiability does not, however, limit itself to the *cognitive* area but aims to affect other subsystems of the individual’s personality as well.” (Feuerstein, Rand & Rynders, 1988, p. 11). “*Modifiability* relates essentially to alterations that have occurred in the individual himself, his personality traits, his thinking ability and capacity, and his general level of competence” (Feuerstein, Rand & Rynders, 1988, p. 7) This identifies SCM already as a holistic, ecological endeavour.

But most importantly are two other crucial remarks: “Owing to its energetic components, the psychological structure tends to act in a self-regulating and self-perpetuating way”. (Feuerstein, Rand & Rynders, 1988, p. 10). And: “The self-regulatory aspects of the psychological structure refer mainly to the amount of energy needed to activate the structure.” (Feuerstein, Rand & Rynders, 1988, p.11).

The importance of these two quotes lie in the fact that, if the structure is to be changed, it first needs energy to activate this change and to maintain a changed action before it will be able to carry on with its changed action in a self-regulating and self-perpetuating way. The obvious question is: What exactly is this energy and where and how is it to be generated, accessed and used?

I believe that the answer to this question is directly related to the prerequisite affective-motivational factors. Learning (or modification) will not take place – even with all the cognitive skills available – without the generators that provide the power and the energy it

requires. Therefore, although learning requires cognitive skills, it is fundamentally an emotional endeavour (Slabbert, 1997; Claxton, 1999).

Similarly, although learning facilitation aims at learners modifying their cognitive ability, it fundamentally operates on an emotional level. To have the learners experience learning as meaningful, the facilitator of learning exposes learners to challenging and complex real life problems that the learners have to solve themselves. It is with the design of such learning tasks that the facilitator of learning has to be a skilful actor who is able to transform even possible harmful events into the most effective learning experiences (Slabbert, 1997). Rather than mediating between the stimulus and the learner, bringing the stimulus closer to the learner, the facilitator of learning skilfully becomes part of the stimulus, enticing, eliciting, evoking and even provoking learners and wooing them to come nearer and get engaged with the stimulus. Without revealing any secrets that lie within the stimulus, the facilitator of learning causes the ignition of the three power generators of learning. This supplies the energy through which learning can take place (Claxton, 1999).

The first generator is resilience. The learner when being challenged with increased novelty and complexity accesses this generator. The energy itself is generated by the emotions of uncertainty, doubts, confusion, frustration, surprise, disappointment, apprehension, failure, and setback. The energy is used when the learner tolerates these emotions because he or she realises that the facilitator of learning, as a significant other, has put enough trust in him/her that he or she will be able to solve the problem. Consequent actions from the facilitator of learning ensures that the generator keeps on running when he or she basically entices, evokes, elicits learners to look closer, better, more acutely, deeper, wider, more nuance, etc. to continually disturb the balance and stir up the emotions until a relation between novelty and complexity is discovered in detecting a relative familiarity. This remains an emotional challenge and risk from the part of the facilitator of learning. But

the learners will also experience other emotions like fascination, absorption, exhilaration, awe and relief especially when success is achieved and these emotions will consequently ignite this and also the other generators in a consecutive learning endeavour.

The second generator is resourcefulness. The learner needs to enable his resources. The learner accesses this generator when he or she is immersed into a challenging real life problem. Immersion is the natural learning ability of the brain and therefore the resource of natural cognitive modifiability. This is also the input resource. Language is the second resource. It is accessed when description of experience is demanded. This also provides the basis for the next resource namely intellect when explanation of the experience is demanded. Language and intellect are the resources of elaboration and also expression or output. This also opens up the door to another resource and that is cooperation. Tzuriel and Kaufman (1999) also emphasize the importance of learning as a collaborative enterprise. A fifth resource is most severely neglected, and that is intuition. Intuition is one of the most valuable resources for learning because it does not require long and hard thinking, but may supply an instant solution. Of course a facilitator of learning has to be able to discern between guessing and intuition. That is why the actions of the facilitator of learning to ignite this generator is a continuous request to observe, describe observations, give explanations for observations and to “re-observe” to improve on the previous attempt, until the best possible result is obtained.

The third and last generator is reflection. Learners need to become strategic. They need to be able to take full control over their own learning, becoming Meta learners. The learner accesses this generator when he or she is challenged to solve the problem individually and on his or her own with no help from someone else. The actions of the facilitator of learning to ignite the reflection generator are basically to ask the Meta learning questions. They are questions that a Meta learner should ask himself or herself all the time. The way in which transfer of the questions to the learner is being acquired is that the facilitator of

learning asks the question, but does not wait for an answer. This leaves the learner actually asking the question to him or herself. The facilitator will of course go back a little while later to check the answer. They are questions like “How would you go about doing this?” (Planning); “What are you doing?” (Executing); “Why are you doing it” (monitoring); “Is this the best/only answer? (Assessing).

### Conclusion

The actions of the facilitator of learning therefore need to ignite the generators of the powerhouse of learning for the learners to access and use the energy available to maximise their potential. A carefully designed learning task as a challenging real life problem to be solved by the learners themselves, which are facilitated through the ignition of the power generators of learning, will indeed constitute an ecological, transactional model for MLE within a holistic framework in which the affective-motivational factors are effectively integrated.

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