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Effect of Computer-Assisted Instruction on Secondary School Students' Achievement in Ecological Concepts

Egbunonu Roseline Nkemdilim*

Federal College of Education (Technical), Umuze, Nigeria

Sam O.C. Okeke**

Nnamdi Azikiwe University, Nigeria

Abstract

This study investigated the effects of computer-assisted instruction (CAI) on students' achievement in ecological concepts. Quasi-experimental design, specifically the pre-test post test non-equivalent control group design was adopted. The sample consisted of sixty-six (66) senior secondary year two (SS II) biology students, drawn from two randomly selected co-educational secondary schools in Aguata education zone of Anambra State, Nigeria. Two research questions and two hypotheses guided the study. Treatment consisted of teaching ecological concepts to the experimental group using CAI while the control group was taught using modified lecture method (MLM). Biology Achievement Test on Ecology (BATEC) was the instrument used for data collection. Mean and standard deviation were used to answer the research questions while ANCOVA was used to test the null hypothesis at 50% confidence level. Results revealed that: students' taught using CAI performed significantly better than those taught using MLM; though there was a difference in the mean achievement of male and female in both the experimental and control groups which was in favor of the males, the difference was not significant. Based on the findings of this study the use of CAI was recommended for enhancement of secondary school students' achievement in ecological concepts and other abstract concepts in science.

Keywords: Computer-assisted instruction, students' achievement, ecological concepts

* Egbunonu Roseline Nkemdilim is a Ph.D student at the Department of Biology Education, Federal College of Education (Technical), Umuze Anambra State

** Sam O.C. Okeke is a professor at the Department of Science Education in Nnamdi Azikiwe University, Awka Anambra State

Correspondence: roselineegbunonu@yahoo.com

Introduction

Ecology is one of the branches of biology that deals with the study of plants and animals in relation to their environment. Ige (2001) conceptualized it as a subject that provides knowledge and understanding of the mechanism of change brought about by the interaction of the living things and its effects on their external environment. Ecology also gives us the basis for predicting, preventing and remedying pollution. It helps us to understand the likely consequences of massive environmental intervention, like in the construction of dams or diversion of rivers and difficulties arising from the stress of modern day life.

Despite the importance of ecology in national development available records from the West African Examination Council (WAEC, 2003 & 2007) on senior secondary school students' achievement in biology was very poor because of poor grasp of ecological concepts. According to WAEC Chief Examiners reports, in 2003, students were asked in ecology to state five important uses of water to organism in the rainforest. In stating the uses, most candidates wrote on the uses of water to man example cooking, drinking etc. Rather than necessary for photosynthesis, essential for plant turgidity ,maintaining body temperature. Also in 2007 WAEC question, biology students were asked to describe three ways each by which animals in Arid habitat are adapted to drought and high temperature. The Chief Examiner report shows that students wrote wrong answers.

The National Policy of Education (FRN, 2004) states that no educational system can rise above the quality of its teachers. In line with the above, Besong and Obo (2003) observed that the method adopted by the teacher may promote or hinder learning. Some authors including Ali (1998) had stressed that the main cause of poor achievement in science in Nigeria results from the application of ineffective methods in science teaching, among other factors. Shymanasky (1992) also observed that one problem long recognized with traditional science teaching is the lack of integration of content and pedagogical components, as teachers too easily get caught up in "covering" material and degenerate to lecturing or to getting ideas "across". According to Esomonu (1998) there should be continuous interaction between the teacher and the pupils during lecture method so as minimize boredom. In line with the above, the researchers used modified lecture method (MLM) in teaching the control group during this study. MLM involved the use of examples, instructional materials, illustrations, demonstration and clarification of concepts. To address the unhealthy situation of poor achievement in science, research is constantly providing new methods for educators to use, and technology has developed many kinds of tools ideally suited for instructional needs. Examples include: the use of inquiry, process-based approaches, analogy and cooperative learning (Egbunonu, 2012). All these methods mentioned above have been found in the past to improve students' achievement in sciences, yet students continue to record poor performance in ecology. This poor achievement rate calls for better methods of teaching and learning. However, in this age of ICT research attention has turned to ways of bringing computers into teaching and learning in science classrooms. According to Egbunonu the introduction of computer has brought less waste and new applications in almost every field. Currently its greatest use in education is computer-Assisted Instruction (CAI) which according to Umaru (2003), Ojeme and Umendu (2004) is "a program of instructional materials presented by means of a computer or computer system. Similarly, Onyemechara (2007) and Onuba (2001) described CAI as the use of computer to store a vast amount of materials and to present them in various audio-visual modes to students. In computer-assisted instruction, the material to be learned is programmed into computer software. The teacher inserts the software into the computer for individualized study or divides students into groups for instruction (Olibie, 2002). The computer then presents the materials to the students in a variety of formats including sound, text and video with ample grammatical rules and exercises. As the students tackle such exercise the computer points out their errors to them and offers suggestions for help. It is the type of teaching in which the computer acts as tutor to the students. In line with the above statement, Onyemechara (2007) said that computer programs are interactive and can illustrate a concept through attractive animation, sound and demonstration. They allow students to progress at their own pace and work individually or solve problems in group. Computers provide immediate feedback. The computer

“talk” to the students by displaying messages on the screen and the students “talks” to the computer by typing his/her message through the keyboard. If the answer is not correct, the program shows the student how to correctly answer the question. This is only possible, according to Akuneme (2004) if the student has a prior knowledge of how to operate a computer so that it can display a particular subject matter and offers his/her tutorials on it.

A number of authors have identified gender as a significant factor responsible for differential achievement in the sciences among students. Papert (1992) in his work title “mind-storms: Children, computer and powerful ideas” suggested that males and females are every likely to respond differentially to computer-assisted instruction. But Wright (1993) argued against the speculations of Papert and stressed that since computer programmes lack specific gender attributes it would be very unlikely that male and female learners will vary in their response to computer assisted instructions. These arguments about the efficacy of CAI tend to generate some doubts as to whether it should be recommended for use in secondary schools or not. Before adequate recommendations on the appropriate model to be adopted for instruction will be made, there ought to be evidence of empirical research on the effect of the model on the achievement of the learner.

Some studies which tested the contention of the facilitative effect of CAI have produced positive findings. For instance, in engaging a sample of senior secondary two (SS II) students, Onyemechara (2007) found that the experimental classes which received instruction using CAI demonstrated superiority over control group in the post-test scores in mathematics. Kinzie, Larsen, Burch and Boker (1996) also found that CAI improved significantly biology students’ achievement on frog dissection.

Empirical review as presented in this work indicates that a lot of research have been carried out on the effect of CAI in teachings science in recent times, but not much findings have been recorded in biology in general and ecology in particular. The paucity of CAI research finding in biology may be as a result of large number of students offering the course in secondary schools compared to the number of computers in the schools (Egbunonu, 2012). More so, there are a number of inconsistencies in the findings of the researchers, some reported that CAI enhanced achievements while others reported that CAI had no effect (Olikeze, 1999). No wonder, Holl (2011) advocated more research on the effect of CAI upon which to base firm conclusions about its advantages and disadvantages. This may be because; there are still many variables to be examined to ensure that the advantages of CAI more compared with its disadvantages. Hence, there is need to find out the effects of CAI on students achievement in ecological concepts.

Research Questions

The following research questions guided the study

1. What is the difference in the mean achievement scores of students taught ecological concepts using CAI and those taught using modified lecture method (MLM)?
2. What are the comparative effects of the teaching methods (CAI and MLM) on the mean achievement scores of male and female biology students in ecological concepts?

Hypotheses

Two null hypotheses guided the study

1. There is no significant differences ($P < 0.05$) in the mean achievement scores of biology students taught ecological concepts using CAI and those taught using MLM.
2. There are no significant difference ($P < 0.05$) in the mean achievement scores of male and female biology students taught ecological concepts with CAI and those taught using MLM.

Methods

The design of the study is quasi experimental, specifically, the pretest, post test non equivalent control group design. This design was used because intact classes were used since it was not convenient to randomly assign the students to experimental and control conditions. The sample for the study consists of sixty-six (66) senior secondary year two (SS II) biology students from two schools randomly sampled from twenty-seven (27) co-educational secondary schools in Aguata Education zone of Anambra State, Nigeria. Using flip of a coin one of the schools were chosen as the experimental group and the other, the control group. The experimental group had intact class size of 14 males and 18 females (N = 32) while the control group had 14 males and 20 females (N = 34). All the students in each of the two intact classes were used for the study.

Instrument

The only instrument for the study was a Biology Achievement Test on Ecological concepts (BATEC). BATEC is a 50 item, 5-option multiple choice objective test developed by the researchers based on two units in ecology (Ecology of population and ecological management) taught. A test blue print was developed based on the relative emphasis on each of the curriculum (appendix 1 refer). Out of the initial 55 items, 50 items were found suitable in terms of discrimination and item difficulty indices after careful items analysis. A reliability coefficient of 0.91 was established using Pearson product moment correlation technique.

Development of the programmed Instruction in Ecology (PIE)

The PIE was developed by the researchers, with the help of an expert in computer programming. Visual Basic language was used in writing the programmed instruction which was based on the validated lesson plans developed by the researchers.

Procedure

The experiment was conducted by the researchers while other regular classroom teachers observed what was going on. The researchers must teach the experimental group alone because of their wealth of experience in CAI. More so, biology teachers consider Ecology concepts difficult to teach (Okebukola, 2005). It may be very cumbersome for teachers to battle with how to teach ecology and how to deal with CAI which they may know little about how to implement. The researchers therefore had to teach both experimental group and control group to ensure uniformity. BATEC was administrated as pre-test to experimental and control groups before treatment commenced. The experimental group was taught using CAI while the control group was taught using MLM. (The teaching last for six weeks using the normal school timetable)

At the end of the six weeks set out for the study, the same test was administered on both the experimental and control groups as post-test. The scripts were collected, marked and scored using marking scheme prepared by the researchers.

Results

Mean and standard deviation scores of students achievement in BATEC were used to answer the research questions (Table 2 and 3) while Analysis of covariance (ANCOVA) was used to test the hypotheses at $P < 0.50$. Pre-test scores were used as covariates, thus serving to adjust for the initial differences between and within groups (Table 4).

Table 2. Mean (x) and Standard Deviation (SD) of students' overall post-treatment achievement score due to teaching methods

Group	N	X	SD
Experimental group (CAI)	32	54.44	10.75
Control group (MLM)	34	42.35	13.52

The result as presented in table 2 showed that there was a remarkable difference between the post-test scores of students exposed to CAI (experimental group) and post-test scores of those exposed to CAI (Control group) in favor of CAI. This means that students taught ecological concepts using CAI approach scored higher than those taught the same concepts using MLM.

Table 3. Mean (x) and Standard Deviation (SD) scores of students' post treatment achievement score due to Teaching Methods and Gender

Teaching Method	Statistics	Gender	
		Male	Female
CAI	X	55.71	53.44
	SD	9.67	11.70
	N	14	18
MLM	X	44.14	41.10
	SD	14.39	13.09
	N	14	20

The results as presented in table 3 revealed that the mean scores of male students taught using CAI was slightly higher than the mean scores of their female counter part and also higher than the mean scores of male and female students taught using MLM.

Table 4. Summary of Analysis of Covariance (ANCOVA) of students' overall Achievement score by Teaching Methods and Gender

Source	Sum of squares	DF	Mean Squares	f-cal	f-crit	Sign	Decision	Remark
Corrected model	6868.422	8	85.8533	9.505		0.000		
Intercept	11.417	1	11.417	0.126		0.724		
Pretest	103.168	1	103.168	1.142		0.290		
Methods	686.484	1	686.484	7.600	3.92	0.008	S	Reject H0:1
Gender	165.078	1	165.078	1.828	3.92	0.182	NS	Accept Ho:2
Error	5148.608	57						
Total	165428.00	66						
Corrected Total	12017.030	65						

The ANCOVA of students' overall achievement scores presented on table 4. show that the effect of CAI in teaching ecological concepts was significant at $P < 0.05$. The f-calculated was 7.60 against a critical value of 3.92 at 1 degree of freedom for numerator and 66 degree of freedom for denominator at the 0.05 level of significance. Since the calculated f-value (7.60) exceeded the critical value (3.92), the null hypothesis of no significant difference is rejected. Therefore it was concluded

that there is a significant difference in the mean achievement scores of biology students' taught ecological concepts using CAI and those taught using MLM.

Table 4 further revealed that, there is no significant difference due to gender on students' achievement in the ecological units understudy. The calculated f-value is 1.83, as against the critical value of 3.92 at 1 degree of freedom for numerator and 66 degree of freedom for denominator at 0.05 level of significance. Therefore gender (male and female) is not a significant factor in students' achievement.

Discussion and Conclusion

The study shows that CAI had significant effect on biology students' achievement in ecological concepts. The students taught using CAI performed better than those taught using MLM. This finding were in line with those of Kinzie, Larsen, Burch and (1996) and Onyemechara (2007) who observed that the use of CAI improves students' achievement greatly. This superiority of CAI over MLM could be explained by the fact that CAI provided the students opportunity of going through the Programmed Instruction (PIE) at their pace and more than once in most cases. Again, the idea of self-evaluation and remedial activities provided by CAI could have helped the students to master the concepts without difficulty better than the control group.

Though there was a difference in the mean achievement of male and female students in favor of the male in both the experimental and control groups, the difference was not statistically significant. This present findings were in agreement with Olikeze's (1999), Imoko and Usman's (2008) and Onyemechara's (2007) findings that there is no significant difference in science achievement between male and female students taught with CAI.

From the findings of this study, we can conclude that CAI is more effective in improving students' mean achievement score in ecological concepts than the use of modified lecture method. This approach too does not discriminate between male and female students rather it appears to guarantee a learning experience that will be beneficial to all.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. Biology teachers in Nigerian secondary school should incorporate CAI as one of the methods used in teaching difficult concepts in biology
2. The government should utilize the services of various bodies like the science teachers Association of Nigeria (STAN), Nigeria Union of Teachers (NUT) and others to organize seminars, workshops and conferences to inform and train biology teachers and other science teachers on the use of CAI in teaching and learning
3. Teacher education programmes should include computer literacy programmes in biology method course content. This will ensure that the biology teachers are adequately trained on how to use CAI in teaching and learning.
4. Ministries of Education, both state and federal, should sponsor teachers to attend in-service course on the necessary ICT tools for teaching and learning. This is to make the teachers computer literate and to help them master the operation principles of CAI.
5. Government of Nigeria should provide adequate number of computers in schools, provide standby electricity generating sets and provide standard computer software in different topics of biology

(especially on difficulty concepts) to as many schools as possible. This will encourage teachers and students to make maximum use of the computer systems available in schools.

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An Example Of Creative Drama Implementation In Values Education: Mevlana's Global Messages "Love-Respect-Tolerance"

Nadire Emel Akhan*

Akdeniz University, Turkey

Ali Altıkulaç**

Gazi University, Turkey

Abstract

This study aims to discover how social studies teachers' personal and professional values can be improved by having a basis in Mevlana's global messages "love-respect-tolerance" in terms of "Personal and Professional Values- Professional Development", which is the first component of general efficacies of teaching profession. The sample of the study consists of a total of 16 classroom teachers teaching 4th and 5th grade students and social studies teachers working in Ankara. Prior to the implementation phase, the values that are aimed to be taught by social studies teachers were found out. In line with these values, three common values which matched most with Mevlana's global messages and "Personal and Professional Values – Professional Development", which is the first component of general efficacies of teaching profession, were chosen. After these three values were defined as "love-respect-tolerance", a set of creative drama sessions, all of which were developed by the researchers, was planned. Creative drama activity was completely consisted of Mevlana's doctrines and had 4 sessions, each of which was 2 hours. The data was gathered through observation, interview and document analysis. Content analysis was applied. According to the findings of the study, teachers expressed that creative drama was an effective method in teaching values. It is possible to say that the creative drama method contributes positively to the development of teachers' personal and professional values.

Key Words: Values education, professional development, love, respect, tolerance

* Nadire Emel Akhan is assistant professor of Social Studies Teaching at department of Elementary Education in Akdeniz University, Antalya/Turkey. neakhan@akdeniz.edu.tr

** Ali Altıkulaç is research assistant of Social Studies Teaching Department of Elementary Education in Gazi University, Ankara/Turkey.

Correspondence: neakhan@akdeniz.edu.tr

Introduction

The term “value” can be defined as “the importance or the superlative degree bestowed upon an object, creature or action in terms of psychological, moral, social or aesthetical aspect” (Öncül, 2000: 281). Human-beings are born with their values. Values theory or axiology existed with humans and formed the core of human-life. Ethical concepts like ‘right’ and ‘wrong’, ‘good’ and ‘bad’, ‘virtue’ and ‘fault’ have had an effect on humans’ worldly activities (Sharma, 2003: 23-24). The affective side of human-beings includes structures like feelings, preferences, choices, sentiments, beliefs, hopes, attitudes, admirations, values, morals and ethics (Bacanlı, 1999:9). Then, how do human-beings acquire certain beliefs and gain certain behavioral patterns? Raths (1966) introduced that human-beings gained belief and behavior patterns within the “valuation process” by passing through certain phases. A young individual meets various people who he/she can imitate or take as a model. These are parents, teachers, politicians, movie stars, friends and all others. He/she appreciates positive and negative sides of these people and when it is the right time he/she improves his/her identity (Simon, Hove & Kirschenbaum, 1972: 18-19).

Value is “the thing which directs one’s behaviors, the underlying understanding of our behaviors”; so, it is possible to form a strong character by internalizing the values and showing behaviors appropriate for the values. Old generations express that young people are deprived of certain values like respect, love, responsibility, being loyal to family more (Şen, 2007: 15). It is very important for teachers to be models and pathfinders for students in terms of targeted values. Using educational methods and materials, teachers encourage students in the way of considering alternative behavior and thinking styles. On the other hand, teachers make their students think about whether they reflect their beliefs into their behaviors, and teachers create opportunities for students in order to make their own choices, to evaluate these choices and to form their own values (Simon, Hove & Kirschenbaum, 1972: 20). While today’s teacher is trying to increase academic achievements of his/her students, he/she is also trying to do in class activities on character education which is gaining more importance day by day (Schwartz, 2008: 583).

It was found out in the literature that “values education”, “moral education” and “character education” were substituted for each other or used concurrently many times. But these concepts are different from each other and interpenetrated. The popular name for value acquisition process which appeared as “moral education” and “character education” in the past is “values education” (Keskin, 2008: 22). The main aim of values education is “to give inspirations to individuals to choose their own personal, social, moral and psychological values and to help them find practical methods to deepen these values” (Balçı, 2008: 21- 25).

Although there are not any classes intended for values education at schools, which are social institutions, values can be taught within a hidden program. Because structures like the school’s atmosphere, teachers’ understandings of discipline and their expectations teach values or contribute to students’ values development (cited from Keskin, 2009: 39; Akbaş, 2007). While, on the one hand, teachers try to cope with value conflict of the society they live in, on the other hand, they have to do their best to train the adults of the future. If they are unable to face with their own disparities frankly and indulgently, they have difficulty in helping others do the same (Haydon, 2006: 209). Teachers have a prominent role in an effective values education. All teachers have moral responsibility in order to control students’ behaviors. Teachers should show their students what is good and what is bad in the classroom. While doing this, giving examples, confirming approval or disapproval and explaining by giving reasons are parts of their responsibilities (cited from Akbaş, 2004: 93; Halstead & Taylor, 2000: 174). Teachers, who are role models with all behavior patterns, are a part of their students’ lives. A teacher as a value trainer has to find opportunities and also create these opportunities in the way of helping students complete their moral developments (Suvirananda, 2005: 118). The teacher should treat his/her students with love and respect, be fair, try to correct negative behaviors and avoid some behaviors like favoritism, mocking, leaving somebody in a difficult situation which affect students’ self-confidence and respect badly. Approving students’ positive behaviors and replies, their

atychiphobias should be reduced and it should be indicated that students' opinions are valued by preparing a warm atmosphere for them to put forward their opinions and interests (Üstünyer, 2009: 24).

Teachers are models that draw attention in the classroom not only by being fair but also by being extraordinary. They are the ones who shape the formation and improvement of children's personalities. While the teacher tries to provide "unity" in the class, he/she has to build up respect based on love. The teacher should be an individual who loves the child and his/her profession. It has been determined that teachers who are considerate, open-minded and realistic about their opinions and beliefs support students in being creative, try to improve their feelings of responsibility and increase their interest towards the lesson (Sadık, 1999: 26). Being a role model with perfect behaviors all the time is an ideal which is hard to achieve. Like all other human-beings, teachers make mistakes and have failures. Many elements are effective in teachers' valuation process. "A teacher's knowledge and beliefs are influenced by the immediate contexts of the classroom and the students, the larger contexts of the state and national policies, and the surrounding context of culture and norms." (Hoy, Davis, & Pape, 2006, p.717).

Today, raising qualified individuals has become very important. One of the most prominent roles of raising qualified individuals is that of teachers'. As well as being well-educated, it is also important for teachers to renew themselves. Being innovative will be an important factor in raising qualified people. At this point, the efforts to increase teachers' efficiency are remarkable. A noteworthy study on determining and improving teachers' efficiency conducted by the Ministry of National Education (MONE) General Directorate of Teacher Training and Education is "General Teaching Profession Competencies". The result of this study showed that general components of teaching profession consisted of 6 parts: A-Personal and Professional Values – Professional Development, B-Recognizing the Students, C-Learning and Teaching Process, D-Monitoring and Evaluating the Learning and Development, E-Relations between School, Family and Society, F-Program and Content Knowledge (MONE, 2008).

According to MONE's "General Teaching Profession Competencies" book, teachers regard students as individuals and value them. They expend all their energy for students' learning and development at the highest level taking into account their social and cultural differences. They exhibit personality traits which they want their students to improve. Teachers should be able to be willing, decisive, lively, energetic, creative and aware of the responsibility of improving themselves. They should improve their critical thinking, problem solving and communication skills and aesthetic understanding and use them effectively (MONE, 2008).

According to Akbaş (2004), most of the teachers stated that values education is as important as knowledge, the most important thing for values teaching is living with these values and the media reduces the effect of the school and the teacher and that school subjects are knowledge-based. Nevertheless, most of the teachers expressed that individuals made sense of values in a different way, so there were some problems, they had enough information about values education and enough time for values teaching.

Educationalists emphasized "responsibility, honesty, family values, national and religious values, industriousness, respect-love and values of being a good citizen" regarding the values that should be taught (Üstünyer, 2009: 42). The values included in the Social Studies Teaching Program are: "being fair, tolerance, paying attention to the unity of the family, hospitality, independence, freedom, peace, giving importance to be healthy, being scientific, respect, industriousness, love, solidarity, responsibility, sensitivity, neatness, patriotism, aesthetic and helpfulness".

According to a research by School Curriculum and Assessment Authority, 78% of adults think that teachers are appropriate role models for young people. Moreover, it has been found out that students might be influenced morally by their teacher without noticing and similarly teachers might influence students without paying attention to moral results of what they have done. The indirect

moral effect on children has been spread in their daily school life (in their ordinary teaching activities or incidental interactions etc.). Thanks to interactions, children learn the importance of some certain qualifications like honesty, respect and showing sensitivity for others. Children are mostly affected by their teachers they admire because of their qualifications (İşcan, 2007: 59). Improving teachers' qualifications perceived by their students will be advantageous in terms of values education.

Above all, the teacher should explain what values are to both himself/herself and others. The teacher may have some dilemmas between what he/she believes and what he/she practices. In other words, the teacher could see-saw between theory and practice in terms of values and therefore he/she may not be able to practice educational values he/she has (Ekiz, 2006: 112). Like students, teachers may need to have a role model at the point of practicing the values. History consists of many outstanding characters who can be taken as role models.

All of the people who know Mevlana admire and have a respect for him, although he died more than 700 years ago. Mevlana, who wrote his poetry in Persian but said "Although my poems are in Persian, my origin is Turkish", is a great figure for not only Turkish people but also Islamic World and also whole humanity (Turan et al., 2010: 172). According to Mevlana, a human-being is worthy as long as he/she is virtuous and these virtues should be taught to him/her. According to Mevlana, education helps to reveal positive characters and tendencies and to amend negative characters and tendencies and to change them with positive ones (cited from Turan et al., 2010: 176-177; Yakıt, 2000: 130).

Mevlana, in the first place, considers human-being as the unity of spirit and body, yet he actually emphasizes spiritual aspect. The moral aspect of human-being (Yakıt, 2007: 184) namely the world of thoughts and values is the real aspect of human-being or his/her essence. If there is something we think insufficient, it originates from fallacy. Negative thoughts influence the subconscious and create problems in a person's physical and mental activities (Saygın, 2009: 51).

For Mevlana, human-being is a joiner who saves mortal and eternal, good and bad, divine and human in his/her individuality. Human-being is the fruit of the tree of existence. Mevlana combined the creative power and the essence of the human. The honor and the responsibility, pleasures and troubles of human originate from this combination. The mysticism of Mevlana has never been a philosophical view or imaginary information. While he is explaining an idea, he never refers to analyses or philosophical views. Mevlana tells his moral explanations relevant to folk speech and psychology by narrating stories, giving examples and proverbs (Seyrek, 2005: 51). Teaching by giving examples has been widely used in the Values Education Program. Many thinkers base on such a method while narrating the views of educationalists. Using exemplification as a general method, Mevlana builds his doctrines. He sets up a world using examples (cited from Keskinoglu, 2008: 15; Çiçek: 1996).

The human-being is a creature that has always had a desire to be social since the day he existed in the world. While the personality of a person is only a litmus paper, his/her relationships with others determine its colors or specifications. In other words, stimuli that determine the manners are served to the human-being by means of other people. That the values which are thought to be good or bad exist potentially in nature is expressed by Mevlana as follows:

"The existence of a human is like a forest. If you are aware of this; be careful about this creature!

There are many wolves and pigs in our bodies; clean, dirty, beautiful and ugly, all attributes are all together..." (cited from Küçük, 2010: 534; Mesnevi, v. II, p. 1416-7)

Mevlana is a sufi poet. Conveying feelings efficiently is more important for him than producing thoughts. "Unity" in his poems means that they are only about love; love consists of all his works (Eyuboğlu, 1998: 63). Mevlana believes in the alternative, improving and transforming power of love.

Mevlana relies on the power of education and takes it as something needed. For him, human is born with raw talents. Human can only find out these talents by means of education. He also believes that only a good educationalist meets the educational needs of a human. Mevlana lists the qualifications that an educationalist should have as follows*:

1. An educationalist should have a divine love
2. An educationalist should be a man of heart
3. An educationalist should be maturer
4. An educationalist should be softhearted
5. An educationalist should be enlightening
6. An educationalist should have professional love
7. An educationalist should have professional knowledge
8. An educationalist should be a guide
9. An educationalist should be elevatory
10. An educationalist should be patient
11. An educationalist should be a forgiver

According to Mevlana, the point to be considered most regarding education should be the inner world of human. Because it is the soul which makes the human different from all other things, namely “values”. For him, the right way which takes human from immaturity to maturity is his/her journey in his/her inner world. A human-being who has turned toward his/her inner world could understand the values like love, respect and tolerance in this way. Those who will teach these values to children are teachers after parents. Therefore, teachers should principally understand and internalize these values.

Aim of the study

This study aims to find out how social studies and classroom teachers’ personal and professional values can be improved by having a basis in Mevlana’s global messages “love-respect-tolerance” in terms of “Personal and Professional Values- Professional Development”, which is the first component of general efficacies of teaching profession. The study sought answers to the following general problem questions:

1. What are teachers’ opinions about “love-respect-tolerance” values?
2. What do “love-respect-tolerance” values bring to human?
3. What are teachers’ opinions about teaching “love-respect-tolerance” values to primary and secondary school students?
4. What are the ways of making students acquire “love-respect-tolerance” values according to teachers?
5. How were teachers’ opinions about “love-respect-tolerance” values affected after the activity?
6. How did teachers evaluate themselves after the activity?
7. How did teachers evaluate the activity?

* (cited from Özdemir, 2011; (1) Mevlana, *Divan-ı Kebir*, V. 1, p. 274-77, V. 5, p. 2731, p. 4945, V. 6, p. 742, p. 1955. (2) Mevlana, *Divan-ı Kebir*, V. 1, p. 167-172, V. 5, p. 6318, V. 6, p. 273-74; *Mesnevi*, V. 4, b. 3311. (3) Mevlana, *Divan-ı Kebir*, V. 1, p. 122-29, V. 3, p. 3512. (4) Mevlana, *Divan-ı Kebir*, V. 1, p. 62-70, V. 4, p. 3532. (5) Mevlana, *Divan-ı Kebir*, V. 1, p. 1351-54, V. 2, p. 639-43, V. 5, p. 4839. (6) Mevlana, *Divan-ı Kebir*, V. 2, p. 102, V. 3, p. 317-23, V. 5, p. 3154-60. (7) Mevlana, *Mesnevi*, V. 1, p. 334, V. 2, p. 3169, Tahirü'l Mevlevi, *Şerh-i Mesnevi*, V. 10, p. 9588. (8) Mevlana, *Divan-ı Kebir*, V. 2, p. 189-99, p. 655, V. 5, p. 4300-3, *Mesnevi*, V. 3, p. 588. (9) Mevlana, *Divan-ı Kebir*, V. 1, p. 246-47, V. 2, p. 3300-1, V. 4, p. 191. (10) Mevlana, *Mesnevi*, V. 3, p. 1854, V. 4, p. 771, V. 6, p. 1409, p. 2041, *Divan-ı Kebir*, V. 6, p. 1968. (11) Mevlana, *Divan-ı Kebir*, V. 3, p. 2500-1, V. 5, p. 4713, V. 6, p. 1319.)

Method

This study was designed as an action-research. Action-research is a research process to understand or improve the quality of instruction or action in school or classroom environment. Action-research is used for getting information about several educational issues and developing applications (Yıldırım & Şimşek, 2006).

The action research method was used in this study. This method is an approach which includes gathering and analyzing systematical data intended for finding out the problems regarding application process or understanding or finding a solution for an existing problem and which is conducted directly by the researcher himself or with the help of another researcher. This approach helps practitioner get new information, talents and experiences and develop a new critical viewpoint towards his/her application (Yıldırım & Şimşek, 2006).

Implementation Process

Values education has always existed through the history of education. But, today problems caused by social life have shown that value education should be paid more attention in primary education especially in social studies classes. As well as families, schools, especially teachers have crucial responsibility regarding values education, because students take their teachers as role models particularly in primary school education. Therefore, teachers should be models with their behaviors, their relationships with other teachers and directors or shortly with their in class behaviors and out of class relationships. For that reason, an activity including values that social studies lesson in primary education aimed at and that contributed to teachers' personal and professional values and that showed alternatives to the teachers of primary school students has been designed. So, action research steps were planned and conducted as a set of creative drama sessions, which is an important method in adult teaching.

First of all, the values that are aimed to be taught by social studies teachers were found out during the implementation period. In line with these values, three common values which matched most with Mevlana's global messages and "Personal and Professional Values – Professional Development", which is the first component of general efficacies of teaching profession, were chosen. After these three values were defined as "love-respect-tolerance", creative drama sessions all of which were developed by researchers and controlled by two social studies teaching experts studied drama teaching and other field experts were planned. Creative drama activity was entirely composed of Mevlana's doctrines and had 4 sessions each of which was 2 hours. Sessions were planned as 50 minutes of implementation and 10 minutes of break and there were 2 sessions in the forenoon and two sessions in the afternoon. The application took place in the meeting hall of a primary school. Teachers working at the school where the research took place and from the schools nearby voluntarily participated in the study. The number of teachers in control group was limited in order to have an ideal number of participants for a creative drama method. Whole process was conducted by the researchers who studied drama before and the process was observed and reported by another researcher.

Summarized content of creative drama sessions including action research steps are:

1st Session (First day morning session): The people who get on well with each other are the ones who didn't have the same language but same emotions

In this session, the aim was fictionalized so that teachers got to know each other and shared their feelings. For that reason, teachers were asked to hang around in an imaginary garden listening to reed flute. That was a garden full of roses and there were 3 trees called *love, respect* and *tolerance*. In fact, all the people in the garden were from different races and believed different religions. Teachers didn't communicate using language but their body language and feelings and inspired from "love, respect and tolerance" trees.

2nd Session (First day morning session): Mirror

Every teacher had a partner. Partners got the names “Peace and Happiness”. The right hand of the person called “Peace” was thought to be a mirror. Peace showed his/her hand like a mirror against his/her partner’s face from a distance. The mirror was called *love*, *respect* and *tolerance* respectively and by the time *happiness* looked at the mirror, he/she reflected those feelings against the mirror.

3rd Session (First day morning session): Dance and Rhythm

Teachers were called *love*, *respect* and *tolerance* respectively. Participants who had the same names formed a group. People in the same group were asked to convey their messages with a certain dance or rhythm. They tried to use proper figures with their bodies and rhythms. At the end of their presentations, they explained the meanings of their figures.

4th Session (First day afternoon session): The Exhibition of Mevlana’s Global Messages

The meeting hall where the sessions took place was designed in secret as an exhibition hall in the afternoon. Written and visual information about Mevlana and Mevlana’s artworks were exhibited. In the middle of exhibition hall, there was person who was playing reed flute and three were three people representing whirling dervishes. Symbols that would help teachers remember the imaginary garden they hanged around in the morning session were used. The walls were prepared with the visual materials of the exhibition. First of all, teachers were taken to a class following to the lunch break and watched a presentation about Mevlana’s doctrines. After the presentation, they were invited to the exhibition accompanied by reed flute music.

5th Session (Second day morning session): World Mevlana Year

The session started with an astonishing fiction. The teachers who participated in this session were told that an authorized person from the Ministry of Culture would make some explanations. The authorized person reminded them that the year 2007 was chosen as World Mevlana Year by UNESCO. He emphasized that the sema ceremony had been added to UNESCO’s list of Intangible Cultural Heritage of Humanity. It was pointed out that foreigners visiting Turkey had been affected by Mevlana’s embracing human-beings with enthusiasm and therefore they made a demand from our country for celebrating World Mevlana Year with a greater organization. It was announced by the Turkish Ministry of Culture that groups from Turkey would be sent to various countries for the celebrations of World Mevlana Year. The teachers were told that they were one of the groups chosen by the Ministry of Culture. The aim of the group was to introduce Mevlana and his global messages ideally through drama. The teachers were divided into four groups. Each group was given a vitalization topic in a closed envelope (“In tolerance be like sea”, “In compassion, grace and love be like sun”, “In generosity and helping others be like a river”, “Either appear as you are, or be as you look” were the starting points put into the envelopes for the groups.)

6th Session (Second day morning session): World Mevlana Year Is Looking for Its Logo

Following the vitalization, the authorized person from the Ministry of Culture asked the groups to prepare a logo which would be used on the souvenirs, visual materials and posters for the 2011 World Mevlana Year organization and be the symbol of that year. They were also asked to write a saying of their own at the top of the logos which was suitable for global messages. It was also expressed that those logos would be sent to the competition “2011 World Mevlana Year Is Looking for Its Logo” held by the Ministry of Culture.

7th Session (Second day afternoon session): From Masnavi to Global Values

The group watched a presentation in which a story from Masnavi called “The Chinese and the Greek Artists” was told. Teachers were divided into groups. The groups were asked to carry out a vitalization related to the main idea of the story appropriate for the global values and to finish it with a saying made up by themselves.

8th Session (Second day afternoon session): What kind of world do you imagine living in?

Teachers were taken to the meeting hall in circle seating order. They were asked “What kind of world do you imagine living in?” with eyes closed accompanying with a music including sounds from nature and they were asked to think about it during music. After the thinking period, teachers were asked to open their eyes. There was a rose in the implementer’s hand. He said that the Tomb of Mevlana was in a rose garden and so it was called with that name and added that the rose in his hand had come from there and the garden they had hung around in the first session was, in fact, the same garden. He handed out the rose one of the teachers saying “The rose which was planted in the soil dies one day but one planted in the hearts would live forever.” The person who took the rose expressed what kind of world he/she wanted to live in and handed out the rose to another teacher. The activity was done after all teachers finished their speeches.

The sample of the study

The sample of the study was selected through typical case sampling and convenience sampling among the purposeful sampling methods of the qualitative research tradition. Purposeful sampling helps to gather detail-rich information about the case or cases in hand (Yıldırım & Şimşek, 2006). The sample of the study consists of 16 teachers (9 females and 7 males) working in Ankara in total some of whom were classroom teachers teaching 4th and 5th grade students and the others were social studies teachers. The implementation and data collection processes were completed during in-service teacher training period of 2010-2011 academic year.

Data collection tool and data analyses

Three different and complementary data collection tools were used before the study. The first one was applied before the activity. Researchers gave teachers a questionnaire form consisting of ten open-ended questions. Other two instruments were used after the implementation to assess the creative drama activity and the teacher himself/herself. Finally, the first questionnaire which had been given before the study was redistributed and participants were asked “What have you changed in that form after the implementation?” and replies for each question were received. The data was gathered through observation, interviewing and document analysis. The data was analyzed by content analyses and presented in frequency tables. Participants’ views were also cited in order to interpret the numbers more clearly.

Findings and Discussions

In this section, the findings and discussions of the study will be addressed. They will be analyzed according to the data achieved in accordance with the sub-problems of the research.

1. What opinions do the teachers have about the values of “love-respect-tolerance”?

Table 1. The values of “love-respect-tolerance” according to the teachers			
Themes	Codes	Teachers repeating	Σ
Love	Need	1B, 4B, 7B, 1E, 6E	5
	Live	2B, 5B, 2E, 3E	4
	Sacrifice	3B, 6B, 4E, 5E	4
	Beauty	8B, 9B	2
	Energy	7E	1
Respect	Courtesy	2B, 3B, 5B, 7B, 8B, 2E, 6E	7
	Kindness	4B, 6B, 9B, 5E, 7E	5
	What needs to be?	1B, 1E, 3E, 4E,	4
Tolerance	Wisdom	2B, 3B, 5B, 7B, 4E, 6E	6
	Peace	1B, 1E, 2E, 3E, 5E	5
	Universality	4B, 6B, 8B	3
	Empathy	9B, 7E	2

Firstly, the teachers were asked about their opinions regarding the values of “love-respect-tolerance”. The teachers in the study group generally explained the value of love (f=5) as “need”, the value of respect (f=7) as “courtesy” and the value of tolerance (f=6) as “wisdom”. According to the findings obtained, it can be said that the teachers in the study group considered especially the value of love as value related to cheerful and positive reflections towards the environment individually. Also it can be said that they considered the values of respect and tolerance as necessary elements to make a healthy communication among people in the societal and universal frameworks.

Some teachers’ opinions about values are as follows: “6E: According to me love is a need. Love is necessary for spiritual well being as basic needs are.”, “7E: Love is a strong energy spreading from people.”, “2B: Respect is a must. It is an indispensable value in our lives.”, “1B: Respect is courtesy. Every person should behave considering respect.”, “4E: Tolerance is wisdom but people reaching real wisdom are mature and they have real tolerance.”, “9B: Tolerance is to show empathy. You have tolerance as long as you show empathy.”

2. According to the teachers what benefits do people gain from the values of “love-respect-tolerance”?

Table 2. According to the teachers the benefits of the values of “love-respect-tolerance” for people			
Themes	Codes	Teachers repeating	Σ
Universal	Happy world	2B, 4B	2
	A World without war	7B	1
			Σ 3
Societal	A good society	3B, 6B	2
	Happy life	1E	1
			Σ 3
	Good personality	1B, 5B, 3E, 6E	4

Individual	Recognition	4E, 5E	2
	Measured person	2E	1
	Conscious person	8B	1
	Sensitive person	7E	1
	popular person	9B	1
Σ			10

When the teachers were asked what benefits the values of “love-respect-tolerance” have for humans, they expressed that these values often bring individual (f=10), societal (f=3) and universal (f=3) benefits to people. According to the findings in Table 2, it can be said that the teachers in the study group expressed the values of love, respect and tolerance contribute to providing people with individually positive characteristics and also that the people having the values in question contribute to their society and even the world in terms of happiness, peace, etc.

Some of the teachers’ opinions about the benefits of “love-respect-tolerance” values to people are as follows: “4B: A peaceful world is built around these values. The people having these values are happy and peaceful in every sense. A happy world becomes if all people come together in accordance with the values of love, respect and tolerance.”, 6B: A good society consists of good people. If we provide people with the values of love-respect and tolerance, they become good people. This also reflects on the society positively.”, “3E: These values can’t be thought to be separate from each other. Love, respect and tolerance are indispensable elements of a good personality.

3. What are the teachers’ opinions about teaching the values of “love-respect-tolerance” to primary school students?

Table 3.
The importance of teaching the values of “love-respect-tolerance” to primary school students

Themes	Codes	Teachers repeating	Σ
Societal	Beneficial	2B, 6B, 7B, 4E	4
	Welfare	3B, 3E, 7E	3
	Desire	6E	1
Σ			8
Personal	Success	1B, 4B, 1E, 2E, 5E	5
	Peace	5B, 9B	2
	Showing character	8B	1
Σ			8

When the teachers’ opinions about teaching the values of “love-respect-tolerance” to the primary school students were asked, teachers often considered the societal benefits (f=8) and personal benefits (f=8) of these values. According to the findings obtained from Table 3, it can be said that the teachers in the study group found it important to teach the values of love, respect and tolerance to the students so that students would be good citizens for their society. It can be said that the teachers gave much importance to teaching the values of love, respect and tolerance to students because the basics of so many personality traits that they will have in the future are set in the primary school ages.

Some teachers' opinions about the importance of teaching the values of "love-respect-tolerance" to students are as follows: "2B: We should teach these values so that students can be useful citizens to the society. Love is necessary for a good society. Respect and tolerance enable good relationships.", "4E: Useful individuals are people who have respect and tolerance for each other. These values complete each other and create useful individuals." "1B: The values of love, respect and tolerance are the values for humanity. Each individual should have these values in the primary school to be successful in the life.", "5E: The values determine the standings of people in their lives. Individuals who internalize these values become successful people in every field in their lives."

4. What are the ways to teach the values of "love-respect-tolerance" to the students according to the teachers?

Table 4.			
The ways to teach the values of "love-respect-tolerance" to the students according to the teachers			
Themes	Codes	Teachers repeating	Σ
Example from the environment	Role Models	2B, 5B, 3E	3
	Nature	1B, 2E, 5E	3
	Life	6E	1
			Σ 7
Example from yourself	By loving	3B, 4B, 4E, 7E	4
	By showing	6B, 9B, 1E	3
	With behaviors	7B, 8B	2
			Σ 9

When the teachers were asked how to teach the value of "love" to the students, they told that they would often try to be role models (f=9) and explain it by giving examples from their immediate surroundings. The findings achieved from Table 4 showed that while teaching the value of love to the students, the teachers used their own behaviors much more and also made use of exemplary people, nature and life. It can be said that the teachers preferred to be a model with their own behaviors in accordance with the principle of from close to distant in order to teach the value of love.

Some teachers' opinions about the way to teach the values of love to the students are as follows: "5B: The value of love should be taught to students with the lives of exemplary personalities. Talking about love will never be more permanent than an effective example.", "3E: Love can be explained by giving examples. The best example is to talk about the people in students' lives or people they can take as role models. In those ages they tend to have role models.", "3B: Love is given only by showing it. If I can't show love as a teacher, how do I teach them love? Firstly, we should approach them with love.", "7E: It is the most effective method to approach them with love and to make them feel that they are loved. While teaching love, firstly I start with my own behaviors to the students."

Table 5.			
The way to teach the values of respect to the students according to the teachers			
Themes	Codes	Teachers repeating	Σ
	Each individual is different	3B, 2E, 3E, 6E	4

Example from the society	Necessity	2B	1
	International	4B	1
			Σ 6
An example from yourself	By showing	1B, 5B, 1E	3
	With my behaviors	9B, 4E, 5E	3
			Σ 6
An example from the family	Mother-father	7B, 7E	2
	Relatives	6B, 8B	2
			Σ 4

When the teachers were asked how to teach the values of respect to the primary school students, the teachers often said that they would explain by giving examples from the society (f=6), by sample behaviors (f=6) and by examples from the family (f=4). The findings achieved from table 5 showed that teachers gave examples from themselves and the society and also touched upon the respect within the family while teaching the values of respect to the students. It is understood that the teachers took the principle of from close to distant into consideration while teaching the value of respect as in the values of love.

Some teachers' opinions about the way to teach the value of respect to the students are as follows: "6E: *Respect is effectively explained with the examples from the communication within the society. I put emphasis on what changes would happen in the society in case of the fact that there was respect or there was no respect.*", "5B: *Respect can be taught with the behaviors within the class. The most effective way will be to show and apply respect rules in the communication within the class. In addition, our relationships in teacher's room and our relationships with the management serve as a model for students, so these relationships should include respect rules.*", "7B: *Respect is firstly learned in the family. The relationships among mother, father and children should include respect rules. In this point the families and school can work in cooperation and can teach respect to children*".

Table 6.
The way to teach the value of tolerance to the students according to the teachers

Themes	Codes	Teachers repeating	Σ
Exemplary people	H.z. Muhammed	7E	1
	Mevlana	2B	1
	Fatih Sultan Mehmet	4E	1
	Yunus Emre	3E	1
			Σ 4
People in communication	Friend	1B, 3B, 4B, 1E, 2E, 6E	6
	Teacher	5B, 7B, 8B, 5E	4
	Family	6B, 9B	2
			Σ 12

When the teachers were asked how to teach the values of "tolerance" to the primary school students, they told that they would often try to explain them by the lives of exemplary people (f=12) and by giving examples of people whom they communicate (f=4). When it is taken into consideration that students mostly communicate with their own friends, it can be said that the teachers preferred to give examples from the students' friends in order to teach tolerance in terms of making the value

concrete and making the students behave accordingly. In addition, it is understood that the teachers believed that giving examples from the people universally recognized was effective in teaching the value of respect.

Some teachers' opinions about the way to teach the value of "tolerance" to the students are as follows: "4E: Tolerance is a value that individuals can learn by a sample personality. The example of Fatih Sultan Mehmet is a good one to teach tolerance in terms of religion. He even gained the admiration of non-muslims because he didn't put pressure on anyone.", "4B: Firstly, I explained the importance of having tolerance in the students' relationships with their friends because our first expectation from the students is having tolerance in both school and class. In this point I give examples about behaving in a tolerant way regarding the differences among their friends and by doing so I explain that both they and their friends will be happy."

5. After the activity how are the teachers' opinions about the values of "love-respect-tolerance affected?"

Table 7. The teachers' opinions about the values following the activity

Themes	Codes	Teachers repeating	Σ
Within the lesson	The power of master people	2B, 4E, 6E	3
	Commitment to the values	3B, 6B	2
	Example for tolerance	7E	1
	Making concrete	1B	1
		Σ	7
Personal development	Express yourself	4B, 9B	2
	Awareness	1E	1
	Recognizing your friends	8B	1
	Evaluating yourself	2E	1
		Σ	5
Career development	Creating an example	7B	1
	Using the drama method	3E	1
	The importance of value	5B	1
	Group work	5E	1
		Σ	4

The teachers were asked how their opinions about the values of "love-respect-tolerance" changed after the activity. The teachers told that they often noticed the importance of using the values within the class (f=7), its contribution to their personal development (f=5) and its contribution to their own career development (f=4). After the drama activity created for this research in Table 7, it was understood that the teachers explained that their opinions about the values of love, respect and tolerance made contributions in terms of understanding the effect/the power of the sample people especially within the class and the connections among the values and making them concrete. In addition, the teachers explained that the applied methods made positive contributions to their personal developments and that they understood the importance of learning by feeling the effect of the drama method in order to teach values in terms of career.

Some teachers' opinions about the values of "love-respect-tolerance" after the activity are as follows: "4E: The activity showed me the importance of master people in teaching the values. If they know and apply the doctrines of Mevlana, everything in the world will be beautiful. I think this is an

example that can be very useful for both adults and children in the values education.”, “4B: This application enhanced my ability to express myself. There were the things that we know in the activity but I saw myself in a different mirror (especially in the activity of mirror,I felt so)”, “7B: This activity created a wealth for my career development. This is learning by experiencing, which is so different from the information from books and internet. We haven’t just learned it but we rehearsed how to teach.”

After the activity some of the teachers’ sayings: *Love is a bright river inside people. Life is a mirror. You see things however you look at them. Look with love, what different things you will see. Be honest like a straight line. Tolerance is the route of that line. Shine like a full moon at night thanks to your respect. Life without love is the air without oxygen. Love takes its shape in the hearts like air. The most beautiful tolerance is looking with love.*

6. How did the teachers evaluate themselves after the activity?

Table 8. The teachers’ individual evaluations after the activity.

Question	Yes f	%	Partially f	%	No f	%
1. I liked the activity..	16	100	-	-	-	-
2. This the first time that I have participated in such an activity	13	81,25	-	-	3	18,75
3. I liked the group work.	13	81,25	3	18,75	-	-
4. I discovered my unknown characteristics.	10	62,5	6	37,5	-	-
5. My contributions to group works was enough.	13	81,25	3	18,75	-	-
6. I learned the things that I can teach to my students.	15	93,75	1	6,25	-	-
7. I think that what I learned from the activity contributed to my affective development.	14	87,5	2	12,5	-	-
8. The practices affected my existing values.	11	68,75	5	31,25	-	-
9. I believe that the activity will make positive contributions to my career life.	16	100	-	-	-	-
10.I want to participate in such activities in the future.	16	100	-	-	-	-

After the activity, the teachers firstly made individual evaluations. When we look at the percentages of the teachers’ answers in Table 8, most of the teachers talked about the contributions of the activity to their individual lives. All of the teachers in the study group told that they liked the activity, that it would make positive contributions to their career lives and that they wanted to participate in similar activities.

The teachers added some expressions in the interviews. These expressions are as follows: “3B: Firstly, I shined my values. I noticed that I don’t remunerate these values enough.”, “2E: This activity is one of the most beautiful examples to express opinions and feelings concretely.”, “4E: I understood that people should not only know the values of love, respect and tolerance but also internalize these values.”, “6B: I recognized myself better. People who internalize these values get a different taste from the life.”, “9B: I admire Mevlana. I felt as if I was living in his times. Both drama and “love-respect-tolerance” took me those times.”, “1E: I understood that I should sometimes revise the known things. These values are universal values. People who don’t internalize these values never

internalize our national values.”, “7E: It will reflect to my personal life and career positively. Appropriate examples are the most powerful tools in education”

7. How do the teachers evaluate the activities after the activity?

Question	Yes f	%	Partially f	%	No f	%
1.The activity was interesting..	13	81,25	3	18,75	-	-
2. I learned so many things from the activity.	12	75	4	25	-	-
3. I felt as if I had gone to somewhere in the activity.	15	93,75	1	6,25	-	-
4. I understood the message to be given through the activity	16	100	-	-	-	-
5. The activity led to changes in my behaviors and thoughts..	13	81,25	3	18,75	-	-
6. The activity increased my awareness about the values education.	15	93,75	1	6,25	-	-
7. I internalized the values I knew by experiencing them.	15	93,75	1	6,25	-	-
8.The teachers discover the comfortable ways of teaching thanks to such activities.	16	100	-	-	-	-
9. I found how to teach some values to the students thanks to the activity.	16	100	-	-	-	-
10. I believe that this activity will be helpful in my career in the future.	15	93,75	1	6,25	-	-

The teachers completed the activity evaluation test in the pursuit of the individual evaluation after the activity. When we look at the percentages of the teachers' answers in Table 9, it is understood that most of the teachers were pleased with the activity on the values education, that their awareness about the values education increased, that they saw different methods could be used to teach the values and that the activity contributed to their career development.

The teachers added some expressions to their activity evaluations in the interviews. Some of them are as follows: “1B: It is the most beautiful and the most permanent message to be given in a short time. The instructional power of drama and Mevlana matches up with the values very well.”, “3B: Drama is a very good method to teach the values. Seeing it practically guided me. It can also be applied for the students.”, “4E: The activity related to Mevlana is a well-chosen example and a good model. He is a person who has pioneered the universal values today. He is the most concrete example in the values education.”, “6B: Even a short activity enabled us to investigate the values inside us. We need such examples.”, 7E: I understood that the values also be taught for our age group. We explain it everyday but we, ourselves, are the most important models for the students. We sometimes should revise ourselves ☺”

Conclusion and Implications

According to the findings of the study, teachers in the work group expressed that creative drama in values teaching was an effective method. They also said that their awareness of values teaching had increased; they had had a chance of reviewing their own approaches to students in and out of class atmosphere, and understood the importance of tangible and proximodistal examples and could improve themselves using such activities. Additionally, teachers rated themselves as insufficient

in relating the values taught in class to their daily lives. In assessing the activity, they reported that those kinds of activities would provide them with materials regarding values education.

As a result, it would be an applicable decision to start implementing activities in values education first with giving importance to teacher training, because teachers have an important role in values education. Teachers should bear in mind that students are individuals who should be valued. They should be role models for their students by their behaviors and their relationships with colleagues and directors. It is highly important to make individuals acquire values appropriately in raising conscious generations having positive personal traits, being aware of their responsibilities for themselves, the immediate environment, the society and the world. This is only possible with teachers who are aware of the importance of values and show exemplary behavior and have required equipments in teaching students them. Therefore, teacher training is the base for values education.

Gürol and Serhatlıoğlu (2009) concluded from a literature review that creative drama method is an efficient way of gaining values. Moreover, they also suggested in their study that examples of creative drama activities should be increased, teachers' awareness regarding creative drama and gaining values should be raised and more research on the role of creative drama in the process of gaining values could be done. Based on these suggestions, it can be said that our study is intended to fill a gap in the related literature. According to the findings of an experimental study about gaining certain social skills through creative drama method conducted by Kara and Çam (2007), creative drama method is effective in gaining collaborative working skills and self control skills and in developing skills to initiate and sustain relationships. The same method was also used in this study but instead of developing social skills, improving teachers' personal and professional values was targeted.

In their study on pre-service classroom teachers, Ormancı and Ören (2010) reported that using drama would contribute to carrying out certain gains like developing empathy, creative and critical thinking, gaining self-confidence, socializing and communicating. Besides, according to the findings of Yalar's study (2010) which aimed at defining the place of values education in primary and secondary education social studies curriculum, teachers reported that taking values education course during pre-service education would be beneficial in having students gain values appropriately. Teachers in our study also claimed that they were content with the drama method applied during the implementation so this result is parallel with the results of similar studies. Generally, teachers have a positive attitude towards drama method.

Today, creative drama applications are preferred in terms of being applicable to most adults and having lasting results. It is possible to say that creative drama method makes positive contributions to the personal and professional developments of teachers considering the results of the current study. Therefore, taking into account that teachers are willing to be taught about creative drama, it can be suggested that teachers should attend a creative drama teaching course including examples that are easily applicable to their students. It will be more advantageous if the content of such a course is planned for the needs and the interests of teachers by experts in the field. Drama applications intended for teachers should be increased and they should also be supported by academic studies. Moreover, teachers who use creative drama applications in their teaching should be encouraged to share their experiences and exemplary applications with their colleagues at the group teacher meetings in the beginning of each term. Provincial and District National Education Directorates might prepare a framework plan for schools regarding values education and present exemplary applications on their websites or in the meetings.

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The Pedagogy of Leadership and Educating a Global Workforce

Dannielle Joy Davis*

Middle Tennessee State University/ Walden University

Abstract

No Child Left Behind illustrates policy that stifles pedagogy and the effective training of a global workforce. In an effort to enhance the educational outcomes of students, critical pedagogy and Gardner's Five Minds for the Future are presented as tools for the cultivation of a more innovative workforce. The pedagogical strategies and framework presented hold the potential of improving the academic output and global competitiveness of postsecondary graduates.

Keywords: Critical pedagogy, Gardner's Five Minds for the Future, global workforce

* Dr. Dannielle Joy Davis, a graduate of the University of Illinois at Urbana-Champaign, conducts research examining the experiences of marginalized groups in educational settings and the role of policy and practice in academic and occupational outcomes.

Correspondence: djdavis@illinoisalumni.org

The Pedagogy of Leadership and Educating a Global Workforce

No Child Left Behind (NCLB) provides an interesting case to illustrate policy that negates global competitiveness. The standardized test driven nature of the accountability initiative centered upon three core assumptions. The first assumption rested in the belief that the state knows best in terms of what a child should master at various grade levels to be competitive in a global economy. Another assumption was that true learning can actually occur in such an environment. The policy also assumed that implementation equaled the playing field between the “haves” and “have nots.” In fact the name “No Child Left Behind” reflects this assumption.

The premise of the state or policy makers as experts in education counters goals of superior education, high achievement, and egalitarian educational outcomes. While some policy makers have backgrounds in teaching, the bulk hold limited understanding of pedagogy, educational research, and where U.S. children stand as compared to their international peers. This gap in knowledge between the policy maker, the researcher, and the practitioner stifles potential progress towards national educational excellence. Rather, the policy outcomes reflect the very inequity it claims to remedy. As a result of NCLB, struggling districts have been penalized for not meeting standards. Furthermore, teachers as well as the public, criticized the policy for promoting “teaching to the test.” Some educators question whether under such conditions true learning can occur.

Lipman (2004) holds that contemporary policy discourse “shifts responsibility for social inequity produced by the state onto parents, students, schools, communities, and teachers” (pp. 171-172). This shift has led to the de-professionalization of teachers, continued inequity amongst schools and increased underachievement of students, particularly the poor and racial minorities. Rather than being prepared for competitive careers, many minority and working class children are being prepared for service and retail employment through “vocational education, restricted (basic skills) curricula, and intensified regimentation of instruction and/or control of students” (p. 49). Lipman further explains:

The policy regime that I have described is producing stratified knowledge, skills, dispositions, and identities for a deeply stratified society. Under the rubric of standards, the policies impose standardization and enforce language and cultural assimilation to mold the children of the increasingly linguistically and culturally diverse workforce into a most malleable and governable source of future labor. This is a system that treats people as a means to an end. The “economizing of education” and the discourse of accounting reduce people to potential sources of capital accumulation, manipulators of knowledge for global economic expansion, or providers of the services and accessories of leisure and pleasure of the rich. Students are reduced to test scores, future slots in the labor market, prison numbers, and possible cannon fodder in military conquests. Teachers are reduced to technicians and supervisors in the education assembly line- “objects” rather than “subjects” of history. This system is fundamentally about the negation of human agency, despite the good intentions of individuals at all levels. (p. 179)

Lipman’s observations illustrate the negative perceptions some holding power hold of those from lower socioeconomic backgrounds and racial minorities. McLaren echoes Lipman in asserting that schools focus on creating compliant and patriotic workers and often do not result in committed, critical citizens. Education, he holds, is “designed to create individuals who operate in the interest of the state, whose social function is primarily to sustain and legitimate the status quo” (p. 1). Emphasis on standardized testing and accountability has resulted in policy which deskills teachers, reducing them to “semiskilled, low paid clerk(s)” (McLaren, 1989, p. 162). Educational differences are further reflected within competitive or open markets, where students from low socioeconomic backgrounds fill the nation’s worst schools.

Opponents of NCLB held that it failed in increasing educational equality. In his work with the Civil Rights Project a Harvard University, Orfield (2006) held:

Neither a significant rise in achievement, nor closure of the racial achievement gap is being achieved...The reported state successes are artifacts of the state testing policies which lead to apparent gains on state tests [which] do not show up on an independent national test, the National Assessment of Educational Progress. (p. 5)

These policy outcomes take root in historical racism from which the country built its foundation via institutionalized slavery. Due to internalized oppression and racism, elitist views may be found within various segments of society regardless of race or socioeconomic status. Such a framework when used in viewing others' circumstances fosters our contemporary "age of indifference" (West, 2004). This indifference thwarts movement towards true democracy, which comprises an egalitarian society, where equitable policy is the norm. Ironically, emphasis upon accountability via high stakes testing in some cases coincide with when elections take place. In such an environment, are children being used for political gain?

Gains not reflected in national tests reflect reports of "poorly constructed" state assessments (Hursh, 2009 in Ayers, p. 159). High stakes testing stifled educational achievement of New York students who once held the lowest graduation rates in the nation for African Americans and Latino/as (35% and 31% respectively) (Orfield, Lasen, Wald, & Swanson, 2004, p. 159). Janesick (2007) refers to high stakes testing as a form of violence or "injury by distortion, infringement, or profanation" against our youth. She argues that distortion takes place via the manipulation of actual scores to secure federal monies, that class time and learning are infringed upon, and that the use of class time for drilling is overused. Gillborn (2009) notes in his work on education policy and reform:

...policy-makers (and many educationists) tend to imagine education policy as evolving over time, sometimes with dramatic changes in focus, but always (so policy-makers assure us) with the best of intentions for all. This sanitized (white-washed) version of history envisions policy as a rational process of change, with each step building incrementally on its predecessor in a more-or-less linear and evolutionary fashion. But such an approach is contrary to the reality of race and politics in England where virtually every major public policy meant to improve race equity has risen *directly* from resistance and protest by Black and other minoritized communities. (p. 51-52, 2009, italic by author)

Hence, change came about by the countering of negative social dogma against marginalized groups. As Fredrick Douglass held, "without struggle there can be no progress..." What human emotions lead to exclusionary policies? Fear? Scarcity? Insecurity? "Dehumanization, although a concrete historical fact, is *not* a given destiny but the result of an unjust order that engenders violence in oppressors, which in turn dehumanizes the oppressed" (Freire, p. 44, 2006) via these negative emotions. What pedagogical strategies might be employed to counter these lower levels of human emotions and lead to stronger policies that foster social justice and equity for all? The following section offers suggestions.

Educating and Training Leaders for a Democratic Global Workforce

Exclusionary practices cannot yield organization or social outcomes rooted in justice, fairness and maximum productivity, as these polar opposites halt such outcomes from emerging. In essence, the two are inharmonious or incompatible. The core of democracy counters exclusion, featuring the voice, participation, and representation of all. This democratic tenet holds at macro (federal and state government), meso (organizations or institutions), and micro levels (from units of organizations and institutions to individual families) in society and organizations. Should democratic outcomes be a desired goal, elements of equality and justice must infuse thought during the policy making process and be communicated as well as embraced by those charged with implementation. The nexus of individuals and the collective regarding policy and its results may provide a starting point in reaching such a collective democratic consciousness. Democratic consciousness counters fear based

exclusionary thinking that promote ineffective policy, while simultaneously transforms the hearts and minds of all involved. However, transformation may take time and likely be influenced by social dogma and the individual racial identity development of policy leaders (Davis, 2010).

Those who employ critical pedagogy often utilize higher order, critical, and dialectical thinking skills; have an emancipatory outlook; and value the humanity of individuals (2007). Critical pedagogy starts with basic assumptions of equality and excellence shared by both the marginalized and those at the center. Authentic assessment comprises drawing upon portfolios, journals, mentor-protégée or peer evaluations, and other demonstrations of the learner's knowledge. This form of assessment requires innovation and "allows many opportunities to practice, rehearse, consult, get feedback, and refine actual performances and productions" (Wiggins, 1998, p. 242). The practice reflects attending to what Vygotsky referred to as the Zone of Proximal Development or "the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978). Beginning with these positive tenets at the onset increases the likelihood of positive outcomes. The innovation prompted by authentic assessment serves as a key element of developing an informed citizenry. It moves us away from the frivolous to profound, critical consciousness (West, 2004).

Gardner's Five Minds

Howard Gardner notes the importance of life-long learning and individuals taking charge of their own education (2004). This is particularly important given our contemporary, global economy. Workers who continue to "stay ahead of the curve" will benefit, while those resting on their laurels risk becoming unemployable (Gardner, 2004, p.147). Such an environment renders those who have not been nurtured to become lifelong learners particularly vulnerable to unstable economic tides. This form of vulnerability ultimately renders continued intergenerational poverty amongst the at-risk population in which Lipman refers. Policy may play a role in promoting life-long learning throughout every segment of society. While individuals clearly have agency in this regard within their own personal lives, societies can either work or thwart mass understanding and movement towards a culture of learning. This culture of learning holds the potential of contributing to a more stable economic democracy.

Gardner identifies "five minds" critical to cultivate for the future. The disciplinary mind utilizes forms of thinking related to major disciplines and professions. Lifelong learning, diligent application, and constancy demonstrate this type of mind. The disciplinary mind emerges during adolescence and has the potential to continue throughout the life span. The synthesizing mind abstracts critical information from large sets of data and interprets the information for use. It ideally begins in childhood, becoming deliberate over one's life as new information arises. The creating mind moves beyond current thought to form alternative questions, solutions, or expanding existing ways of knowing. The creation builds upon one or more establish fields of study. Such a mind requires a degree of cultivation of the synthesizing and disciplined minds. The respectful mind reacts sympathetically and in a constructive manner to individual and group differences. Moving beyond tolerance and political correctness in working to understand and reach out to others, the ethical mind seeks both excellence in work and as a citizen.

Conclusion

Gardner's multifaceted approach provides a strong model for leadership training. Leaders, particularly in the education sector, hold the capacity to positively influence minds and lives. When the economy calls for employees to retool, Gardner's five minds and critical pedagogy promise to contribute to the retooling process. Such an education moves nations towards greater innovation and competitiveness within a global marketplace.

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Embracing Silence and the Emptiness between Unspoken Words

Kjersti VanSlyke-Briggs*
SUNY Oneonta

Abstract

This article examines the use of silence as a constructive teaching tool in the classroom rather than as a punitive measure. The author offers suggestions for the inclusion of silence to benefit students specifically in a literature high school classroom.

* Kjersti VanSlyke-Briggs is an Associate Professor of Secondary Education at SUNY Oneonta. She is a Past President of the New York English Council. She is the editor of The English Record and the author of The Nurturing Teacher: Managing the Stress of Caring.

Correspondence: vanslykb@oneonta.edu

Embracing Silence and the Emptiness between Unspoken Words

“The nature of silence is unruly. It is rebellious and free of capture...” (Lees, 2012, p.1)

Usually having 23 quiet faces turned to the teacher is a good thing. The teacher has the attention of the class. But when those faces are marked with the look of total confusion, trouble is brewing. I had just asked my undergraduate Young Adult Literature class to sit in silence – a long silence, and without writing, chatting, texting or anything else distracting, to just think about a line of text that I had just read off. After the first 30 seconds, hands started to rise in the room. Meeting the eyes of my students, I shook my head “no”. They wanted to jump into conversation about the line, ready to deconstruct the text. The hands went down and they started to shift in their seats, uncomfortable.

Another few seconds passed before one young man called out, “what are we doing again?” and I replied with one word, “thinking”. He nodded and hands started to go up again. Obviously, I needed to preface the activity more. Silence made my class tense, made them fidget and made them confused. It was only a paltry minute – sixty simple seconds, but they were ready to jump in and chat in a fraction of the time. I was not ready to end the battle so quickly and we spent the remainder of the class playing with silence as a tool for teaching.

Silence in the Classroom – Beyond the Absence of Chatter

Currently, there exists a cultural disposition for talk in the classroom. This is best practice for teaching in many ways. Students are engaging with each other in productive learning environments that foster conversation for intellectual growth. These learning environments ask students to reach out to each other in a collective knowledge that is stronger than any one student. Students that are quiet are viewed negatively. They are seen as introverts with a negative connotation of the term and are deemed passive.

When teachers typically employ silence, it is often as either productive or punitive. Silence appears in several forms in the classroom. Traditionally, it is seen in the silence of productivity. Silence while students complete a task such as a test, essay or reading. Teachers also employ “wait time” for students to think after a question is posed, but often that is too quick and only for the purposes of constructing a good response and more verbal interaction. In each case, it is the teacher that controls the silence and the students respond as they have been trained over the years of academic instruction.

In other cases, silence is used to punish. Students are commanded to be quiet and the teacher uses the long pause until everyone is silent. Silence is often seen as an “uncomfortable experience” and can create tension. It is used to exert power over others and it demands respect. Teacher silence can be viewed as, “a mechanism for control and pupils’ silence as avoidance of work or sulking” (Armstrong qtd. in Ollin, 2008, 267). Silence is often used to discipline. With this understanding of silence, it becomes a space of great tension.

Our culture encourages chatter. Beloit College in the Mindset list for 2016 identifies this year’s incoming freshman as the “most tribal generation in history” (<http://www.beloit.edu/mindset/2016/>). These students are in constant contact with peers and when they are not physically with them, they are digitally. I recently attended a large forum event with freshman and as they waited for the speaker to begin, one out of three students was on the smart phone. The others were chatting with each other. Sadly, the row of professors at the back of the room was not much better as their eyes were glued to the little glowing screens. These students were uncomfortable and the phone filled a void to keep them from either sitting in silence or reaching out to chat with an unknown person next to them. Chatter, including digital chatter, fills every empty space. Steger and Besserman (2001) share a fabulous vignette that illustrates this issue in their text *Grassroots Zen*. In it, the authors write about watching a couple leave a theatre. They were holding

hands and the woman was on her cell phone. She was not engaged in the “immediate experience of the moment” (p. 26) instead she was consumed with the technology which distanced her from that time and space both mentally and physically.

This cultural context also presents in a “paradigm that values output more than inward-focused attention and values intellectual progress over inner growth” (Haskins, 2011, p.35). Our culture does not value silence or those students that flourish in such an environment that fosters silent moments. As a result, we encourage this tribal behavior and young people become more and more uncomfortable in quiet moments without the distraction of ready access media. All space becomes filled with noise, whether sounded or digital and this noise, “complies with *silencing* [italics in original] more than silence does” (Corrigan, 2011, p.9).

Rather than be viewed in a punitive understanding, silence can also be a space carved in the classroom to provide room for students to grow and become reflective learners. It can also help students develop the skills of “introspection and self-discipline” (Li, 2004, p. 69). The term *reflective* becomes cumbersome within the understanding of silence. In a Western tradition, this term denotes a focus on problem solving and analysis (Li, 2004, p.73) while within a Zen understanding there is no predetermined outcome and the use of silent reflection becomes more about mindfulness.

Yet another element of considering silence in the classroom is the benefit to some students. We fill our classrooms with noise and busy activity. This style of education, while beneficial for many students may be a challenge for those students that are introverts. In the text *Quiet: the Power of Introverts in a World that Can't Stop Talking*, Cain (2012) points out that typical school structures are designed for extroverts. Cain notes that many introverts at a young age “become adept at acting like extroverts” (p.255). While the extroverted student may enjoy the collaborative work, this same work shuts down the introvert that would prefer a quiet activity. Finding balance is key to addressing the needs of all students in the classroom.

Silence in the Classroom

I first began playing with the use of silence in the classroom in my high school classroom. The concept fed perfectly into the text we were studying at the time, *Siddhartha* by Hermann Hesse. My tenth grade classes, much like the undergraduates in the opening vignette, were also confused at first. Silence was not a concept that students had experience with in the classroom other than in the predictive paradigm of punitive and productive. Knowing the lack of comfort with silence in the class, I started slowly. I asked students to enter class and remove their shoes, some stinky business to be sure, but helpful in the long run for setting the tone that this space was different. We began every class in this way throughout the text. We would begin with a short moment of contemplative silence to shake off the day and to create a new space in the classroom, a space where students could be open to new ideas without the baggage accumulated in the school day. This moment of quiet allowed students to metaphorically let go of the issues in the forefront of their minds.

Later, as we read more about Siddhartha’s quest, we attempted meditation and students kept a meditation journal. In their journals, students at first commented most often about their frustrations and feelings of discomfort in the quiet. Several noted that it never was really silent as true silence can’t be captured in a busy school with announcements, noise in the hall and our neighboring classes; this too was frustrating as they claimed they could not focus. These early surface level musings later gave way to commentary on the inability to quiet their minds, but by the close of the novel some gains were made. This was not within a religious context. It was simply an exploration of the lack of sound and the distracting noise of our daily lives.

Typically, I left the journals to be open-ended and students could write as they pleased. Several times, I gave a more directed journal. For instance, I would select a quote from the novel to write on the board. Each selected quote would lead to an essential question and discussion of the text

for the class period. Students would read the quote as part of their bell ringer work and then after their period of silence – up to five minutes, they would write in their journals opening with the quote. I would remind students that the time spent in silence was not to unravel and decode the quote, but instead to let the mind settle and be quiet, so that the unraveling could occur later while they wrote in their journals. In this way, the journals may have been called discovery journals rather than meditation journals. I did not collect the journals after the period of writing closed. I allowed students to retain the journal in case they wanted to reference it during discussion or add to it.

We also played with the idea that silence does not always mean body stillness. Students could take the moment of silence and still feel free to move. Some liked that they could take a big stretch with the moment of silence – almost like a physical shaking off of the day before we moved to another activity. We also used guided imagery on occasion to better understand a text and this was followed with longer periods of silence before students entered into conversation or free write. Yet another method we tried out was just to ring a chime to indicate a period of silence. Some of these methods worked better than others and the experimentation of methods engaged the students in conversation in which they examined what worked for them. The chime for instance was not a big hit as students thought it was juvenile. This “technique less” (Lees, 2012, p.82) method worked best in my classroom. The use of silence was new not only to my students, but to me. As Lees points out, this approach is also beneficial because they are “simple, accessible and obvious” (p.83) ways to incorporate silence into the classroom.

In my typical classroom practices, I had what I would describe as controlled chaos. My room was always busy and active. Students were often engaged in multiple activities in a brief amount of time. Over time, I came to realize that while this was a benefit for many of my students that thrived in movement, others were left in anxiety and their needs were not met. A balanced classroom also requires periods of calm. These “micro-Zen moments” (Steger & Berrerman, 2001, p. 24) helped create a classroom with better pacing and more reflectiveness. The “constant noise and stimulation is counter-productive for educational ends” and as Lees indicates, “schools should function slowly, calmly and with respect for personal inner reflection” (p. 102).

Undergraduate Experiences

Discussions of silence also occur in my undergraduate classes for English Education majors. In particular, we discuss the use of silence in the Young Adult Literature and English Methods courses. As expected, the general response when I open the conversation to discuss uses of silence in the classroom has a focus on silence as punishment or product creation. It takes some prompting to ease pre-service teachers into conceptualizing silence as a tool in their pedagogical tool belt.

One of the first activities that we do in order to play with the use of silence is in relation to the text *House on Mango Street* by Sandra Cisneros. This text is fabulous for pulling samples of rich language into class analysis. I begin by asking my students to quietly select one line of text that resonates with their experiences or that speaks to them. After a few moments, we then move to hearing the statements. I ask that students one at a time and with a significant pause in between, read their statements. The room is silent except for the periods when students are reading their sentence. In the in between spaces, there is a significant pause of at least one minute or more. The first time we try this activity I do not ask that the entire class share because they become increasingly restless as the time moves on. Instead, we have about ten students share and then we discuss the process. I ask students to share with each other and then with me what the experience was like.

Another version of this was presented to me by a pre-service teacher. In this scenario, students still select their lines, but when it comes to sharing they say their lines out loud as they feel the need to speak. The interesting quality of this format is that sometimes there are very long pauses and other times voices even overlap. The power behind those words begins to change as the pre service teachers share.

Students enjoy this process for the most part. The empty spaces allow students to focus on the text and also reflect on the speaker without the pressure to perform and a mind racing ahead to what the next answer will be. When asking my students to respond to the activity, one student stated that she and her discussion partner “agreed that the silence felt a little uncomfortable at first and realized it could be a result of our lack of experience with silence in the classroom.” Another student responded that, “in the moments of silence, I literally had goose bumps. I think it is so beautiful how one piece of literature can speak to so many people...the silence was precious to everyone in the room.” Yet another student had a similar experience when she stated that she “got chills when hearing the lines and the quiet after.” Students responded both emotionally and physically to the text and were better able to select lines that resonated with the author’s craft and also with their own lives. A junior student put it well when she stated that for her “the most profound, meaningful thoughts” she had came to her in the moments of silence.

Another benefit was that students were able to reflect on lines that they may have overlooked, but that another found important. One of my junior students noted that the “exercise created a part to whole relationship, examining each line for what it means to the work as a whole.” She also noted that she liked the process because they was no waiting “for your point to become relevant” and she was able to jump in when she was ready rather than have to “depend on the tone or the direction of the full class discussion.”

Yet another way to incorporate silence is through the examination of literature that uses silence as a motif. *Speak* a popular young adult novel by Laurie Halse Anderson is a text that I use in my classroom. Discussions about the silence in the novel can lead to explorations outside the novel as well. One of my students in a recent class noted that a way to explore this could be through the use of blackout poetry. I suggest that the teacher could copy and laminate several pages of the text and then provide the students with black white board markers in order to blackout the unwanted text. In this way, the sheets could be used year after year and changes could be made easily without needing a whole new copy. Not only does this technique provide an easy access for students uncomfortable with poetry creation, but it allows us to examine what wasn’t selected and the absence of the words blacked out.

Moving Forward into Quiet Moments

Silence is easy to incorporate in the classroom. It is free and it is simple. Silence is also a technique that teachers can begin to work with in small bits. For instance, the moment of quiet contemplation of a line of text is an easy place to start. Like any skill, the use of silence is one that is developed over time and with practice in the classroom.

The use of silence can be empowering for students. If used well, it can be an opportunity for students to begin to carve out of the school day a moment to quiet the mind and ready the self for new information. It can help break up what Harste (2003) calls the “cha-cha curriculum” (p.8). In an increasingly noise filled, technology and chatter filled world, it is these moments of quiet silence that can help center a student and remind a student that they are here and can be engaged with their world rather than a pawn in it. In the English classroom, we have a unique opportunity to tie silence to literature and to push the boundaries of our teaching practices to better reach our students.

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Teaching Students of Today: The Buddha's Way

Ong Puay Liu

University Kebangsaan Malaysia, Bangi, Malaysia & Buddhist Missionary Society, Malaysia.

Ong Puay Tee

Multimedia University, Malaysia.

Abstract

21st century students are living on the highway of rapid information technology, residing in homes equipped with modern gadgets that allow them to stay connected through virtual media. The fact that students' mind-sets are changing means that there is a need for corresponding changes in pedagogy. The Buddha is known as 'Teacher of gods and men', who is able to communicate his teaching of the Dhamma to people far and wide, and from all walks of life. What lessons can present-day teachers learn from the Buddha's pedagogy? This article sets to describe the Buddha's teaching methods, and their relevance for present-day teachers and students.

Keywords: Dhamma, pedagogy, Buddha, education, teaching methods.

Introduction

Thus have I heard: ‘This Dhamma that I have attained is profound, hard to see and hard to understand, peaceful and sublime, unattainable by mere reasoning, subtle, to be experienced by the wise. But this generation ... takes delight in worldliness ... It is hard for such a generation to see the truth, namely specific conditionality and dependent origination. And it is hard to see this truth, namely, the stilling of all formations, the relinquishing of all acquisitions, the destruction of craving, dispassion, cessation, Nibbāna. If I were to teach the Dhamma, others would not understand me, and that would be wearying and troublesome for me ... Considering thus, my mind inclined to inaction rather than to teaching the Dhamma’ (MN 26.19Ariyapariyesanā Sutta: The Noble Search).

The above words, uttered by Buddha Gotama after gaining Enlightenment (in the sixth century BC), resonates well with teachers of the 21st century AD, who face a daunting task teaching students. Today’s students are living on the highway of communication and information technology, residing in homes equipped with modern gadgets that allow them to stay connected virtually through social media, and with parents whose command is their children’s wishes. The students’ lifestyle, everyday language, hobbies and attitude towards life reflect a post-modern outlook – *anything goes*. This ‘anything goes’ attitude welcomes anything that brings pleasure and immediate gratification, avoids pain and delayed gratification, and as much as possible, excludes anything that requires self-reflection, moral discipline and social responsibility.

The fact that students’ mind-sets are changing means that there is a need for corresponding changes in pedagogy, or the methodology of teaching in schools. But what kind of approach can teachers adopt so that students can feel positive about going to school, have faith in the school and teachers as the purveyor of education, their motivation to stay in school is sustained, and that they become people with character and strong moral discipline from the education they receive from teachers? What kind of pedagogy is appropriate and beneficial for today’s students so that they can be taught and guided to generate the right questions, develop the right skills, acquire the right knowledge, cultivate the right values, and live by the right moral principles?

The above scenario set the stage for the subject matter of this article, which is to describe the Buddha’s teaching methods and their relevance for present-day teachers. This article argues that the Buddha’s methodology in teaching the Dhamma is premised on several pertinent principles and strategic approaches. Buddha’s vision is not only to ensure that his message of the Dhamma is understood by his listeners or disciples, but more so, to inspire the listener or learner to translate what he/she has listened or learned into actual action, with the Dhamma gradually becoming his/her way of life or culture.

At the outset, it needs to be said that, even though the reference is Buddha, this article will only focus on his teaching methods, and not on his Dhamma or his Doctrine. Hence, this article will be relevant for teachers, Buddhists or non-Buddhists, who find teaching students of today a formidable and intimidating endeavour.

There are four sections in this article. The first section returns to the educational context as described in the Introduction above, with a brief outline of the meaning of education and the changing scenario of education in Malaysia, in particular. The second section provides an overview of the Buddha’s decision to be a *teacher of gods and men* (overruling his prior decision not to teach) and his incisive knowledge of variations between individuals. The third section outlines the Buddha’s pedagogy, that is his humane principles and methodological approaches, and how present-day teachers can learn and benefit from the Buddha’s pedagogy. The fourth section summarises the important points described in the preceding sections and reiterates the relevance of Buddha’s pedagogy for modern-day teachers.

The Context: The Educational Situation

Ajahn Chah (1994, p. 193) gave a simile of the vulture to depict the situation of 'educated people': 'Many people who have studied till university level and attained graduate degrees and worldly success find that there is still something missing in their lives. Although they think high thoughts and are intellectually sophisticated, their hearts are still filled with pettiness and doubt. It's like a vulture: it flies high, but what does it feed on?' Bhikkhu Bodhi (1998), writing on the aims of Buddhist education, makes a parallel observation on the declining state of education in schools: 'Ideally, education is the principal tool of human growth, essential for transforming the unlettered child into a mature and responsible adult. Yet everywhere today, both in the developed world and the developing world, we can see that formal education is in serious trouble. Classroom instruction has become so routinised that children often consider school an exercise in patience rather than an adventure in learning. Even the brightest and most conscientious students easily become restless, and for many the only attractive escape routes lie along the dangerous roads of drugs, sexual experimentation, and outbursts of senseless violence. Teachers too find themselves in a dilemma, dissatisfied with the system which they serve but unable to see a meaningful alternative to it.'

Bhikkhu Bodhi might not have mentioned a specific country or locality, but his observation reflects on many countries of the world (for example, the USA with the most recent tragedy involving a 20 year old man killing 20 children and 6 adults at Sandy Hook Elementary School, Connecticut, and his own his mother at their home on 14 December 2012 (Melia 2012)). The Malaysian government is reported to be considering reinstating corporal punishment for students who misbehaved or showed no respect for authority while in school. Why is education taking a turn for the worse? Instead of being a place to transform students' character, and help students to bring out the best in them, schools are now playing the opposite role, that is, it now functions as a place for bringing out the worst in students. People go to school, but they may not get an education.

One major reason for this sad state of affairs, according to Bhikkhu Bodhi (1998), is a loss of vision regarding the proper aims of education. The word "education" literally means "to bring forth," which indicates that the true task of this process is to draw forth from the mind its innate potential for understanding. The urge to learn, to know and comprehend is a basic human trait, as intrinsic to our minds as hunger and thirst are to our bodies. In today's turbulent world, however, this hunger to learn is often deformed by the same moral twists that afflict the wider society ... In our schools the minds of the young are deprived of the nutriment they need for healthy growth. In the name of education the students are passed through courses of standardized instruction intended to make them efficient servants of a demeaning social system. While such education may be necessary to guarantee societal stability, it does little to fulfil the higher end of learning, the illumination of the mind with the light of truth and goodness.'

Suraj Narain Sharma (1994, p. 189), writing on '*Buddhist social and moral education*', wrote about the degradation of the modern human being, or what he terms as 'inner emptiness' of the modern human being: 'The depersonalising tendencies of social and economic scene are varied and many; the growth of automation and the division of labour have converted the worker into such a slave of the machine that work has become drudgery for him, boring and stultifying; the growth of gigantism in industry, ever increasing bureaucratisation and the development of a routinized life are combined with periods of leisure that drown people's deep discontent with their work ...'

This brings to mind Paulo Freire's thesis on the inability of contemporary education system to play its role in eradicating poverty among the poor. The education system has an important role to play in eliminating poverty, but unfortunately, as Freire asserts in his book, '*Pedagogy of the oppressed*' (1972), the education system has failed in undertaking this task. Why is this so? According to Freire, this is so because the education system is very far removed from the actual living conditions, in other words, the social living realities of the students. Most of the students attending school come from poor

family backgrounds, from the rural areas, or slums, but the education syllabus taught to them is not about them, their living conditions, or their history.

Freire believes that the institution of education has an important role in assisting the government to sustainably eliminate the poverty cycle, and to develop critical consciousness among the stakeholders concerned, in particular teachers and students. In order to foster such transformational (and not transactional) change, Freire advocates a change in the teaching methods that were used in mainstream education system. Freire's pedagogical method is a two-way teaching and learning method, involving dialogue-exchange between teacher and student, and the students' real life experiences, or *praxis*. Students will warm up to the discussion as the topic of discussion is something familiar and not foreign, to them. By using words or themes that students have first-hand experience or are culturally familiar to them, the teacher will find it easy to sensitise the students to their own social realities, thereby initiating the 'first turning of the wheel' (to borrow Buddha's words) of critical consciousness in education.

Meaningful dialogue is possible because every word or topic discussed is based on praxis, that is, direct experiences and real living conditions of the students themselves. The teaching-learning environment that evolves from meaningful dialogue based on real life experiences of students becomes more humane and inclusive, unlike the banking system of mainstream education. Under Freire's proposed praxis-based pedagogy, the students will feel they are '*participants*', rather than '*spectators*', '*contributors*' rather than '*recipients*', hence '*subjects*'; rather than '*objects*' of the educational process. Consequently, the educational environment will not exist like before, where one party, that is the teachers, 'deposit' their ideas and knowledge onto another party, that is the students unilaterally, or as a one-way exchange flow from the teachers to be consumed by the students (Freire, 1972, p. 61).

This alternative teaching-learning approach which is based on real life conditions of the students will stimulate the mind to think reflectively and critically with regards their own living conditions and social situation. Freire gave a new term for this critical consciousness, that is *conscientisation*, a compound concept made up of *conscience* (consciousness of what is right and wrong, good and bad) and *sensitisation* (sensitivity to real life situations). Such conscientisation provokes the students to not only reflect but also to inquire, question and investigate their historical situation and current social conditions, as well as to analyse the connectivity between the two. Consequently, the students will be empowered to act as subjects to initiate change to their living conditions and real-life situation. Freire's advocacy for conscientisation of the education system will enable the system, to stimulate the process of thinking and 'bringing forth' from the students' minds their innate potential for understanding (borrowing Bhikkhu Bodhi's definition of education above).

The Buddha Cares: An Incomparable Trainer and Teacher of Gods and Men

'... Then I listened to Brahma's pleading, and out of compassion for beings, I surveyed the world with the eye of a Buddha. Surveying the world with the eye of a Buddha, I saw beings with little dust in their eyes, and with much dust in their eyes, with keen faculties and with dull faculties, with good qualities, and with bad qualities, easy to teach and hard to teach, and some who dwelt with fear in blame and in the other world. Just as in a pond of blue or red or white lotuses, some lotuses that are born and grow in the water thrive immersed in the water without rising out of it, some other lotuses that are born and grow in the water rest on the water's surface, and some other lotuses that are born and grow in the water rise out of the water and stand clear, unwetted by it.' (MN 26.21 Ariyapariyesanā Sutta: The Noble Search).

After listening to Brahma Sahampati's appeal, the Buddha decided to reconsider his earlier decision not to teach the Dhamma he has discovered upon his Enlightenment: 'Open for them are the doors to the Deathless. Let those with ears now show their faith. Thinking it will be troublesome, O Brahma, I did not speak the Dhamma subtle and sublime' (MN 26.21 Ariyapariyesanā Sutta: The

Noble Search). Buddha realised that there would be beings who would want to listen to the Dhamma he is preaching and who would be able to comprehend. Having made the decision to teach ‘for the welfare of the multitude, for the happiness of the multitude, out of compassion for the world, for the good, welfare and happiness of devas and humans,’ (AN1.13 One Person; SN4.5 Mara’s Snare; DN 16 Mahāparinibbāna Sutta: The Great Passing), the Buddha embarked on a mission to bring the Dhamma to as many people as possible, regardless of caste, colour, creed, custom, class or capabilities. This strategic approach constitutes several important principles.

The Buddha declares that the Dhamma he wants to share with fellow human beings and also devas, is *not a secret doctrine*: ‘These three things, monks, are conducted in secret, not openly. What three? Affairs with women, the mantras of the brahmins, and wrong view. But these three things, monks, shine openly, not in secret. What three? The moon, the sun, and the Dhamma and Discipline proclaimed by the Tathāgata’ (AN 3.129 Not a Secret Doctrine; Bhikkhu Bodhi 2005, 88).

The Buddha is able to make such an assertion because he is the Blessed One, Exalted, Omniscient, Perfect in knowledge and conduct, Fully accomplished, Knower of the worlds, Incomparable Guide for the training of persons, Teacher of gods and men, Enlightened, Blessed. The Buddha *knows*; he has gained insight (wisdom) into the Dhamma (Truth) through his own effort, and able to impart his knowledge through strategic mechanisms so as to bring benefit to the world of devas, gods and human beings. As Bhikkhu Bodhi (2005, p. 88) puts it, ‘the teachings of the Buddha shines openly, as radiant and brilliant as the light of the sun and moon. Freedom from the cloak of secrecy is integral to a teaching that gives primacy to direct experience, inviting each individual to test its principles in the crucible of his or her own experience.’

The Buddha therefore embraces the principle of *inclusiveness*, accommodating all who want to learn the Dhamma. The Buddha has said, upon his decision to teach, ‘Let those with ears now show their faith.’ This also means that the Buddha upholds the principle of *diversity*; his teaching is not reserved for a particular individual, clan, elite, gender, class, able-bodied, locality, or the intellectually inclined. By declaring that he does not teach with a closed fist (in secret), the Buddha is also saying that the Dhamma he teaches is *not a dogma, nor* does it demand *blind faith*. Instead, the Buddha cautions the people to not accept his teachings out of reverence and blind faith, and encourages the people to ponder and reflect on his teachings, to question and criticise him, to engage in a dialogue with him.

The Vimāṃsaka Sutta: The Inquirer (MN 47) and Kālāma Sutta (The Buddha’s Charter of Free Inquiry) (AN 3.65) substantiate the Buddha’s emphasis of not accepting what is the truth just because the words were uttered by a spiritual teacher. Only through observation and investigation of the spiritual teacher’s bodily, verbal and also mental actions can the disciple verify or evaluate the teacher’s claim to be enlightened or perfectly enlightened. More importantly, these suttas underscore the Buddha’s advice that the truth of the Dhamma lies not just in listening or accepting the Buddha’s words. Once the disciple gains confidence that the Buddha is what he says he is, that is a Perfectly Enlightened One, the disciple tries to practise and live by the Dhamma. Through direct knowledge and personal experience, the disciple will gain unshakeable faith in the path laid out by the Buddha towards final liberation from suffering and ultimate happiness, *nibbāna*. Bhikkhu Bodhi’s description aptly explains the situation: ‘Thus the entire process of training in the Dhamma is rooted in personal experience. Even faith should be rooted in investigation and inquiry and not based solely upon emotional leanings and blind belief. Faith alone is insufficient but is the door to deeper levels of experience. Faith serves as a spur to practice; practice leads to experiential understanding; and when one’s understanding matures, it blossoms in full realisation’ (Bhikkhu Bodhi, 2005, p. 87).

This is precisely the value and code of conduct the Buddha wants to cultivate in his disciples – be they monastics or lay people. The value refers to the importance of not accepting anything as truth out of fear, respect, command or blind faith. The Kālāma Sutta offers an excellent example of how the Buddha explains to the people of Kesaputta, called Kālāmas, the standards for accepting as the truth

and the standards for not accepting as the truth (AN 3.65 Kālāma Sutta; Bhikkhu Bodhi 2005, 89). The Kālāma Sutta brings us to the code of conduct mentioned above. This code of conduct refers to the application of the Buddha's teachings or Dhamma in our everyday lives. This application involves using *direct experience* as the basis for making judgements or for accepting what is the truth or not the truth. The Buddha knows that direct or personal experience can help people to understand their present condition better, and consequently work towards improving their conduct based on this understanding. As Bhikkhu Bodhi (2005, p. 83) points out, the Buddha does not demand that we *begin* our spiritual quest by placing faith in doctrines that lie beyond the range of our immediate experience. Instead he asks us to consider a few simple questions pertaining to our immediate welfare and happiness, questions that we can answer on the basis of personal experience.

Buddha lays emphasis on personal experience based on the here and now because he knows 'that people are primarily motivated to act by a concern for their own welfare and happiness' (Bhikkhu Bodhi, 2005, p. 85). Hence, Buddha's method of using the people's personal experiences, or *praxis*, in the context of their present living conditions allow the people to see for themselves how the Buddha Dhamma is applicable to, and beneficial for, their lives here and now. More importantly, the people can also see and experience the benefits of practising directly the Buddha's teachings here and now (refer the Gāmanisaṃyutta: Connected Discourses with Headmen (SN 42.11).

This attention on the here and now also reflects Buddha's sensitivity towards the human physiological condition, in particular, hunger. There is a story of how the Buddha did not want to preach the Dhamma to a hungry man. Why is this so? The Buddha knows that hunger is the greatest disease (Dhp, verse 203 Hunger is the greatest affliction), and there is no ailment which is difficult to bear as hunger, and that is why the Buddha decided not to preach to the hungry man. According to the Buddha, if one is feeling hungry, the pangs of hunger might have prevented him from comprehending the Dhamma fully. Many centuries later, Maslow (1954) used the same principle as the Buddha for his theory on the hierarchy of human needs – with the most basic physiological needs given the first priority.

Having outlined some of the Buddha's principles underlying his decision to teach the Dhamma out of compassion to the multitude of gods and men, we now move on to Buddha's strategic approaches or methods of teaching.

Buddha's Pedagogy: A Matter for Teachers

Freire (1972) has emphasised the need for teachers to 're-educate' themselves first before they could 'educate' their students. By re-education, it means to re-train themselves in the pedagogy of teaching students who come from varied backgrounds, and in particular, 'oppressed' living conditions. More than 2500 years before Freire, the Buddha Gotama has expressed similar emphasis on the importance of developing qualities within oneself so as to be able to reach out and help others develop similar qualities that one has developed for oneself. 'Let one first establish oneself in what is proper, and then instruct others. Such a wise man will not be defiled' (Dhp, Verse 158 Advisers should set the example first).

As an aspiring trainer of conduct for others, one must first train oneself first, for as the Buddha has declared, 'one who is sinking in the mud cannot for certain pull out another who is also sinking in the mud (MN 8 Sallekha Sutta: The Discourse on Effacement). Likewise, one not sunk in the mud can for certain be in a better position to pull out another sunk in the mud. Henceforth, an aspiring teacher who is 'untamed, untrained' cannot by himself, tame and train another (Siddhi, 1995, p. 15).

How should an aspiring teacher 'tame and train' himself/herself? The Buddha has laid down a set of standards to help and guide the aspiring teacher in his/her own training: 'Verily, Ananda, not easy is it to teach Dhamma to others. In teaching others Dhamma, Ananda, make five things stand up within you, then teach others Dhamma. What five? Teach others Dhamma, thinking: I will give a talk

on the *gradual*; teach others Dhamma, thinking: I will give a talk with the *way in view*; teach others Dhamma, thinking: I will give a talk *out of kindness*; teach others Dhamma, thinking: I will give a talk *not as a means for gain*; teach others Dhamma, thinking: I will talk a talk *not to my own hurt nor to others*' (AN 5.159 The Venerable Udāyī).

The Buddha has also prescribed how teachers, having trained and developed the qualities outlined by the Buddha above, should carry out their role as a compassionate teacher: (1) train them in the best discipline; (2) see that they grasp their lessons well; (3) instruct them in the arts and sciences; (4) introduce them to their friends and associates; (5) provide for their safety in every quarter (DN 31 Sigālaka Sutta: The Layperson's Code of Discipline).

Besides laying the groundwork for aspiring teachers to train themselves first and develop qualities that would make them good, compassionate, loving and wise teachers, the Buddha has also prescribed and demonstrated several teaching methods, endorsing his status as '*incomparable guide for the training of persons*' and '*teacher of gods and humans*.' Buddha's teaching methods incorporate the following approaches, with the emphasis on gradual approach as the foundation of his pedagogy:

1. *Ānupubbīkathā* – the gradual approach

Ānupubbīkathā, gradual instruction, talk or sermon. The term, as illustrated by Ven. Nyanatiloka (1980), refers to the progressive sermon given by the Buddha, in accordance with the Buddha's knowledge in advance, the capacity and readiness of the listener(s). The Buddha's method was to begin with something simple, basic, and close to the listeners so that they could relate what the Buddha was saying with their own experiences and living conditions.

The Buddha Gotama first practised this gradual instruction on his five former friends, the ascetics Koṇḍañña, Bhaddiya, Vappa, Mahanama and Assaji. These five ascetics were sceptical of the Buddha's sincerity for renunciation, and so, the Buddha used the *ānupubbīkathā* approach by first explaining to them the importance of adopting a middle way (which is beautifully captured in Sona Sutta [AN 6.55 Sona Sutta: The Simile of the Lute]), signified by the Noble Eight Fold Path. Then, when he perceived their minds were ready and receptive, the Buddha began to instruct the five ascetics on the Four Noble Truths (SN 56.11 Dhammacakkappavattana Sutta: Setting in Motion the Wheel of the Dhamma).

The Upāli Sutta (MN 56.18) and the Dhammacakkappavattana Sutta (SN 56.11) illustrate how the Buddha skilfully prepares the listener's mind before speaking to him on the advanced teaching of the Four Noble Truths: 'Then the Blessed One gave the householder Upali progressive instruction, that is, talk on giving, talk on virtue, talk on heavens; he explained the danger, degradation and defilement of sensual pleasures, and the blessing of renunciation. When he knew that the householder Upali's mind was ready, receptive, free from hindrances, elated and confident, he expounded to him the teaching special to the Buddhas: suffering, its origin, its cessation and the path' (MN 56.18 Upāli Sutta).

The Buddha places great confidence in this gradual approach, beginning with the most basic, that is, to cultivate good conduct or discipline (*silā*), as illustrated in this sutta: "It is possible, brahmin, to describe gradual training, gradual practice, and gradual progress in this Dhamma and Discipline. Just as, brahmin, when a clever horse-trainer obtains a fine thoroughbred colt, he first makes him get used to wearing the bit, and afterwards trains him further, so when the Tathāgata obtains a person to be tamed he first disciplines him thus: 'Come, bhikkhu, be virtuous, restrained with the restraint of the Patimokkha, be perfect in conduct and resort, and seeing fear in the slightest fault, train by undertaking the training precepts ...' (MN 107 Ganakamoggallāna Sutta).

One good illustration of the *ānupubbīkathā* or step-by-step approach used by the Buddha Gotama is the story of Suppabuddha the leper (Udāna 5.3 Kuttī Sutta: Suppabuddha the Leper; Piya Tan, 2002):

Then the Blessed One, having encompassed the awareness of the entire assembly with his awareness, asked himself, “Now who here is capable of understanding the Dhamma?” He saw Suppabuddha the leper sitting in the assembly, and on seeing him the thought occurred to him, “This person here is capable of understanding the Dhamma.” So, aiming at Suppabuddha the leper, he gave a step-by-step talk, i.e. he proclaimed a talk on generosity (*dāna*), on virtue (*silā*), on heaven (*sagga*); he declared the drawbacks, degradation, and corruption of sensuality (*kām’ādīnava*), and the rewards of renunciation (*nekkhammā’nisamsa*). Then when the Blessed One knew that Suppabuddha the leper's mind was ready, malleable, free from hindrances, elevated, & clear, he then gave the Dhamma-talk peculiar to Awakened Ones, i.e. stress, origination, cessation, and path. And just as a clean cloth, free of stains, would properly absorb a dye, in the same way, as Suppabuddha the leper was sitting in that very seat, the dustless, stainless Dhamma eye arose within him, “Whatever is subject to origination is all subject to cessation.”

Ānupubbīkathā -why did the Buddha adopt this method of gradual, step-by-step instruction? The answer possibly lies in the Buddha’s knowledge of the human condition. Human beings, as *manussa*, are capable of thinking, and capable of being trained and educated (*sikkhā*) (Payutto, 1998, p. 1). In other words, human beings have the capacity to be ‘educated’, to develop their potential to be good, noble, dignified human beings. Through education, that is learning and training, human beings, whether male or female, can be transformed from being mere ‘puggala/puthujana’, or ordinary person, to *ariya puggala*, noble beings. Buddha sees individuals as existing in their own right, hence the Buddha views all individuals in the same, unattached, unbiased, objective manner. Undoubtedly, those individuals with ‘much dust in their eyes, dull faculties, bad qualities and hard to teach’ (MN26 Ariyapariyesanā Sutta) will need a longer time to understand his Dhamma, while individuals with ‘less dust in their eyes, keen faculties, good qualities and easy to teach’ will understand his Dhamma within a shorter time.

Although the Buddha knows that ‘few are those beings that are wise, quick-witted, not deaf or dumb, competent to judge the meaning of what is spoken well or ill, and more numerous are those who are fools, slow-witted, deaf or dumb’ (AN1.19 Few are those beings); ‘... when thus advised and instructed by me, some of my disciples attain Nibbana, the ultimate goal, and some do not attain it’ (MN107 Ganakamoggallāna Sutta); and ‘few are those who clearly see. As few birds escape from a net, few go to a blissful state (Dhp, verse 174 Few are the clear-sighted),’ still, the Buddha continues to teach the Dhamma without discrimination.

2. Adaptation Approach

Buddha also demonstrates skilfulness in using existing conditions as a resource to teach the profound Dhamma to his listeners. Rhys Davids (in Siddhi, 1995, p. 200) characterised the Buddha’s style of adapting his teachings on prevailing conditions as ‘pouring new wine into old bottles’. This consists in the Buddha’s giving a new meaning to words that were already current. He adapted traditional ideas and practices and adjusted his sermons to suit the temperaments of his hearers, a method that came to be known as ‘upaya-kosallam’, that is the skilful policy (expedient means) of converting people (Siddhi, 1995, p. 200).

The Buddha has the ability to understand the background of those to be instructed. Whenever and wherever the Buddha imparted his teachings to others, it is said, at first he always ascertains their dispositions and tendencies and purposes, and thus he selected, adjusted and aptly preached the doctrines with reference to the background of each individual or group of individuals. For example, Buddha uses the word “Brahma”, then existing as a major idea/belief – Brahma-God – to preach the path leading to the highest goal, by cultivating the four *brahmavihāras*, or sublime virtues (Siddhi, 1995, p. 198 & p. 201). Siddhi (1995, p. 201) also cites another example of Buddha’s adaptation approach, that is, when the Buddha gave a brahmin an instruction in the ‘ritualistic tenet’ of washing away the sin. Instead of going into the river and washing the sin away by bathing (as this could also mean washing away one’s good deeds), the Buddha advised the brahmin to take a bath in spiritual culture by harming no living beings, etc.

3. Illustration Approach

Another skilful means of the Buddha is to use analogy, simile, parable, story and fable taken from the everyday lives of the listeners. The Buddha also incorporates beautiful verses in order to make them sweet, effective and attractive (Siddhi, 1995, p. 210). According to the Buddha, he uses analogies 'for there are cases where it's through analogies that knowledgeable people can understand the meaning of what is being said' (MN 24 Ratha Vinita Sutta: Relay Chariots).

The simile of the lute (AN 6.55 Sona Sutta) to explain the Middle Way to Venerable Sona Kolivisa, the simile of the saw (MN 21: Kakacūpama Sutta), where the Buddha tells the story of a wise slave who deliberately tests her mistress's patience, together with several memorable similes, especially the story of bandits carving the listener's limbs one by one with a two-handled saw, to illustrate the correct way to develop patience, and the water-snake simile (MN 22 Alagaddūpama Sutta), where the Buddha, using two famous similes – simile of the water-snake and simile of the raft – conveys the central message of the importance of right view.

To convey the message of not jumping to conclusions upon first impression, the Buddha used the simile of the elephant's footprint as illustrated in the Cūla-hatthipadopama Sutta: The Shorter Elephant Footprint Simile (MN 27).

4. Analytical Approach

According to Siddhi (1995, p. 202), the analytical approach, or *vibhajja-vāda* of the Buddha's teachings is one of the most important characteristics found in the earlier texts. For example, the Buddha uses this analytical method in his second sermon on Anattalakkhana Sutta [The Discourse on the Not-Self Characteristic] (SN 22.59), where the Buddha breaks down the empirical existence of the physical human being into five aggregates – body, feelings, perceptions, mental formations and consciousness, and their respective elements or constituents. Why does the Buddha use this analytical approach on the human body? The answer is that the Buddha wants to show that there is no abiding entity called 'self' (*attā*), and hence, it is pointless to think that there is a 'self that is mine', 'my self', and 'this is what I am'.

This use of analytical method has also been mentioned by the Buddha himself. For example, in Subha Sutta: To the Brahmin Subha (MN 99), the Buddha was asked whether it is true that householders are capable of doing noble merit and those gone forth homeless are not capable of doing merit. The Buddha's reply: 'Young man, here I have to give an *analytical reply*, not an absolute reply. I do not praise the wrong method, of a householder or of one gone forth homeless. Whether a householder or one gone forth homeless, if fallen to the wrong method it is not possible that he should be convinced of noble merit. I praise the right method of a householder or of one gone forth homeless. Whether a householder or one gone forth homeless, if fallen to the right method it is possible that he should be convinced of noble merit.'

So too, in the Vajjiya Sutta: About Vajjiya (AN 10.94), Vajjiyamāhita, the householder, when questioned by a group of 'wanderers of other persuasions' concerning the Buddha's view, referred to the analytical method of the Buddha: 'No, venerable sirs, the Blessed One does not criticize all asceticism, nor does he categorically denounce or disparage all ascetics who live the rough life. The Blessed One criticizes what should be criticized, and praises what should be praised. Criticizing what should be criticized, praising what should be praised, the Blessed One is one who *speaks making distinctions*, not one who speaks categorically on this matter'.

5. Practical Approach

'*Ehi passiko, Paccataṃ veditabbo viññuhi ti*' (Come and see, To be personally experienced by the wise). This practical approach or what Siddhi (1995, p. 203) calls the experimental approach

underscores the standpoint of the Buddha regarding the Dhamma, and the Buddha himself. In many suttas, the Buddha emphasises the need not to accept what we have heard blindly without reflection, investigation, critical inquiry and practice. This is so because the Buddha asserts that the Dhamma (Truth or Doctrine) is to be self-realised, with immediate fruit, inviting investigation, leading on (to Nibbāna), to be comprehended by the wise, each for oneself.

The Buddha makes this assertion very clearly in the Kālāma Sutta, mentioned above (AN 3.65; Thanissaro Bhikkhu, 2002). Similarly, the Buddha does not want people to accept or reject his teachings on blind faith/emotion or with unquestioning acceptance/rejection. Instead, he provides ways for us to train ourselves to be reflective, critical, inquiring and investigative. Hence, the practical approach as laid out by the Buddha embodies an experiential learning process, whereby the conclusion or truth is arrived or derived through personal and direct experience. This experiential method is clearly depicted in the Ambalaṭṭhikārahulovāda Sutta: Instructions to Rāhula at Mango Stone (MN 61), where the Buddha delivers his first instructions to his son, Rāhula. The Buddha informs Rāhula to reflect on his intentions before acting on them, and to carry through with them only if he saw that his intended action would cause no harm. While acting, he should reflect on the immediate results of his actions; if they were causing any unintended harm, he should stop. After acting, he should reflect on the long-term results of his actions. If he saw that they actually did cause harm, he should resolve never to repeat them. If they didn't, he should take joy and continue on the path (Thanissaro Bhikkhu, 1999).

The Buddha's last words upon *parinibbāna*, or passing away, reconfirms his standpoint on the importance of practice: 'Behold now, bhikkhus, I exhort you: All compounded things are subject to vanish. Strive with earnestness!' (DN 16 Mahā-parinibbāna Sutta: Last Days of the Buddha). The only way to understand and gain realisation of the Dhamma is to 'practise the Dhamma to see if it brings about an end to suffering within our own minds' (Thanissaro Bhikkhu, 2002). Bhikkhu Bodhi (1998) makes a similar reiteration that wisdom arises by systematically working the ideas and principles learned through study into the fabric of the mind, which requires deep reflection, intelligent discussion and keen investigation.

6. Syntactical Approach

While the analytical approach breaks down a concept or entity into smaller parts, the syntactical approach refers to the application of one concept in different contexts. For example, *dukkha*, or suffering, which Buddha applies in several but related contexts -birth, old age, sickness and death - as illustrated in the First Noble Truth: 'Suffering [dukkha], as a noble truth, is this: Birth is suffering, aging is suffering, sickness is suffering, death is suffering, sorrow and lamentation, pain, grief and despair are suffering; association with the loathed is suffering, dissociation from the loved is suffering, not to get what one wants is suffering - in short, suffering is the five categories of clinging objects' (SN 56.11Dhammacakkappavattana Sutta: Setting in Motion the Wheel of Truth). The Buddha's intention is not only to explain the meaning of suffering in different contexts, but more so, the message he wants to convey is the idea or truth on impermanency, as depicted in the changing nature of existence, and the futility of clinging on and becoming attached to things not permanent.

7. Question and Answer Approach

The Kālāma Sutta, often written with the sub-title 'The Buddha's Charter of Free Inquiry' epitomises the Buddha Gotama's receptiveness to questions and debate. This method of dialectical inquiry, which centuries later came to be associated with Socrates, the classical Greek philosopher. The Socratic method is a form of inquiry and debate based on asking and answering questions between individuals with their own viewpoints (Wikipedia, 2013). This question and answer and counter-question method (*paṭipucchā –vyākaraṇiya*) is aimed at stimulating critical thinking and reflection. The parties involved might not agree or accept the other party's viewpoints, but they might agree to disagree. Buddha Gotama encourages people to pose questions to him, for example, when a certain bhikkhu asked the Blessed One how long is an aeon, and when the Blessed One answered, the bhikkhu

then asked if it is possible for the Blessed One to give a simile (SN 15.5 The Mountain). Buddha himself will also do pose questions to the people who come to see him. In the Sīmsapā Grove Sutta (SN 31.1), the Blessed One ‘took a few *sīmsapā* leaves in his hand and addressed the bhikkhus thus: “What do you think, Bhikkhus, which is more numerous: these few *sīmsapā* leaves that I have taken up in my hand or those in the *sīmsapā* grove overhead?” In the Canki Sutta, (MN 95), when the brahmin student Kāpaṭhika interrupted the conversation between Buddha and very senior brahmins, the Buddha rebuked him. However, the brahmin Canki said to the Buddha “let not Master Gotama rebuke the brahmin student Kāpaṭhika ... he is a clansman, he is very learned, he has a good delivery, he is wise; he is capable of taking part in this discussion with Master Gotama.” The brahmin student Kāpaṭhika then went on to ask the Blessed One: “Master Gotama, in regard to the ancient brahmanic hymns that have come down through oral transmission and in the scriptural collections, the brahmins come to the definite conclusion: ‘Only this is true, anything else is wrong.’ What does Master Gotama say about this?”

Conclusion

In the Introduction above, questions were forwarded as to how teachers should teach students of today, and how to impart education to these students so that they will become human beings of character, dignity and wisdom. The fact that today’s educational system has been ‘hijacked’ by the demands of the state and market aggravates the task of teachers in carrying out their responsibilities efficiently and effectively. Freire has recognised this education problem in the late 1960s and even went to prison for his perceived ‘anti-state’ and ‘anti-market’ ideas. The Buddha, even more so, realised this formidable task of teachers more than 2500 years ago. Despite this realisation, the Buddha was not disheartened for he had unshakeable faith in the Dhamma he discovered through his own effort, own experience, and own understanding. Hence, he preached to all and sundry (except the hungry), travelled from house to house, town to town, village to village, city to city, to preach the Dhamma. Meeting a multitude of individuals with different dispositions, capacities, viewpoints and in different contexts – class, caste, custom etc. – the Buddha had to improvise, adapt, innovate, strategise his delivery methods to render his teaching effective and beneficial to the listener(s). The Buddha did all these out of compassion and loving kindness to help fellow human beings live a life of happiness and ultimately, to end this cycle of suffering.

So, the question on what kind of pedagogy is appropriate and beneficial for today’s students (seeking secular or Buddhist education) – the answer lies within the hearts and minds of the teachers themselves. What kind of education do they want to impart to their students? What is the goal of this education that teachers want to give to their students? What would their legacy be?

Teachers therefore need to reflect, investigate and analyse their purpose of education, and be confident in their own analysis of their purpose. The Buddha has provided a systematic, time-tested, experiential and easy-to-implement model of pedagogy. The model is based on the standpoint that every human being is trainable, hence ‘educable’, that is, each can be trained to ‘bring forth’ their latent capacity and potential to tread the path of knowledge acquisition grounded on character building, moral development and spiritual advancement. For today’s students living in a material and commercial world, the teachers’ task is indeed daunting, but not impossible. The Buddha’s pedagogy might be worth a try.

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<http://www.accesstoinsight.org/tipitaka/kn/ud/ud.5.03.than.html>

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Multimodalities, Neuroenhancement, and Literacy Learning

Joseph Sanacore*

Long Island University

Joseph Piro**

Long Island University

Abstract

In the United States, children are in front of the “screen” about six hours a day, and because schools are a microcosm of society, educators need to incorporate more screen-oriented activities into the literacy program. Transmediation, based in social semiotics, promotes collaborative conversations, which nurture positive translations from one sign system to another, for example, from print to the Internet or from print to dance. In support of this pedagogy, related theory and research are presented as well as strategies and activities for engaging students in multimodal learning while demonstrating potential neuroenhancing effects.

Key Words: social semiotics, transmediation, sign systems, multimodality, pantextual meaning, neuroenhancement

* Joseph Sanacore is a professor at Department of Special Education and Literacy College of Education, Information and Technology Long Island University-Post Brookville, NY 11548

** Joseph Piro is an associate professor at Department of Curriculum and Instruction College of Education, Information and Technology Long Island University-Post Brookville, NY 11548

Introduction

Twenty-first century literacies are defined, in part, by immersion in different sign systems or multimodal texts (NCTE, 2008), and Kress (2003) considers the “screen” to be the dominant site of texts. He states, “Two distinct yet related factors deserve to be particularly highlighted. These are, on the one hand, the broad move from the centuries-long dominance of writing to the new dominance of the image and, on the other hand, the move from the dominance of the book to the dominance of the medium of the screen” (p. 2). According to *IRA Inspire* (2012), today’s children are in front of screens about six hours every day, watching television, exploring the Internet, and playing video games. Children’s and adults’ increased use of video and computer games is documented in Tobias & Fletcher (2011), and these types of popular culture have become increasingly complex, involving highly specialized styles of language that are more challenging and engaging than are conventional elementary reading materials (Gee, 2008). While seemingly in opposition to reflective practices because their presentation is often quickly paced, carefully selected video and computer games actually support language development, analytical thinking, critical responses, and other reflective habits. In a recent publication titled *Learning Science through Computer Games and Simulations*, the National Research Council (2011) stated, “Computer simulations and games have great potential...They enable learners to see and interact with representations of natural phenomena that would otherwise be impossible to observe—a process that helps them to formulate scientifically correct explanations for these phenomena” (p. 1). Furthermore, researchers, theoreticians, and practitioners (e.g., Ajayi, 2009; Bitz, 2004; Calo, 2011; Chun, 2009; Cowan & Albers, 2006; Danzak, 2011; Gallagher & Ntelioglou, 2011; Jenkins et al., 2006; Kirkland, 2009; Kress, 2010; Lotherington, 2011; McAllister, 2008; McCormick, 2011; Morgan & Rasinski, 2012; Moyer, 2011; Rudd, 2012; Sanacore, 2004; Serafini, 2009; Siegel, 2012; Symthe & Neufeld, 2010; Turner, 2011; Walsh, 2007, 2008, 2009, 2010) support the stance that reading, interpreting, and demonstrating a text can involve such multiple modalities (or sign systems) as print-based and screen-based texts, primary sources (print and nonprint), video games, art, music, mathematics, graphic stories, graphic poems, performance poetry, animated narratives, comics, drama, drawing, portraiture, digital photos, claymation, tattoo designs, dance, audiobooks, picture books, e-books, and podcast and multimodal media production. These and other sign systems are not essentially competing with one another because each offers a specific type of meaning (Harste, 2009). Studying a sign system, or engaging in social semiotics, increases the chances that a student will choose this communication system to generate meaning. In Kress’s (2004) perspective,

...the ‘social’ in ‘Social Semiotics’ draws attention to the fact that meanings always relate to specific societies and their cultures, and to the meanings of the members of those cultures. Semiotics takes the sign—a fusion of a form and a meaning—as its basic unit. In making signs, we—embedded in our cultures—select forms in such a way that they express the meanings that we ‘have’ always ‘aptly’ [intended]; hence signs always express, through their form, the meanings that the makers of signs have wished to make.

Multimodal experience can support students’ choice of a sign system and their translation of meaning from one sign system to another—for example, from print to interactive digital text or from print to dance (McCormick, 2011; Walsh, 2008). As students move in this inquiry-based direction, they experience transmedia navigation as they demonstrate “the ability to follow the flow of stories and information across multiple modalities” (Jenkins et al., 2006, p. 4). They also inevitably face degrees of ambiguity as they analyze different systems, and these reflective practices require students to reexamine the main concept and related ideas in the first sign system so they can create an equivalent in the second sign system (McCormick, 2011). In this social semiotic context, different texts or sign systems are generative because the signmaker can extend the initial meaning (Cowan & Albers, 2006; Kress & van Leeuwen, 1996).

Pantextual Meaning and Converging Sign Systems

At the core of transmediation are the processes of developing, shaping, integrating, and expanding the previously discussed sign systems including art, music, poetry, video games, comics, audio books, and podcasts into full-spectrum literacy (Eisner, 1998; Goodman, 1976). In all of these, some form of visual encoding is involved. Kress and van Leeuwen (2006) talk about reading images as a new grammar of visual design. For them multimodal learning broadens the definition of literacy and provides a new “habitus” of learning that takes in the linguistic, auditory, tactile, and visual. Perhaps in developing a cueing system for children who are learning literacy practice, we need to pay attention to designing an infrastructure not only for “linguistic” grammar but also for equivalent grammars.

Because these grammars reference the visual, auditory, and motor, this speaks to another theoretical base for multiple literacies that of dual coding theory (Paivio, 1975). For example, because of early experiences with picture books as gateway linguistic experiences, children do not only think in written language but in visual image as well (Broudy, 1987). They are, in effect, using linguistic and non-linguistic strategies to dually encode information for storage and retrieval in long- and short-term memory. This Dual Coding Theory, championed by Paivio and a forerunner to transmediation, suggests that associative thinking utilizing both linguistic and non-linguistic systems are involved in language production. Paivio (2006) affirms that instructing “learners to form images during reading further enhances reading comprehension and vocabulary learning. Combining pictures, mental imagery, and verbal elaboration is even more effective in promoting understanding and learning from text by students ranging from grade school to university level” (p.11). This statement speaks to the direction where information age literacy instruction is pointed. While building upon balanced literacy approaches where deriving meaning requires the learner to employ traditional interpretive strategies of reading, writing, speaking, and listening, striving for a pantextual approach integrating these behaviors within multiple sign systems may help advance combinative thinking as a literacy platform.

Engaging Students in Multimodal Learning

McCormick (2011) explains this process as a part-whole relationship of multimodal learning. In her research, she describes transmediation efforts in a sequence of classroom language arts lessons, supported by a sixth-grade teacher, a visual artist, and a professional dancer-choreographer. Initially, a small, flexible group of students engaged in a series of self-portraits as an experiential vehicle for interpreting Chilean poet Pablo Neruda’s (1970) “*Muchos somos.*” In this series on portraiture, students used the tools of memory and the mirror as they became immersed in drawing detailed portraits of themselves, which were influenced by careful observation. According to McCormick (2011, p. 583), “the more details they see, the greater their power to distinguish the internal features of an object (or a system) and forge complex comparisons based on structural relationships. Perceiving structure necessitates moving beyond superficial observations and recognizing the relationship between part and whole.” This reflection of “self,” based on experience, helped the students to focus on detail and to progress from portraiture to an interpretation of the poem “*Muchos somos.*” Thus, two seemingly dissimilar texts—drawing and poetry—were joined to promote meaning, while also providing a foundation for joining other sign systems.

The sixth-grade teacher then read aloud several poems by Langston Hughes, a Harlem Renaissance poet, and encouraged the class to create a response. Melissa, a twelve-year-old student, wrote a poem about immigration and worked cooperatively with several peers to translate the poem into the movement of dance. Melissa and her peers engaged in transmediation by having analytical conversations about her poem and then aligning the creative structure of the poem to the compositional structure of the dance. With the support of the classroom teacher and professional dancer-choreographer, the students reexamined the central concept (macrostructure or whole) and related ideas (parts) of the poem so that the structure and content of this original composition could result in a creative equivalent with the dance. This analytical process seemed to foster a positive

confrontation with ambiguity as the students had to “look and look again to see if the meanings created in one system [poem] are *explaining* and *enhancing* the meanings in the second system [dance]” (Wolf, 2006, p. 18). One of the most poignant aspects of this meaning-making translation was when Melissa reflected on her poem and choreography and decided to spin back, stop, and “wait for a little while,” thus representing her mother’s hesitation before crossing the border into America. The success of this social semiotic reflection was deeply grounded in this signmaker’s environment and experiences as she applied her knowledge of the tools, methods, and language of a sign system and integrated it with the texts she produced (Berghoff, Egawa, Harste, & Hoonan, 2000; Cowan & Albers, 2006).

Social semiotic processes were also the basis of Cowan and Albers’ (2006) work, which highlighted the arts in literacy with fourth and fifth grade students. Briefly described, these ELA teacher-researchers focused on literacy as reflective practice, in which “students reflect consciously on their created texts, the ideologies that underpin these texts, and the process through which they make meaning” (p.126). In a series of performing and visual arts lessons, students engaged in the composing process by initially playing with words while connecting them to personal experiences and feelings. Thus, words like *happy* and *merry* might be generated to express a positive experience, while words like *sad* and *sorrowful* might be used to reveal a negative incident. Then, students were invited to dramatize or act out one of their emotions and also to share the event that is associated with this emotion. One child shared her visual imagery when she said,

Gloomy. She’s the feeling that I wanted to dramatize. My best friend moved away, and I felt really sad, like the color gray. It was hard to be alone, and no one would talk to me. I felt dark and down, like black in a dark, dark world...(p. 127). These playful activities were essential for learning because they provided students with opportunities to experiment with their environment as practice for problem solving (Jenkins et al., 2006).

These and other approaches to word study also offered multiple experiences with words, including learning about antonyms and synonyms and using them purposefully when writing. Following such word study activities, the teacher-researchers Cowan and Albers (2006, p.129) conducted focused lessons “that examine art as a knowledge domain.” They introduced elements of art—e.g., color, design, shape, and line—and their connection to meaning making. Then, they shared Marcia Brown’s (1982) Caldecott Medal-winning book titled *Shadow*, a long adapted poem from an African folk tale. *Shadow* provides excellent examples of simile, metaphor, and personification. These experiences served as a foundation for all students to engage in their own writing. With specific guidance from the teacher-researchers, the students generated imagery as they moved between the two sign systems of writing and revising their poems and creating drawings. In addition to these activities, the students had opportunities to build three-dimensional papier-mâché masks and to reflect on the relationship between their personification poem and their mask. Finally, the students were encouraged to become “reflective enough to think about their own thinking and to become conscious of their own consciousness” (Greene, 1995, p. 65). According to Cowan and Albers, (2006, p. 133),

Students’ performance and reflection complete this literacy experience...and enable [students] to become conscious of what it is that they have learned. Students point to their masks and then read their poem with expression. Students respond with such comments as, “I like how you repeated ‘outrageous’” or “Your phrase, ‘dark and down; black in a dark, dark world’ really made me feel gloomy.”

Interestingly, in her research with young children in urban inner city Toronto, Canada, Lotherington (2011) found that kindergarteners also benefited from their multimodal engagement, in that they “can program—at a very elementary level—before they can write alphabetically” (p. 112). Multimodal complexity actually facilitated the children’s acquisition of emergent print literacy, but the children needed scaffolded intervention to grasp the story’s alphabetic text. From her observations, Lotherington concluded,

This is a wake-up call to those in formal education who prioritize alphabetic literacy in the physical world over digital access, treated so often as an add-on...Policy makers as well as teachers need to rethink the prioritizing of alphabetic print as the primary or, worse, the exclusive interface to emergent literacy learning (p. 113).

Overall, engaging all learners in different sign systems helps them to make connections with literacy and the arts and to realize that both activities share syntactic and semantic properties (Piro, 2002). Such immersion also increases students' awareness of and respect for varied ways of learning and knowing. Specifically, students have opportunities to select a sign system that represents their interest and comfort zone and to express personal and academic meaning through their sign system. As important, social semiotic immersion helps students to slow down and reflect more deeply on their literacy learning experiences.

Transmediation, Multimodalities, and Neuroenhancement

A vital part of social semiotic immersion and a pantextual approach involving sign system selection involves enhancing neurocognitive and visual processing skills including visual attention, discrimination, detection, and tracking and how this, in turn, augments literacy capacity. Brice-Heath (2000) talks about the "literate eye." She cites brain science research telling us how post-retinal visual processing works and what effect focused attention has on conscious cognition. She also cites experiments investigating the visual brain noting that "what amounts to visual perception carries meaning because the imagistic character of neural activity manages to link up with stored experience that gives coherence and embeddedness to primary sensory images" (p. 122). For her, the line between transitioning from image to word is becoming harder to set, but why should it be set at all? She comments that young children have been "observers" of the worlds of word and image since birth, repeatedly blurring the lines between environmental print and image, so what better developmental juncture than early childhood to begin training readers about their close interdependence using principles of transmediation? For her,

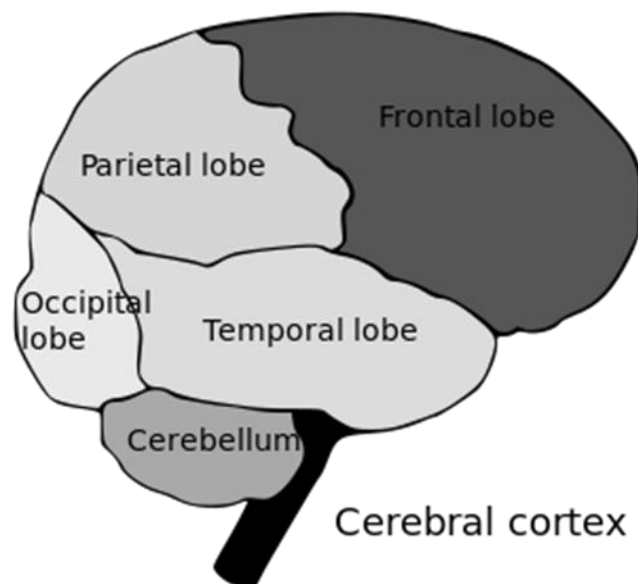
the visual arts with accompanying focus of attention on details of features, such as color, form and line, ensure attention to perception and engagement of the 'visual brain' which, in turn, resonates with remembered experience and linguistic representation. Manipulation of these features of the visual arts, [through] drawing or finger painting in early childhood provides essential opportunity for focusing joint attention, taking on numerous roles, bringing memory to external form and developing language. All of these skills are critical for academic achievement and all underlie literacy ...as traditionally conceived (p. 123).

In mapping word and image onto linguistic and pictorial representations of environmental cues, we have a unique opportunity to mix stimulus formats that, in turn, have important neurocognitive effects, notably the recruiting of differential cortical processing routes within the brain. There is some new and very promising research in brain science suggesting that the information processing of both visual and non-visual stimuli may reduce cognitive overload since this brain mapping process is being shared and, hence, can be more efficiently accomplished by the learner who is using collaborating neural pathways (Paivio, 1975; Patel & Hellige, 2007). Thus, while we can continue to stress reading and writing basics, we can enhance meaning through targeted signaling of information processed by the visual association cortex (e.g., color, shape, texture) in response to platforms such as digital narratives, comic books, video games, and graphic poems. This mix of stimuli may improve overall task approach through reductions in interhemispheric interference, promoting gains in visual literacy and acuity skills and increasing task motivation.

The neuropsychological rationale supporting this outcome centers around the suggestion that because of overlap in cortical networks used to process visual, auditory, and motor information, as well as the continuing neuroplasticity in children's brains, mixing stimuli may actually enhance neural

encoding (Pantev, Oostenveld, Engelien, Ross, Roberts, & Manfred, 1998; Peretz & Zatorre, 2005) through a process that might be labeled “neuroadditivity.” This provocative hypothesis is still being tested and is far from conclusive, but evidence continues to grow that practice and training in a variety of knowledge domains can improve targeted global cognition in children, especially primary school children. This emphasis on mixing stimuli returns us to dual coding theory and its impact on learning. According to Sadoski and Paivio (2004), the value of explaining reading under the aegis of a theory of general cognition is compelling. Reading is a cognitive act, but there is nothing about reading that does not occur in other cognitive acts that do not involve reading. We perceive, recognize, interpret, comprehend, appreciate, and remember information that is not in text form as well as information that is in text form. Cognition in reading is a special case of general cognition that involves written language. Theories specific to reading must eventually conform with broader theories of general cognition for scientific progress to advance (p. 1329). For example, there is support for the idea that neural structures for both language literacy and visual art are bilaterally distributed in and across the neurotypical brain and because of this may anatomically overlap (Figure 1). In right-handed individuals, linguistic information processing appears lateralized, primarily, to the left hemisphere, while domains of non-linguistic information, such as visual art, are more efficiently processed by the right. In the case of language, functional neuroimaging has shown tasks such as language comprehension and sentence formation involve greater left hemisphere activation (Gaillard, Balsamo, Ibrahim, Sachs, & Xu, 2003; Meltzer, McArdle, Schaefer, & Braun, 2010). Neural pathways in the left occipital-temporal region, especially, are more likely to be engaged by better readers, as some studies of dyslexic children have reported (Bosse, Tainturier, & Valdois, 2007; Shaywitz, 2003). However, the right temporal area has also been associated with components of language competencies including fluent, grammatically correct speech, word and object meaning, metaphorical processing, and lexical decision making and performance (Mashal, Faust, & Hendler, 2005; Taylor & Regard, 2003).

Figure 1. Diagram of the lobes of the brain



Areas of the brain implicated in visual art processing include both right and left temporal regions as well as the occipital-temporal areas on both sides of the brain, homologous to those engaged by many linguistic activities. An art-making activity such as drawing appears to recruit regions in the right temporo-parietal area, the same locus involved in writing (Gowen & Miall, 2007). Because of this neurophysiological proximity, some have hypothesized that neuronal pathways influencing both the expressive arts (namely music) and language arts may, following long-term experience and practice, acquire some sort of networked interdependency especially involving

component sharing, adaptive coding, and cross-domain communication, and sustained and intensive practice and training in one domain may structurally influence the other (Brown, Martinez, & Parsons, 2006).

Let us take the activity of *Picture Partners* as presented in an article by Soundy and Drucker (2010). In this project, K-1 children were asked to produce picture books which were themed around the topic of winter. Two to three children, along with a pre-service teacher, worked together as “picture partners.” After an initial read-aloud activity of a focus book on winter as the verbal component of the activity, children were asked to visually represent their individual responses from their picture book and share these with their partners. No prompts were given and children did not have access to picture books, composing their responses from memory. Following this, children were asked to write about what they depicted in their images. Throughout both activities, children were encouraged to communicate any thoughts, responses, or ideas and share these collaboratively with their picture partners as well as view each other’s work. Finally, children were asked if they wished to add anything else to their products, and resulting oral reports were also recorded by the pre-service teachers. This lesson nicely parallels in principle the earlier experience cited in the paper (McCormick, 2011), where children combined sign systems of drawing, poetry and dance overarched by a socio-semiotic structure.

For the next phase of the project, images of winter composed by the children were examined by groups of pre-service teachers and their mentors. When the colors, textures, and shapes the children used in their drawings were “aesthetically assessed,” it was discovered that many of the children felt free to experiment with their own ideas, tools, and images and that drawing perspectives, color choices, shape delineation, and compositional balance and texture, differed from partner group to partner group along with “emotional engagement” levels experienced by viewers. The encouragement to transmediate, mixing the balanced literacy behaviors of reading, writing, listening, and speaking with visual art experiences in order to deepen ideas, resulted in an ideationally dense, compositionally rich, and, because of the partner design, socio-semiotically driven product. Most important, the researchers noted that encouraging these students to represent ideas across multimodal platforms resulted in a shift away from any fixed interpretation of visual realism and towards children’s own intents. This allowed teachers “to focus on the way drawings represent meaning in the children’s sociocultural world” (Soundy & Drucker, 2010, p. 459), providing these teachers with special understandings of their students’ creative lives as well as expanded communicative lexicons.

Let’s further examine this activity for its neuroenhancing effect. First, we see behaviors involving creative drawing, writing, speaking (motoric activities) as well as features of color, design, and texture all mediated by memory, attentional, and executive function skills. The concept of neuroadditivity mentioned previously, relating to progressive neural contributions distributed throughout the brain supported by scaffolded learning experiences, is robustly demonstrated because the general pattern of neural interplay of these components appears to involve bilateral brain contributions. For example, right hemisphere frontal areas have shown activation in imagery skills such as drawing (Gowen & Miall, 2007; Molnár, 2008). Left hemisphere frontal area superior skills, including those involving lexical, orthographic, phonological, and semantic decision tasks, prove important for writing, spelling, and vocabulary comprehension (Schlagger & McCandliss, 2007). In split-brain studies, imagic memory related to animals, human faces, and landscapes were shown to be more efficiently recalled by the right hemisphere. Color detection, perception, and discrimination appear to be right hemisphere superior as well (Sasaki, Morimoto, Nishio, & Matsuura, 2007). Finally, the neural signature of “consolidated” creativity, in which brain activation synthesizes to yield novel behaviors, has been empirically demonstrated to provoke intercortical interactions especially involving the pre-frontal cortex (Kowatari, Lee, Yamamura, Nagamori, Levy, Yamane, & Yamamoto, 2009). Thus, multimodal activities scaffolding students along hierarchies of literacy learning may afford neurocognitive profit because the combinative framework of using multiple sign systems may contribute a steady stream of high-quality differential stimuli that generate complementary

interactivity and networking of overlapping anatomical areas of the brain (Stowe, Haverkort, & Zwarts, 2005).

Reflecting on the Practice of Different Sign Systems

The success of these growth-oriented journeys—from one sign system to another—is predicated on the substantial scaffolding provided by classroom teachers and specialists. We believe these efforts are most effective in helping students translate different sign systems when learning is based in meaningful, social semiotic experiences, in detailed reflections of the experiences, in dialogic classroom practices, and in opportunities to appreciate literacy in all its forms. Specifically:

- (a) Students need time to become immersed in serious play about uncertainty. Thinking, reflecting, and imagining are all part of the process of translating ideas across sign systems. In McCormick's (2011) study, learners spent hours wallowing in and gradually feeling comfortable with uncertainty. When they translated ideas, they dealt effectively with ambiguity in its varied forms.
- (b) During the reflective practice of wallowing, students benefit from the support of the classroom and special educator as the students grasp the parts that form the macrostructure (or whole) of each mode of learning. Having students retell the text and related pictures and illustrations is helpful, especially when the teacher asks prompting questions that focus on important ideas and their connection to the whole. Part of this meaning-making process should involve not only an understanding of print but also a grasp of related pictures and illustrations. In support of this instructional direction, the teacher and specialist need to understand and to help students understand aspects of visual codes and "visual grammar," including color, shape, angle, size, line, perspective, and vectors (Kress & van Leeuwen 1996; Walsh, 2007). These and other elements, as well as different media and artistic styles, guide literacy learners in how to interpret the meaning connected to these elements, how to interpret the interaction between visual images and print, and how to *feel* about different types of text (O'Neil, 2011; Serafini, 2009; Wolf, 2003). Picture books are excellent resources for promoting visual literacy, and two of our favorites are Polacco's (1994) *Pink and Say* and Tsuchiya's (1951/1988) *Faithful Elephants*. When students have successful experiences with this perspective, the movement across other sign systems—for example, artistic paintings, sculpture, and choreography—is more likely to be successful, especially when the teacher, special educator, and creative specialists demonstrate the process, guide students to make choices, and nurture collaboration among group members.
- (c) Successful group work is focused, productive, and necessary for crossing different sign systems. Educators therefore become an important factor in promoting a community of learners who engage in pertinent interactions with one another. Adapting some of Vaca, Lapp, and Fisher's (2011) suggestions for productive group work, the classroom teacher and specialists might consider a variation of three principles:

The first, and most obvious, characteristic of successful group work is to design tasks that cause students to talk with one another, to hear how their peers approach the content and then to be able to compare this with their own approach. Second, the task must provide a stimulus question or problem that causes students to cooperate as they formulate, share,

and compare ideas with one another. Finally, all tasks should be broad enough to involve both individual and group accountability. (pp. 372-373)

Vaca, Lapp, and Fisher applied these principles to productive group work involving U.S. history instruction. Small heterogeneous groups of students were to determine the benefits of the 1935 Social Security Act and the U.S. government's use of posters to communicate those benefits to the American people. Each group received a packet, which included five tasks to be completed. Task 1 highlighted preparation for group work (e.g., students were given guidelines for analyzing, discussing, and responding to U.S. government posters to promote the Social Security Act's passage). Task 2 supported collaborative efforts (e.g., after analyzing the posters, group members shared and recorded classmates' reflections). Task 3 invited critical analysis (e.g., students supported the Social Security Act by creating present-day posters that made connections to current issues and to today's diverse society). Task 4 assessed group performance (e.g., group members presented a comprehensive collection of posters that represented social diversity, and they reflected on the messages of each poster and determined each poster's appeal to the unemployed, widowed women, and retirement-age citizens). Task 5 assessed individual performance (e.g., students wrote individual responses to thoughtful prompts as a way of showing their understanding of the Social Security Act's intent).

Although these efforts were primarily intended to improve productivity in group work, they also supported aspects of transmediation by encouraging students to analyze and visually divide government posters into four sections (parts) as a way of interpreting the government's purpose for producing the posters (whole). Students also reflected on this experience and then created their own present-day posters that provided support for the Social Security Act. Examining the details of government posters helped group members to understand their intended message and, in turn, to generate original posters, thereby reinforcing the same sign system. Another dimension of this translation is to encourage students' efforts to create other sign systems, such as dressing in costumes and pantomiming varied roles that support different views on the Social Security Act. For example, they can incorporate instrumental music, dance, song, or only physical manifestations, as they pantomime and express their 1935 or present-day perspectives on Social Security.

- (d) After-school programs can provide additional support for students' reflective experiences in analyzing, critiquing, and producing multimedia. In Turner's (2011) qualitative study, students engaged in multimodal media production as a vehicle for developing their information and communication technology literacies. Briefly described, students learned to analyze and critique media with the purpose of not reproducing stereotypes found in corporate media. They also incorporated newly gained insights with a community research project. Supporting these successful efforts were in-school teachers and tutors as well as the lead multimodal media production teacher, who had an extensive background as a hip-hop artist. Among the positive outcomes of this extended-day literacy intervention were students' lyrics and digital stories, which reflected text-to-self and self-to-text connections.
- (e) This ability to negotiate seamlessly between imagery and text continues to escalate in importance in twenty-first century learning enterprise. For example, the enGauge Project at the North Central Regional Education Lab (NCREL, 2003) has identified eight Digital Age literacy categories. Among these are both basic language literacy and visual literacy. In their report, *Literacy and the Digital Age*, they write that, "students need good

visualization skills to be able to decipher, interpret, detect patterns, and communicate using imagery,” (p. 24), in other words, active and well-trained visual processing skills. In their 2020 Forecast, the KnowledgeWorks organization underscores the importance of the skill of pattern recognition which is integral to the multiple sign systems involved in transmediation. They note that advances in the integration and visualization of multiple data streams will assist in amplifying learning, enabling students to create what they label as ‘personal multi-media learning logs.’ By combining these learning logs with game-based interfaces and visualization tools, learners will be able to create “learning footprints” that show how they learn in different geographic locations and blended settings (Knowledge Works, 2008).

- (f) Professional development is vitally important for helping the key players—students, classroom teachers, special educators, creative specialists, and school library media specialists—to work collectively in promoting effective translations across different sign systems. Study groups, in-person workshops, online sessions, or blended approaches can be effective for learning about transmediation and applying related activities in schools. Our experience in professional development suggests that it is most successful when it initially focuses on thought-provoking curricular topics, such as love, greed, prejudice, revenge, politics, culture, gender, social class, adversity, death, honesty, loneliness, and belonging. Topics that translate into themes serve as the thread that binds learning and teaching across different modes of expression, including conventional print, sculpture, painting, drawing, acting, and choreography. These detailed, hands-on experiences are most beneficial when the participants have opportunities to reflect on them, to experiment with them in school settings, and to reflect on them again in subsequent professional development sessions. A frequently neglected but vitally important ingredient in professional development is students’ active participation. For example, they can attend some of the before-, during-, or after-school sessions; join related discussions; articulate their experiences; and reflect on these experiences with the intent of suggesting ways of improving small-group interactions and transmediation efforts. The teacher-researchers in Mills and Jennings’ (2011) study shared with students Daniels’ (2001) video titled *Looking Into Literature Circles* and also engaged students in analyzing audiotapes of their literature circle discussions. These activities promoted reflexivity, helping students (and teachers) “to study themselves to outgrow themselves individually and collectively” (p. 592). Not surprisingly, these efforts resulted in the improvement of literature circles, and similar energy can be directed toward making small-group, multimodal interactions more productive so that students’ engagement in different sign systems is more effective. Also beneficial to students’ learning needs is to incorporate these professional development efforts into an instructional framework that highlights a gradual release of responsibility from teachers to students (Pearson & Gallagher, 1983). Important components of this model of instruction include purpose for learning, teacher modeling or demonstration, guided instruction, student engagement in productive group work, and instructional goals that “move students to an *independent* level of mastery of the concept or skill being taught” (Fisher, Frey, & Nelson, 2012, p. 555). Furthermore, professional development should consider big-picture perspectives, involving online training modules, MOOCs (massive open online courses), digital badges, and other options for research training and professional development (Tierney, 2012). Additionally, November (2012) suggests that teacher educators, professional developers, and classroom teachers use Diigo (an

information management tool for collecting and organizing virtually anything), Jing (a program for immediately capturing images, recording videos, and sharing them with anyone), Wolfram Alpha (a computational knowledge engine), and Poll Everywhere (a service for gathering live responses in any venue including classrooms, presentations, and conferences). Of course, any of these approaches should be thoughtfully introduced and monitored, with a sense of where we expect education to be in the next several decades. Otherwise, these approaches will be reduced to hype cycles and fads.

Wallowing in uncertainty, grasping and connecting important parts to the macrostructure, engaging in productive group work, becoming involved in after-school programs, and supporting these and other efforts through effective professional development are among the ways of helping all students and teachers develop the patience, confidence, and reflective ability to successfully transition to different sign systems.

Some Closing Thoughts

Immersing students in collaborative conversations that support important translations from one sign system to another can nurture a greater appreciation for the value of each system, while increasing a social semiotic awareness of the many ways of learning and knowing. All students deserve this learning and teaching context, including English language learners, struggling learners, and reluctant learners. The classroom teachers, special educators, and creative specialists in Lotherington's (2011) study worked with English language learners, many of whom "had diagnosed learning challenges" (p. 165). Without bottom-up, segmented, decontextualized instruction, the children prospered with their engagement in such meaningful activities as reading and discussing an authentic novel and focusing on the main character's development. For example:

After the children had become familiar with [the main character's] life by reading the novel, they plotted it as a series of scenes and interpreted these in movement. This constituted a retelling of [the character's] life story in another genre—an excellent test of reading comprehension. The class developed a narrative script, and choreographed dance and dramatic moves to enact it...The story in movement was staged as a narrated shadow play, which involved scientific thinking to calculate the lighting for shadows against a screen. The performed shadow play was videotaped and programmed as a movie with narrated voice-over (Lotherington, pp. 163-164).

Thus, the children, including those with special needs, benefited substantially from their meaningful immersion in multimodal literacies, which nurtured their dimensional movement from textual understanding to multiple senses and expression modes. Although there is no guarantee that *equal success* will be achieved with all children who have special needs, they still deserve *equal access* to learning through multimodal literacies. As educators move in this direction, they increase the chances that their community of learners will maintain substantial interest in learning and also will demonstrate growth and development in a variety of literacies.

In terms of the inclusion of transmediation as part of everyday teacher practice that can be readily adapted for a continuum of learners, we must, finally, acknowledge the Common Core Standards (<http://www.corestandards.org/>) that are being rolled out in schools across the nation and their potential to alter the literacy landscape. The academic standards for English language arts span grades kindergarten through twelve and are the outcome of the collective efforts of the National Governors Association Center for Best Practices and the Council of Chief State School Officers. The integration of these Standards is escalating in importance with most states shifting teacher practice by aligning textbooks and assessments to them. Two examples of common-core standards in grades 11-12 in the area of writing include these:

- (a) Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience
- (b) Demonstrate knowledge of eighteenth-, nineteenth- and early-twentieth-century foundational works of American literature, including how two or more texts from the same period treat similar themes or topics

The interdisciplinary response channels these standards present to teachers offer secondary school students opportunities for transmediation to encode text for deep learning and scaffold through levels of cognitive complexity as well as mix stimulus formats to promote neuroenhancement. For example, let us take Lincoln's 1861 *First Inaugural Address* as an anchor foundational nineteenth-century document. To begin, students can read the speech (which includes such poetic lines as "the mystic chords of memory, stretching from every battlefield and patriot grave to every living heart and hearthstone all over this broad land, will yet swell the chorus of the Union") as hypertext on the Library of Congress website (www.loc.gov) or on the Papers of Lincoln website (<http://www.papersofabrahamlincoln.org/>). They then can transmediate as well as mix stimulus formats by "reading," as complementary text, Winslow Homer's illustration of the event which appeared in *Harper's Weekly* (the most popular American newspaper during the Civil War known for its striking illustrations). Further mixing in processing modes, they might decode multiple images of Lincoln including photographs, oil paintings, and sculptures becoming encouraged to interpret his image by crafting a composite of their own. These experiences can be supplemented by the "moving image," specifically Ken Burn's *Civil War* PBS video which includes references to the inaugural event or the 2012 Stephen Spielberg film *Lincoln*. These practices may be further neuroenriched by guided listening to a performance (available on www.YouTubecom) of the 1942 orchestral work *Lincoln Portrait* by American composer Aaron Copland, a musical interpretation (itself somewhat of a transmediated work because of its mixing of orchestral and vocal music traditions with spoken narration) on the life and accomplishments of Lincoln. Students can compare, contrast, and critique all these diverse artifacts, differentially recording their responses using audio or video podcasts, blogs, a documentary, or another digital product publishable on the Internet. They can curate an exhibition in an online museum which contains their Lincoln images and prepare a cyber-guide about its e-installation.

It is important to remember that these divergent learning experiences are not all equivalent in scope and depth, and students will need to engage in more metacognitive thought to grasp intertextual relationships (Mills, 2011) because, in a sense, each sign-system uniquely retells the story. This tapestry of multi-modal, pantextual activities, embracing a host of sign systems, can not only deepen students' comprehension of American history but also expose them to an array of resources affording flexible learning platforms richly leavened by visual, aural, and motor neurointegration. This, in turn, reinforces the belief that all these sign-making systems contain dynamic expressive possibilities that can amplify conceptual understanding. It is in ways like these that we can seize multiple opportunities for immersing students in multimodal learning. Short, Kauffman, and Kahn (2000) write of their practices of having children respond to literature using multiple sign systems. They cite the benefits of such an approach including the creation of a larger pool of ideas, the opportunity to think more broadly as well as think through feelings, in effect calling upon executive functions. Children, they write,

could more fully enter into and reflect on the story world because they experienced it from so many perspectives...By engaging in transmediation across sign systems, they were encouraged to think and reflect creatively and to position themselves as meaning makers and inquirers. They were supported in gaining new perspectives and creating new visions about literature and life (pp. 170- 171).

What better testament to 21st century literacy education than to not only acknowledge but also celebrate the multiple, sign-sensing pathways students can now encounter. By creating, presenting, and using these pathways to promote meaningful generative thinking, we ensure that abundant opportunities for intellectual advancement will persist. This, in turn, will build a knowledgeable, sophisticated, and literate society where the life of the mind and its myriad meaning-making possibilities will help all of us continue to make sense of the ever-changing and ever-challenging human experience.

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The Impact of Discourse Signaling Devices on the Listening Comprehension of L2 Learners

Fahimeh Tajabadi

University of Tehran, Tehran, Iran

Mahboubeh Taghizadeh

University of Tehran, Tehran, Iran

Abstract

The purpose of this study was two-fold: first, it aimed at examining the impact of expository text topics on the listening comprehension of L2 learners; second, it aimed to investigate the impact of macro, micro, and macro-micro discourse markers on the listening comprehension of expository texts by L2 learners. The participants ($N = 105$) were male and female adult L2 learners at upper-intermediate level selected from a number of English language institutes in Iran. The materials consisted of three expository texts and three versions (i.e., micro, macro, and macro-micro) for each text, which were developed by the researchers based on Chaudron and Richard's (1986) model of discourse markers. A listening proficiency test and three sets of listening comprehension tests were the instruments of this study. The analysis of the data revealed that there was no significant difference in the participants' performance on the three expository texts. The results also showed that macromicro versions received the highest mean, while macro versions received the lowest mean. The findings of this study suggested that the combination versions of micro and macro discourse markers contributed more to the comprehension of L2 listeners than only micro and macro versions did.

Keywords: discourse markers, expository texts, listening comprehension, macromarkers, micromarkers

Correspondence: mah_taghizadeh@ut.ac.ir

Introduction

It is now acknowledged by the L2 researchers (e.g., Buck, 2001; Flowerdew & Miller, 2005; Vandergrift, 2007) that listening skill deserves equal or even more attention compared to the other three macro skills (i.e., writing, speaking, and reading) in that it is an essential part for the communicative competence. Studies on different aspects of L2 listening which result in the enhancement of listening comprehension are particularly worthwhile since listening as an input for the L2 learners is vital to their language development (Osada, 2004).

One important feature in listening, particularly in the listening to monologues, is the use of rhetorical cues known as Discourse Markers (DMs). DMs, as Hansen (1994) defines, are “organizational signals that appear at the beginning and/or end of a unit of talk and are used by the speaker to indicate how what is being said is related to what has already been said” (p. 143). Some researchers, to date, investigated the impact of signaling cues on the listening comprehension of L2 learners; however, there are no consistent results on the facilitating role of DMs in the listening comprehension process. Among those conducting studies on DMs, a majority reported support for the facilitative role of DMs (e.g., Chaudron & Richards, 1986; Eslami, 2006; Han, 2011; Jung, 2003, 2006; Perez & Macia, 2002; Rido, 2010; Smit, 2006; Taboada, 2006), while a few researchers (e.g., Dunkel & Davis, 1994; Gocheco, 2011) found no positive effects for the signaling cues on the L2 learners’ listening comprehension.

In addition, although a majority of researchers (e.g., Fraser, 1999, 2006; Halliday & Hasan, 1976; Hansen, 1998; Hyland, 2000; Schiffrin, 1987) argue that DMs relate discourse segments within the text and help listeners interpret the intended speech, there is still no universal acceptance on the definition and functions of DMs. For instance, Fraser (1996) notes that DMs are one type of pragmatic markers. In his view, pragmatic markers are featured as syntactic, lexical, and phonological linguistic devices, which play no part in the semantic meaning of the content of propositions; however, they have an important role in the interpretation of utterances. On the other hand, within Halliday and Hasan’s (1976) framework, DMs function as conjunctions playing important roles in creating the semantic links between the linguistic items.

Given the previous studies on DMs, it can be argued that they are questionable with respect to some methodological shortcomings such as lack of control over the learners’ background knowledge of the topic, lack of control over the homogeneity of the participants in terms of listening proficiency, and lack of authentic materials (i.e., natural unscripted lectures). Inconsistencies in the previous studies on the effect of DMs on the L2 listening comprehension suggest the need for more research using a variety of texts as well as a rigorous design or procedure to gain more insight into the role and effects of DMs. Therefore, it is worthwhile to conduct more studies investigating how DMs function during the listening comprehension process, to what extent they affect the listening comprehension, and how different text topics can influence listening comprehension.

Taking a quantitative approach and following Chaudron and Richard’s (1986) framework on DMs, the objectives of this study were first, to examine the impact of three expository text topics on the listening comprehension of L2 learners and second, to investigate the impact of different types of DMs (i.e., micro, macro, and the combination of micro and macro) on the listening comprehension of the expository texts by the Iranian L2 listeners.

In this study, the following research questions were formulated:

1. Is there any significant difference in the L2 learners’ listening comprehension in terms of the expository text topics?
2. Is there any significant difference between the impact of micro, macro, and macro-micro DMs on the L2 learners’ listening comprehension of the expository texts?

Review of the Related Literature

Discourse Markers

Within the last several decades, listening comprehension studies in general and DM studies in the area of listening in particular have extensively attracted the attention of researchers and discourse analysts. There is now ample evidence in the literature supporting the need for attention to both the listening skill and the factors which may influence it in the pedagogical studies. For instance, there have been a number of studies reporting the significant role of DMs in the listening comprehension processing (Chaudron & Richards, 1986; Eslami, 2006; Halliday & Hasan, 1976; Jung, 2003, 2006; Schiffrin, 1987; Smit, 2006; Taboada, 2006). However, there is still no consensus on whether and to what extent DMs can affect the comprehension of L2 listeners (e.g., Chaudron & Richards, 1986; Dunkel & Davis, 1994; Eslami & Eslami-Rasekh, 2006; Fung & Carter, 2007; Goheco, 2011; Jung, 2003).

To date, a number of researchers (e.g., Chaudron & Richards, 1986; Fortuno, 2006; Fraser, 1999, 2006; Hansen, 1998; Hyland, 2000; Schiffrin, 1987; Schourup, 1999) have attempted to characterize DMs in terms of definition, meanings, and functions in a general way. However, no consensus has emerged among scholars in this regard. For instance, the most frequently used word to refer to these linguistic items is discourse markers (Fraser, 1999, 2006; Schiffrin, 1987). Hansen (1998) argues that DMs are “organizational signals that appear at the beginning and/or end of a unit of talk and are used by the speaker to indicate how what is being said is related to what has already been said” (p. 143). Hansen also reiterates that although DMs do not create meaning, they semantically help the listener interpret the linguistic unit, which they are part of, pertaining to the following discourse, by creating a coherent mental representation of the discourse.

Schourup (1999) suggests connectivity, optionality, and nontruth conditionality as the three characteristics of DMs. He further states that the other feature known as multicategorality (i.e., multifunctionality) is not critical for DMs. He also argues that the primary feature of DM fundamental to its definition is that they connect information units in the discourse. This is also what other scholars (e.g., Fraser, 1996; Hansen, 1998; Schiffrin, 1987) emphasized.

There is also no general agreement on the DM meaning among the researchers. While Fraser (1999) argues that every DM has a core meaning, Schiffrin (1987) maintains that DMs such as *well* and *oh* lack meaning and act as what she calls ‘discourse slots’, which give the speaker time to organize his/her utterances. Schourup (1999), in contrast, points out that the issue is not whether DMs are meaningless or not, but rather what type of meaning they encode. As Fraser (1999) suggests, semantically there are some aspects to the meaning of a lexical expression when it serves to function as a DM. First, a DM fundamentally relates two discourse segments and do not affect the propositional meaning of the segments. In other words, no change occurs in the message content if a DM is removed, although there are some exceptions that DMs such as *because*, *since*, *whereas* cannot be deleted due to some syntactic reasons. Secondly, a DM’s meaning is regarded as procedural rather than conceptual (Fraser, 1999; Hall, 2007).

Given the literature reviewed, it can be observed that there are also different views on the functions of DMs. One function proposed by Schiffrin (1987) is to create discourse coherence. Establishing sequential relations between segments of discourse, as Fraser suggests, is another view on the function of DMs. Fraser further argues that DMs function to highlight a relationship between the discourse segments, which host and follow.

As noted previously, there is controversy among researchers on how different types of DMs should be classified, and, to date, a number of classifications on various types of DMs have been suggested by different scholars (e.g., Chaudron & Richards, 1986; Fortuno, 2006; Fraser, 1999, 2006; Halliday & Hasan, 1976; Hyland, 2000). The classification used in this study is the one proposed by Chaudron and Richards (1986). They classified DMs into two broad categories: micromarkers and

macromarkers. Micromarkers indicate intersentential relations in lower-level order by either linking clauses and sentences or filling gaps, whereas macromarkers signal overall structural relations in higher-level order by either marking or sequencing major transition points (Chaudron & Richards, 1986). Chaudron and Richards then suggested a taxonomy of micromarkers under five semantic categories: segmentation, temporal, causal, contrast, and emphasis. On the contrary, they did not suggest any subcategories for macromarkers. Rather, they only listed a number of metastatements (i.e., long sentences or clauses) as the important transition points from the lecture they studied.

Expository Texts

The comprehension of expository texts as one type of discourse structure pattern frequently found in the media, news broadcast, documentaries, educational/scientific programs, and academic places is of great importance. An expository text is a text or speech used to provide information about or explain a particular subject or procedure. It is considered as one of the four rhetorical modes of discourse along with description, narration, and argumentation. Patterns of development within an expository text, as Richards and Schmidt (2002) states, include giving examples, describing a process of doing or making something, analyzing causes and effects, comparing and/or contrasting, defining a term or concept, and dividing something into parts or classifying it into categories. In the comprehension of the expository texts, analysis and synthesis are the two mental processes, which interact with each other (Hatim & Mason as cited in Abdollahzadeh, 2009). According to Jung (2003), unlike narrative texts which describe daily events in sequence, expository texts integrate relations between a set of semantically related ideas. Thus, it is vital for the listeners to be able to discriminate the major points in the expository texts so as to be successful in the comprehension (Jung, 2003). Jung also argues that due to the nature of the expository texts, signaling cues may have more facilitative effect on the listening comprehension of such texts by making the informational relationships more explicit in the text. In addition, among the different types of texts, special attention should be paid to monologues when articulated. As Thompson (1994) states, monologues lack turn-taking mechanisms; therefore, the speaker can help the listener achieve a coherent interpretation by using the DMs. He further asserts that “cohesive devices such as discourse markers signal explicitly the coherence of a complex densely-argued text” (p. 60).

In an exploratory study, Shohamy (1991) investigated the effect of different text types and question types on the L2 learners’ listening comprehension. A set of listening tests including a news broadcast, a lecture, and a consultative dialogue were administered to 150 EFL students. Participants listened to different versions of the two topics and answered the local and global questions. The results showed that the participants performed better on the items of local cues than the global ones. This was observed across topics, text types, and the participants’ level of proficiency. The findings revealed that the dialogue (the most orally-oriented version) was understood best, while students had the most difficulty understanding the news broadcast, which was the most literate version of the three texts.

Previous Studies on Discourse Markers

With respect to a vast number of studies in the literature, it is evident that DMs play a positive role in the comprehension of spoken discourse (e.g., Chaudron & Richards, 1986; Eslami, 2006; Flowerdew & Tauroza, 1995; Jung, 2003, 2006; Perez & Macia, 2002; Smit, 2006; Williams, 1992). For instance, in an early study, Chaudron and Richards (1986) investigated the impact of DMs on the comprehension and recall of L2 lectures. They classified markers into macro and micro markers. They then developed four versions for a lecture (i.e., baseline, macro, micro, and macro-micro), which were about the American history. Two groups of 71 pre-university and 81 ESL university students participated in the study. Each group was divided into four subgroups and listened to four versions of the lecture. Various types of instruments were used: a cloze test, true-false statements, and a multiple-choice test. The material was a read-aloud lecture prepared by a native speaker at a normal rate of speech. The findings revealed that macro version facilitated the recall of information presented in the lecture. Micro version, by contrast, did not aid the listening comprehension of the participants.

Additionally, it was found that the combination version contributed more to the comprehension of the lecture than the macro version did.

In another study, working on the effect of micro markers, Flowerdew and Tauroza (1995) reported a significant role for micro markers in the L2 lecture comprehension. Among a number of videotapes for the lecture, they chose the one which was best suited for engineering students participating in the study. Sixty-three students were divided into two groups of control and experimental. The control group viewed the lecture containing micro markers, while the experimental group viewed the deleted version of the lecture. The lecture was on „Recursion’ and included 18 main idea units. The participants were then judged on the basis of the number of words and phrases, pertaining to the main ideas, in their written protocol. It was suggested that micro markers could enhance the listening comprehension of L2 learners.

In an explanatory research, Perez and Macia (2002) investigated how the use of DMs in the spoken discourse affects comprehension of the L2 listeners. Engineering students first received a placement test. After that, they were divided into two groups; each of which listened to one version of the lecture with and without DMs, and then they were asked to fill out a questionnaire on the quality and the difficulty of the lecture. The findings revealed that both factors of language proficiency and the type of DMs influenced the listening comprehension of L2 learners. The results also suggested that metadiscourse items (i.e., textual and interpersonal markers) could enhance the listening comprehension of lower-level students better.

Following the DM studies on the listening comprehension, Jung (2003) explored the effect of contextualization markers on the lecture discourse. Sixteen high-intermediate and advanced L2 learners took part in the study. A placement test was administered to create a homogeneous group of participants. Two versions of a psychology lecture entitled „Attitudes and Behavior’ were prepared. Half of the participants listened to the lecture with DMs and the other half listened to the version without DMs. It was found that the absence of contextualization markers resulted in the misinterpretation of the text by the L2 listeners. The findings also showed that participants performed significantly better on the recall of high-idea as well as low-idea units.

In another study, using an authentic lecture, Jung (2006) investigated the impact of signaling cues on the L2 listening comprehension. She controlled the language proficiency and the listening proficiency of participants in both the signaled and nonsignaled groups. To prepare the nonsignal version of the lecture, a computer software program was utilized to delete signaling cues from the original version. The participants of the study were 80 L2 learners, half of whom listened to a lecture containing DMs and the other half listened to the lecture without DMs. The instruments employed in the study were a recall and a summary task. Half of the participants in the signaled group performed the summary task and the other half did the recall task. Then, the participants were judged and scored based on the informational units they stated in their tasks. In other words, they received one point for each informational unit they recognized. The findings indicated that the lecture containing DMs helped L2 listeners recall and comprehend high-level information and low-level information better.

In a similar lecture-comprehension study, Eslami and Eslami-Rasekh (2006) examined the effect of DMs on the academic listening comprehension. Seventy-two EAP university students were divided into two experimental and control groups and were asked to listen to two versions (i.e., with and without DMs) of three lectures related to their field of study. Care was taken to make sure that both groups were homogeneous with regard to the language and listening proficiency. A multiple-choice test of listening comprehension containing 16 items was used to test both global and local understanding of the participants. DMs were found to have a facilitative impact on the participants’ lecture comprehension.

In contrast to the above studies which demonstrate positive effects for DMs, there are some studies reporting no effect for the DMs on the listening comprehension. Dunkel and Davis (1994), for instance, investigated whether the existence of DMs in the lecture discourse had an impact on the

listening comprehension of L1 and L2 students. They prepared two versions of the lecture with and without markers. The structure of the lecture was planned based on the two main rhetorical patterns: narration and exposition. Twenty-six L2 and 29 L1 university students participated in this study. Half of each group listened to a lecture with DMs and the other half listened to the same lecture without DMs. Then, they were asked to perform a written recall protocol. The participants' listening comprehension was measured by counting the words and information units, which were written correctly. The findings of the study showed that DMs (both macro and micro markers) had no significant effect on the information recall of the L2 learners. They also reported no positive effect for the DMs on the quantity of notes taken by the L2 learners.

More recently, Goheco (2011) investigated the possible impact of DMs and the other factors on the lecture comprehension of L2 learners. Fifty-one local and international university students took part in the study. A listening proficiency test was first administered to ensure that the participants were homogeneous. The participants were then divided into two groups of control and experimental. Each group listened to a different version of the lecture (i.e., with or without DMs). To assess the participants' listening comprehension, the researcher developed a multiple-choice test of 35 items which were recorded by a native speaker and played to the students after the lecture. The results showed that there was no significant effect on the participants' comprehension of the lecture with and without DMs.

Given the contradicting findings of the aforementioned studies, it can be concluded that these contradictory results may be in part due to the test conditions and the experimental methods employed. It was observed that both earlier and recent studies had serious problems with respect to materials and research methodology (Chaudron & Richards, 1986; Dunkel & Davis, 1994; Eslami & Eslami-Rasekh, 2006; Goheco, 2011). For example, Chaudron and Richards (1986) used a read-aloud lecture as the input material which is not the usual type of lecture occurring in the classroom. A further criticism to this study has to do with the administration of the test. In the experiment, listeners were stopped from time to time to complete tasks. This frequent interruption might have affected their comprehension. In addition, there seems to be a contradiction between their definition of DMs and their actual policy adopted. Regarding the list of macro markers in the study, only some metastatements were selected as macro markers, and macro markers were not specified based on their function in the discourse but based on their length.

Dunkel and Davis's (1994) study had several shortcomings, too. For instance, like Chaudron and Richards, they employed scripted lectures rather than natural authentic ones. In addition, they did not control participants' background knowledge on the lecture topics. This may influence the comprehension of L2 listeners. Further, as Lynch (1998) criticized, the texts employed in their study were so simple and already familiar to the participants that adding DMs to them made no difference to the L2 lecture comprehension. A close review of their work also revealed that lack of homogeneity between the control and experimental groups may be another factor leading to the contradicting results. In addition, they measured the participants' comprehension by counting the information units in their protocol which was rather subjective.

In her study, Jung (2003) used a computer software program to remove the cues from the original lecture in order to provide nonsignal version. This may affect the acoustic features of the words in the connected discourse and thus the listening comprehension of the L2 learners. Another problem in the study was the small sample size ($N = 16$), resulting in the findings which can be hardly generalized. The other factor which may have affected the results of the study was the scoring method employed. The participants were judged on the basis of the informational units recalled in the texts. Deciding on the exact quantity of informational units in the lectures and what should be considered as an informational unit made the scores rather subjective. Eslami and Eslami Rasekh (2006) employed inauthentic texts in their study, and asked a native speaker to read aloud the lecture texts which is not what normally occurs in the academic places. Goheco's (2011) study also suffered from several problems. The first problem is concerned with the small sample size which made it difficult to

generalize the results. Besides, all the lectures were read out loud, which was unnatural. Additionally, the multiple-choice test of listening comprehension was aural rather than written. Listening to both the lecture and the aurally-recorded tests as well as completing the listening task took about 37 minutes, and since the participants were not allowed to take notes during the lecture, it was very challenging for them.; listening to and remembering the test items may have been cognitively demanding to them and thus could have affected the results.

However, in this study much care was taken to avoid mismatch between the test condition and what participants experience in the reality. This was done by controlling some factors such as the materials, participants, procedure, and the measures. In the following section the detailed information about the methodology employed in this study is presented.

Method

Participants

To make sure that all participants were homogeneous in terms of the listening proficiency level, a listening proficiency test was administered to 194 male and female upper-intermediate students from whom 105 language learners were selected. The participants were adult L2 learners from some institutes of Tehran and Babol in which the *New Interchange English* was taught. Upper-intermediate students were selected for this study as it was assumed that such students were familiar with DMs and their functions in the spoken and written discourse.

Materials

The materials in this study consisted of three expository texts. Two texts were selected from *Active 3* and one from *Reading and Vocabulary Development 4*. The characteristics of the original texts are presented in Table 1.

Table 1. *The Characteristics of the Original Texts*

Expository texts	Topics	No. of words	Frequency of DMs	Readability Level
Text 1	Single-parent family	611	22	11.4
Text 2	Homeschooling	598	22	12
Text 3	Motor vehicles	425	12	11.6

Three versions (i.e., micro, macro, and macro-micro) of each text were also used as materials in this study. They were developed by the researchers through manipulating the texts in terms of the absence and presence of different types of DMs and on the basis of the classification suggested by Chaudron and Richards (1986). In other words, the three versions of each original text differed only in the quantity of macro and micro DMs. For example, micro versions of the texts were developed by adding some micro markers or deleting some macro markers. Similarly, by inserting both micro and macro markers to the original texts, the combination versions were constructed. More details about the texts are presented in the procedure section. Table 2 demonstrates the frequency of the different types of DMs in the text versions developed as the listening tasks in this study.

Table 2. *The Characteristics of Different Text Versions Developed in This Study*

Texts	Text Versions	Frequency of macros	Frequency of micros	Frequency of DMs	Length of the recorded versions
Text 1	Macro	6	2	8	3:50
	Micro	1	22	23	3:50
	Macro-micro	6	22	28	3:58
Text 2	Macro	7	2	9	3:48
	Micro	0	21	21	3:44
	Macro-micro	7	22	29	3:50
Text 3	Macro	7	1	8	2:43
	Micro	1	11	12	2:43
	Macro-micro	7	10	17	2:47

Instruments

Two instruments were utilized in this study. The first one was a listening comprehension test selected from the *New English Files (upper-intermediate level)* which consisted of ten items in the multiple choice format. The second instrument developed by the researchers was three sets of test containing 45 items overall. They were constructed based on the functional perspective of DMs as suggested by Chaudron and Richards (1986). In other words, each test set included 15 items, based on the three versions of each text, of which the first five items, the second five items, and the third five items were meant to test micro, macro, and micro-macro information respectively.. The reliability of each test set was then calculated using the KR21 formula which suggested the reliability coefficients of .66, .69, and .60 for test set 1, test set 2, and test set 3 respectively.

Procedure

In the first phase, in order to find the suitable expository texts with general topics, a considerable number of textbooks available on the market were examined. In addition, to ensure that the difficulty of the texts had no effect on the results, of all the texts extracted from upper-intermediate course books, three expository texts which had the similar readability level within the range of 11 to 12 were selected. The appropriateness of these texts was further examined by a linguist and some EFL teachers. In the next step, three versions of each original text were developed and then checked for the naturalness and the appropriateness in respect of the amount and type of DMs by two English language instructors (i.e., three PhD holders, one linguist, and an English native speaker). Additionally, the topic familiarity of the texts was also taken into account so as to control the prior knowledge of the participants in this regard. It is important to note that in the process of inserting and removing DMs, care was taken not to change the meaning of the original texts. A native speaker, then, was asked to record the instructions and all the versions of the original texts.

In the second phase, in order to control the listening proficiency level of the participants, an upper-intermediate listening test was administered to 194 students to measure their level of proficiency level. Then, the participants' scores were classified into three categories (i.e., 0-3, 4-7, and 8-10). Those who received the scores within the range of 4 and 7 were selected for the study, and the ones whose scores were above 8 or below 3 were excluded from the study.

In the third phase, based on the text versions, three test sets were developed by the researchers. The test items were then checked for the content, the nature of the questions, the format, and the wording by two linguists and several experienced English language instructors, and finally based on their comments some modifications were made. In the next step, the test sets were piloted with 41 L2 learners who shared the same characteristics with the target population. In the pilot phase, item characteristics of the test sets including item facility and item discrimination were determined. All the participants in the pilot study stated that the texts were clear enough for them to understand.

Before administering the test, the researchers talked to the teachers and asked them to inform the students of how many tests they would take and how much time they would be given to complete each listening task. The instructions were also provided for students in the written and aural form. As described previously, each test set consisted of three parts. Before each part, the participants were given one minute to look at the five multiple-choice questions. Then, they were asked to respond to the questions while listening to each section. Each listening test had a maximum score of 15 points, and the students received one point for each correct response and no point for the incorrect answers.

Data Analysis

Since the participants were compared on the three test sets as well as on the three expository texts, the one-way repeated measures ANOVA was used to answer the research questions of this study. The analysis of descriptive statistics of the scores, normality tests, tests for the assumption of Sphericity, and test of within-subjects effects are presented in this section.

Results

The Effect of Text Topics on the Students' Listening Comprehension

Before investigating whether there was any statistically significant difference in the learners' listening comprehension in terms of the text topics, test of Kolmogorov-Smirnov was used to assess the normality of the distribution of the three texts. Kolmogorov-Smirnov test for all three texts was not significant ($p > .05$), indicating that the distribution of scores for all three text topics was normal. Therefore, to compare the learners' performance on the three expository texts, one-way repeated measures ANOVA was performed. The descriptive statistics of the scores for the three expository texts are presented in Table 3.

Table 3 Descriptive Statistics of the Participants' Performance on the Three Text Topics

Text Topics	<i>M</i>	<i>SD</i>	<i>N</i>
Text Topic 1	6.46	1.45	35
Text topic 2	6.28	1.37	35
Text topic 3	6.02	1.45	35

Table 3 demonstrates that the participants' scores of listening comprehension in text 1 gained the highest mean ($M = 6.46$), while their scores in text 3 received the lowest mean ($M = 6.02$). Table 3 also shows that the learners' performance on text 2 was more homogeneous ($SD = 1.37$) than their performance on text 3 and 4 ($SD = 1.45$).

In order to test the Sphericity assumption for repeated measures ANOVA, Mauchly's test of Sphericity was used. Since there was no violation of the assumption of Sphericity for the texts ($p = .916$), Sphericity assumed correction model was used for calculating the results. The results showed

that the interaction between the three text topics was not statistically significant, $F(2, 68) = .911, p = .407$, implying that there was no significant difference in the performance of participants in the three expository text topics.

The Effect of DMs on Students' Listening Comprehension of Expository Texts

Before investigating whether there was a statistically significant difference in the participants' listening comprehension on the different versions of expository tests (i.e., macro, micro, and macro-micro), a normality test for micro, macro and macro-micro DMs was calculated. The Kolmogorov-Smirnov test for all three types of DMs was not significant ($p > 0.05$), indicating that the distribution of scores in all three sets of DMs was normal. As a result, to compare the students' performance on micro, macro, and macro-micro test versions, one-wayrepeated measures ANOVA was performed. Table 4 presents the descriptive statistics of the students' scores on the micro, macro, and macro-micro test versions.

Table 4. Descriptive Statistics of the Participants' Scores on Micro, Macro and Macro-micro Test Versions

	<i>M</i>	<i>SD</i>	<i>N</i>
Macromarkers	5.64	1.26	35
Micromarkers	6.20	1.35	35
Macromicro markers	7.22	0.99	35

As seen in Table 4, macro-micro version received the highest mean ($M = 7.22$), while the lowest mean belonged to macro version ($M = 5.64$). Table 4 also demonstrates that the learners' performance on macromicro test versions was the most homogeneous ($SD = 0.99$), while their performance on micro marker test version was the most heterogeneous ($SD = 1.35$). Therefore, it can be concluded that the participants were best able to answer the listening comprehension questions for the expository text versions containing both macro and micromarkers. The results in Table 4 also showed that micromarkers have more facilitative effect on the listening comprehension of the participants since micro marker test versions gained the higher mean ($M = 6.20$) compared to macro marker test versions ($M = 5.64$).

Mauchly's test of Sphericity was used to check the Sphericity assumption required for repeated measures ANOVA. Since there was no violation for the assumption of Sphericity for the three versions of DMs ($p = .213$), Sphericity assumed correction model was used for reporting the results. The results demonstrated that there was a statistically significant difference in the participants' listening comprehension of the text versions containing macro, micro, and macro-micro markers, $F(2, 68) = 21.652, p = .000$, indicating that the learners performed differently in the three versions of the expository texts.

In order to compare the mean scores of learners' performance on the three versions of DMs, pairwise comparisons was calculated. Table 5 presents the results of this analysis.

Table 5. *Pairwise Comparisons*

(I) DMs	(J) DMs	Mean Difference (I-J)	Std. Error	P	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
Macro	Micro	-0.56	.27	.152	-1.260	.136
	Macromicro	-1.58	.22	.000	-2.135	-1.027
Micro	Macro	0.56	.27	.152	-.136	1.260
	Macromicro	-1.01	.22	.000	-1.597	-.441
Macromicro	Macro	1.58	.22	.000	1.027	2.135
	Micro	1.01	.22	.000	.441	1.597

As Table 5 shows, the interaction between Macromicro and Macro markers was significant ($p = .000$). A significant interaction was also found between learners' performance on macromicro and micro markers ($p = .000$). It can be concluded that the participants significantly performed better in the presence of both macro and micro DMs compared to texts containing only micro or macro markers. In other words, the second null hypothesis was rejected.

Discussion

The findings of this study provided evidence for the facilitating role of DMs in L2 listening comprehension which coincides with the most previous studies (e.g., Chaudron & Richrds, 1986; Eslmi, 2006; Han, 2011; Jung, 2003, 2006; Williams, 1992; Smit, 2006; Wei, 2009; Rido 2010)s. For instance, in a study by Eslami (2006), DMs were found to have a facilitative effect on participants' listening comprehension. Similarly, Jung (2003, 2006) found that the lecture containing DMs significantly assisted L2 listeners' recall.

The current findings, however, contradict those of Dunkel and Davis (1994) and Gocheco (2011) who claimed neither macro nor micro discourse markers had positive effect on the listening comprehension of the L2 learners. The contrasting findings of their study with the positive common-sense expectations of DMs' effect on the text comprehension might be due to the nature of the texts and the procedures they employed. Dunkel and Davis (1994) used a scripted unnatural lecture as the input material. They also did not control the background knowledge of the participants in the control and the experimental groups. Similarly, the input material in Gocheco's (2011) study was an inauthentic read-aloud lecture. In addition, the sample size in the study was small, leading to the outcomes difficult to be generalized. Furthermore, the multiple-choice test items which were recorded and played to the participants were so cognitively demanding for the L2 listeners that they might have affected the results. In the present study, on the other hand, possible influential factors on the listening comprehension (i.e., homogeneity in language and listening proficiency level, normal speech rate of delivery, authenticity of materials, prior knowledge of the topic, text difficulty level, and appropriateness of measures) were controlled in order to achieve more reliable results.

The findings of this study also revealed that the participants best comprehended the listening text in the presence of both macro and micro markers. This is what Chaudron and Richards (1986) reported in their study. They found that the combination version of micro and macro DMs contributed more to the comprehension of the L2 listening than only micro and macro version. Additionally, the descriptive statistics of this study showed that macro discourse markers were not as facilitative as micro markers, contrary to the findings of Chaudron and Richards (1986) who reported that L2 learners performed better in the presence of macro markers than micro markers. As an explanation for the conflicting results, it is assumed that as the frequency of micro markers was considerably more than the frequency of macro markers in the expository texts, and micro markers were also scattered all over the text linking supporting ideas and example sentences, they might provide better understanding of the whole text by L2 listeners compared to macro discourse markers. Such result is also in line with what Flowerdew and Tauroza (1995) found that the presence of micro markers had significant effect on the listening comprehension.

For another reason, Chaudron and Richards's (1986) study also suffered from problems with respect to materials and research methodology that may have affected their findings. In their study, there was mismatch between the test conditions and that of a normal lecture setting. For example, they used a scripted read-aloud lecture as the input which is not the usual type of lecture occurring in the classroom. Additionally, the participants in their study were interrupted from time to time to complete the tasks. This frequent interruption might have influenced the participants' comprehension and consequently the results of the research. In the present study, however, the intervening variables such as materials, procedures, and instruments were controlled. To do this, the three authentic texts with general topics were selected. Also, in order to keep the testing conditions as natural as possible and to reduce pressure and anxiety among the participants, the researchers asked the instructors themselves to administer the tests in their classes.

Conclusions

The main objectives of this study were (a) to examine the impact of three expository text topics on the listening comprehension of L2 learners and (b) to investigate the impact of macro, micro, and macro-micro DMs on the listening comprehension of L2 learners. In the present study, it was done to best control as many influential factors on the listening test condition as possible. One limitation, however, was the lack of control over the participants' background knowledge in terms of DMs. The assumption was that upper-intermediate students to some extent were familiar with the classifications and functions of DMs in texts. Nonetheless, the students' lack of awareness of different types and functions of DMs might influence the results. The analysis of data showed that there was no significant difference in the L2 learners' listening comprehension across the three expository texts. The results also showed that the L2 listeners performed differently on the micro, macro, and micro-macro versions of the texts. In other words, macro-micro versions received the highest mean, while macro versions received the lowest mean. The findings of this study suggested that the combination versions of micro and macro DMs contributed more to the comprehension of L2 listeners than only micro and macro versions did. It can be concluded that micro and macro DMs are facilitative in the listening comprehension of L2 learners.

Pedagogical Implications

The primary responsibility appears to lie with language teachers in a sense that they can positively influence their students' learning through effective use of DMs in their own speech. Teachers should also know how an effective way of DMs instruction followed by a number of clear examples can enhance students' learning of the second or foreign language. In addition, L2 instructors should familiarize students with the different classifications of DMs and their functions, especially in listening monologues where there is a lack of interpersonal signaling cues. Furthermore, they should try to develop effective ways of teaching DMs in order to enhance the L2 learners' comprehension and

production. Moreover, material designers can develop textbooks in which different types of examples, functions, and information on DMs are presented to learners so that it can assist them to become equipped with the linguistic devices, which may facilitate their comprehension in real listening tasks.

Suggestions for Further Research

This study was carried out based on the classification proposed by Chaudron and Richards (1986). It would be valuable to conduct studies in order to find out more about the effect of other classifications of DMs on the listening comprehension of L2 learners. For instance, the impact of textual and interpersonal or their subcategories such as additive, adversative, and consecutive can be investigated. Moreover, the main focus of this study was on expository texts; other studies can investigate the impact of DMs on the other text types. The participants who took part in this study were upper-intermediate L2 learners studying in English language institutes. It is suggested to replicate this study with university students, particularly those taking ESP courses to compare their performance in order to gain more insights into the impact of different types of DMs on their listening comprehension. It is also suggested to conduct research investigating the effects of various types of DMs on L2 learners with different proficiency levels (i.e., pre-intermediate, intermediate and advanced).

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The Use of Outcome Mapping in the Educational Context

Anna Lewis*

University of South Florida, St. Petersburg

Abstract

Outcome Mapping is intended to measure the process by which change occurs, it shifts away from the products of the program to focus on changes in behaviors, relationships, actions, and/or activities of the people involved in the treatment program. This process-oriented methodology, most often used in designing and evaluating community development projects uses graduated progress markers to determine if the intervention is achieving the desired outcomes and forms the basis for additional monitoring and evaluation. This theoretical paper explores the use of Outcome Mapping as an alternative or supportive method of research design and evaluation in teaching and learning contexts. Outcome mapping can provide educational researchers with the tools to think holistically and strategically about the process and partners needed to achieve successful results. This paper discusses the relevance of this method and compares and contrasts it to the functionality, use, and outcome measures utilized in current educational assessments methods.

* Dr. Anna Lewis is a K-12 Science Educator. She has evaluated professional development programs throughout Florida, in addition to working with international grassroots organizations in developing program evaluations.

Correspondence: ARLewis@usf.edu

Introduction

Educational researchers, especially those funded by outside agencies, are under pressure to demonstrate that their programs (e.g. teacher education programs, new curriculum, or new teaching/learning strategies) result in significant and lasting change. The ultimate goal is to show that the educational program has increased student academic achievement, often as indicated by standardized test scores. However, increases in student academic achievement is more the product of a confluence of events for which no single program, researcher, or agency can realistically claim full credit. As a result, assessing impacts and actual outcomes are problematic, “Yet many [researchers] continue to struggle to measure results far beyond the reach of their programs” (Earl and Carden 2001, p.2-3).

Table 1: Annual Reading & Math Growth (Hedges, 2010)		
Grade Transition	Reading Growth Effect Size	Math Growth Effect Size
K-1	1.52	1.14
2 - 3	0.60	0.89
3 - 4	0.36	0.52
4 - 5	0.40	0.56
5 - 6	0.32	0.41
6 - 7	0.23	0.30
7 - 8	0.26	0.32
8 - 9	0.24	0.22
9 - 10	0.19	0.25
10 - 11	0.19	0.14
11 - 12	0.06	0.01
Based on work in progress using documentation on the national norming samples for the CAT5, SAT9, Terra Nova CTBS, Gates MacGinitie (for reading only), MAT8, Terra Nova CAT, and SAT10. 95% confidence intervals range in reading from +/- .03 to .15 and in math from +/- .03 to .22		

Table 1(Hedges, 2010) illustrates one of the reasons why these impacts are so difficult to measure. This table shows the average effect size for annual student growth in reading and math learning for grades K-12. If one compares the optimistically expected effect size of Cohen (small=0.2, med= 0.5, large=0.8) or the empirically deduced effect sizes of Lipsey (small=0.15,med= 0.45, large=0.9) (Hedges, 2012) to Table 1, it is obvious that one year of schooling in the early grades can influence student learning to such an extent that it is extremely difficult to discern the impact of a teacher summer workshop, a 2-month program, or the implementation of new teaching/learning strategies with any accuracy. In the later grades the impacts are much more difficult to distinguish simply because achievement scores are more resistant to change, even with a full year of schooling. This task is a particularly onerous one when using standardized tests to demonstrate student achievement, as the discernible standard effect size of these tests is between 0.07 to 0.23 (Hedges & O’Muircheartaigh, 2010). Though not impossible, to do so requires projects that are expensive in both resources and time (i.e. random cluster trials and other such types of experimental designs).

An evaluation methodology is needed that can untangle program impacts on student achievement from normal student growth and other factors that influence students daily. Outcome Mapping offers one approach to this problem. It is an evaluation method that measures the *process* by which change occurs, instead of the end result of the change. This methodology assesses the contributions of educational projects/programs toward the achievement of increases in student

academic outcomes by documenting the changes in behavior, relationships, activities, and actions of a particular group of people or organizations (Rogers, 2012). This method is unique in that the documentation process is developed and maintained not only by the program management, but by all stakeholders, from those who fund the project, to project participants and its iterative, and open to change through periodic review.

This methodology was created for and has been used by international developmental agencies that face significant challenges very similar to those found in educational contexts (IDRC, 2005b). Challenges, such as outcomes or changes in participants can take place before or long after the program ends. Outcomes may not take the form anticipated, or outcomes and participants may be influenced by those not directly involved in the program. "Outcomes interact with each other and the causes of change usually cannot be isolated", (Carden, Earl, & Smutylo, 2009, p.1), thus making it difficult to attribute change to a specific program or program components Outcome Mapping was adapted from 'Outcome Engineering' (Kibel, 1999) and is intended as a flexible and complementary approach to traditional measurement and evaluation methods. A key innovation of Outcome Mapping is to look at the *results* of a program as *changes in behavior*.

This paper provides a discussion to briefly explore the differences between research and evaluation, to describe the basics of how Outcome Mapping is used in the developmental arena, and to discuss how systems thinking may be used as a framework in which to justify the use and utility of Outcome Mapping in education evaluations.

Research and Evaluation

There has been substantial debate as to what if any differences exist between evaluation activities and research. It is important to explore the distinction between the two so that one may clarify what knowledge and skills are needed to conduct evaluations and how these differ from the knowledge and skills of social or educational researchers. Early on, experts in the field were divided into one of two camps. Some, such as Michael Scriven, (1998) asserted that there were differences between research and evaluation, but that the two overlap. Others such as Trochim (1998,) argued that evaluation is no different from applied social science. In an effort to simplify the distinction between research and evaluation, these activities have often been caricatured or overly generalized which tend to mask the real differences and similarities between the two. Here are some common expressions used to distinguish the two:

- Research generalizes, Evaluation particularizes (Priest, S 2001)
- Research seeks to prove, Evaluation seeks to improve." (M. Q. Patton, 1997)
- Evaluation – so what? Research – what's so? (Mathison, 2008)
- Evaluation – how well it works - Research – how it works. (Mathison, 2008)

None of these expressions captures the complexity of either activity. For instance, where educational research often does make inferences regarding general populations through the use of population sampling, it also makes use of case studies to better understand individuals or instances of particular interest (e.g. narratives of war victims). In addition, though evaluations usually focus on a particular program or project, the outcomes may be generalized and implemented in a broader fashion, as with the case of Head Start programs. This program, first introduced in 1965, resulted in very positive program evaluations which found that six weeks of the program overcame five years of socioeconomic poverty (Currie & Thomas, 1995; Barnett, 1995). This type of evaluation results spurred the widespread proliferation of the Head Start program throughout the US and is one of the longest-running programs to address issues associated with children living in poverty.

The inception of *program evaluation* in the United States was prompted by the Elementary and Secondary Education Act (ESEA) which passed in 1965. The act required that distribution of public

funds be justified. Those that stepped up to do the job found that research methods focusing on hypothesis testing were not well suited to providing information regarding the complex social situations in which schools were embedded. Due to this failure of social science research methods alone to determine the value and efficacy of educational programs, evaluators borrowed from other disciplines and developed new models. As Mathison (2008) suggests, the question we are considering is much like asking “what is the difference between the discipline of mathematics and statistics?” How is the newer discipline, statistics, different from the older more established discipline of mathematics? Just as statisticians created theories and models to establish their unique work, there is also a particular logic followed in evaluation (e.g. Alkin et al., 1979, Patton et al., 1977 and Weiss and Bucuvalas, 1980; Fournier, 1995; Scriven, 1999; Mark and Henry, 2004) with many sub-theories (e.g. Practical Participatory Theory (Cousins & Whitmore, 1998), Values-engaged Theory (Greene, 2005a and Greene, 2005b), and Emergent Realist theory (Mark et al., 1998)).

Not only were new logic models and theories needed but new professional skills were needed to search for unintended outcomes and side effects, to discern significances within different points of view; to report controversial issues and beliefs, and to synthesize facts and principles (Coffman, 2003-2004). Mathison (2004a) suggests an anarchist epistemology had taken precedence in the practice of evaluation, where one method is rejected as supreme over any other and “evaluation as a practice shamelessly borrows from all disciplines and ways of thinking to get at both facts and values” (Mathison 2008). The priority for evaluation focused on what methods delivered the most meaningful information in a given context. Social science *research* methods such as Outcome Mapping, have value in education but when used in an *evaluation* context they are particularly salient as they focus not only on the outcomes but on the value and perspectives of the participants and stakeholders. Thus the essential difference between research and evaluation is the purpose for which they are conducted.

Both research and evaluation require accuracy, which is judged by the validity and reliability of the data collected. However, in addition to accuracy, evaluation is judged by its utility, feasibility and propriety as described in the *Program Evaluation Standards* (Stufflebeam, 1999). Essential to all evaluation models is the attention to the participants’ perspective. Educational research includes the participant but often only in reference *to* whom or *for* whom the data are collected rather than a consideration of the participants’ vested interests. Evaluation is subjective in that it is *always* innately bound to the interests of all stakeholders including funders, program management, and participants. In broad strokes there are three distinct phases of program evaluation:

1. Needs evaluation is typically used in program planning. Just as one would develop a research plan one must determine an evaluation plan. This is done by identifying the stakeholder or client needs, program objectives, program priorities, and resources available and/or necessary in which to conduct the evaluation. Generally, needs evaluations are used to help develop new programs or justify existing program components.

2. Process evaluation is most often used to determine the fidelity in which the program is conducted. This phase of evaluation documents how the program is being carried out by stakeholders compared to the proposed or intended program implementation. Often, process evaluations are used as “reality checks” to help guide implementation by program management and are used in the final program analysis to help better understand the data collected and the program’s impact on participants.

3. Outcome evaluation characteristically determines the overall effects or impacts of the program in relation to the initial program objectives. Good outcome evaluation not only indicates whether the program objectives were met but also documents any unintended effects.

In the next section we will describe Outcome mapping as it is currently used to evaluate developmental programs while drawing comparisons to traditional education program evaluation practices and the three types of evaluation as described above.

Outcome Mapping (OM) as an Evaluation Tool

Many educational programs use a 'project centered' approach in evaluation, where management has the controlling role in the needs, process, and outcome evaluation design. Outcome Mapping (OM) as implemented by international development agencies brings a 'partnered center' approach into focus with a loosening of control at the management level. To accomplish this shift in perspective a very deliberate process is followed to enhance the development of all three phases of evaluation.

Experience has shown that development (like learning in science education) is a complex process that does not take place in isolation. "Linear cause and effect" thinking contradicts the understanding of development as a complex process that occurs in open systems" (Earl & Carden, 2002). Some simplification is necessary to create and implement programs, however, the contextual reality of any project or program must be acknowledged. In addition, development outcomes do not occur with a clear beginning, middle, and end delineation. Often programs make a difference that is incremental and cumulative rather than a single measurable event. It is also reasonable to expect that the intended outcome may actually be achieved after the program has ended or that outcomes may erode over time due to other influences entirely outside of the program activity. Persons involved in evaluation of curricula, professional development, learning resources, etc., can relate to each of the issues described. Developers of OM deal with these issues by focusing on the contributions rather than attribution of their programs. Perhaps the most notable characteristic of OM is that it focuses on **outcomes as behavioral change**. OM attends to the problem of attribution of impact by increasing the value and attention placed on changes that "are clearly within the program's sphere of influence. . . this appears to suggest concentrating on easier, less important, short-term achievements, in fact it does the opposite. Rather the evaluation focuses attention on incremental, often subtle changes, without which the large-scale, more prominent achievements in human well-being cannot be attained or sustained" (Earl & Carden 2001, p.10). Attention is placed on targeted behaviors and relationships within the scope of the program, as well as increasing its effectiveness in relation to project goals. Reporting requires managers to demonstrate that they are progressing *toward* impact and improving effectiveness – but not accountable for the impact itself. In this way accountability becomes rational rather than empirical – the intended "impact" of the program is the ideal to aim for rather than the yardstick against which performance is measured. "Thus the threat of failing to discover 'hidden attribution' is eliminated when feedback on performance concentrates on improving, rather than on proving, on understanding rather than on reporting, and on creating knowledge rather than on taking credit" (Earl & Carden 2001, p.10). This is in contrast to the usual methods used in education evaluation which seek causal relations between the intervention and observable change.

Outcome Mapping is not intended to assess the relevance of a programming area or an evaluation of the cost-effectiveness of one approach compared to another. Nor is this method, as currently used in developmental work, useful for very small projects. Most importantly, if the project is not in a position to change the behavior of participants then this approach would not be appropriate (Earl & Carden, 2002). It is this last point that makes Outcome Mapping particularly suited to designing and evaluating education projects, as most educational endeavors have at least one component that is predicated upon teachers and/or students learning new skills and behaviors. In fact, the focus of Outcome Mapping is the change process which occurs in those who are **directly** interacting with the program.

Another important aspect of this method is to recognize that change is a reciprocal relationship (Rogers, 2012). By acknowledging that participants are not only influenced by interventions but also affect the intervention itself, evaluators can capture important information that goes beyond "pilot testing" or "program updates based upon user feedback" to understanding specific mediating factors in teaching and learning for the populations the program serves.

Outcome Mapping provides a continuous system for thinking holistically and strategically about achieving results. Outcome Mapping does this by monitoring three key areas: **changes in the behavior**

of partners within a program, the program's strategies, and the way in which a program functions as an organizational unit.

The process of OM is not a discrete event but cyclical in nature where *needs, process, and outcome evaluations* are utilized and attended to throughout the life of the project. The needs assessment is conducted before the onset of the program, and is revisited regularly to attend to new needs or issues that may arise. The process assessment is also conducted regularly and involves identified stakeholders and boundary partners. Frequent feedback is elicited and documented to allow the program to be responsive to the needs of these partners. Since outcomes are based on behavior changes in the partners, tracking these changes is continually monitored and documented and not simply evaluated at the end of the project. OM developers recommend performing a three-stage process at the beginning of the project to develop the initial strategic plan, data collection tools and a tracking system which would be reviewed and updated as needed throughout the life of the project (IDRC, 2005b). OM helps developmental project managers establish who the stakeholders are, how they will be affected, by which activities in the programs, and how the outcomes will be documented and assessed. The following is a brief synopsis of the three stages of OM as used in developmental programs, and highlights how each stage may be used in educational contexts.

Stage 1 Intentional Design. This initial step is where the researchers, project management team, evaluators and project participants or boundary partners outline and clarify at the macro-level the outcome challenges they would like to support. These are the 'downstream' impacts the program is working to achieve. This outline provides reference points to guide strategy formulation and action plans (rather than acting as performance indicators). In addition, this outline is used to develop progress markers for each boundary partner, which in turn is used to track performance at each level. These progress markers identify incremental changes that the program may realistically influence which prompt behavioral change and build the foundations of sustained social change (Carden, Earl, & Smutylo, 2009).

It is envisioned that in implementing this step in educational projects one might employ concept maps to assist in identifying the behaviors and other affective components associated with academic achievement in addition to the standard tests and surveys now employed. What these affective components might look like would be impacted by the stakeholders present who would be invited to openly share their experiences and perspectives. Especially important are the boundary partners who have unique perspectives that can assist in making the intangible process of learning visible.

Stage 2 Outcome and Performance Monitoring. At this stage a performance monitoring framework is designed based upon the ground work in Stage 1. Three common data collection tools are developed at this Stage: 1) an outcome journal that documents boundary partner actions and relationships, 2) a strategy journal that documents strategies and activities of all boundary partners, and 3) a performance journal that documents the organizational practices that keep the program relevant and viable (Earl & Carden 2002; Smutylo, 2005). With this framework a broad range of monitoring information may be identified and tracked. The challenge at this Stage is to identify what information is needed and at what level.

Applying Stage 2 in the educational context would entail selecting from the cadre of tests and surveys those that are appropriate to measure the project outcomes. More importantly though, this step would include choosing and/or developing the affective and behavioral components that have robust and reliable constructs and identifying or building instruments to measure these constructs.

Stage 3 is Evaluation Planning. Here priorities are set so that evaluation resources and activities may be targeted where they will be most useful. It is in this stage that the main elements of the evaluation design are pulled together and finalized. Here the details are decided upon, such as the priority evaluation topics, issues, and questions. Also, what data is to be collected, the person(s) responsible for collecting the data, the time frame and the cost of conducting the evaluation plan. As with

developmental projects, in educational contexts Stage 3 would entail the finalization of the evaluation plan. Here the three types of evaluations: Needs, Process, and Goals/Outcomes) are intertwined into one to ensure a cohesive program of evaluation that is conducted and maintained throughout the life of the project. It is important to note once again that this final plan is a holistic approach. It recognizes that the needs and processes to meet those needs may change to better meet the program goals. Therefore, the final plan always entails monitoring three key areas: **changes in the behavior of partners within a program, the program's strategies, and the way in which a program functions as an organizational unit.**

There are several assumptions and weakness inherent in this methodology that should be acknowledged. Some of these assumptions are:

- The belief that knowledge is socially constructed – this is especially true in educational contexts (what is taught and when for example).
- Evaluators are committed to the value of inclusion and the democratization of public conversations between all stakeholders.
- Evaluators are committed to act impartially, attending to the interests of all stakeholders and not privileging one group over another.
- Boundary partners have a level of self-awareness (or at least the ability to attain that level with training and practice) that will enable them to contribute to identifying behavioral markers.
- All stakeholders are encouraged to participate throughout evaluation but it is essential at the beginning and conclusion.

The project management team has the organizational will to integrate the evaluation which may entail modifying or adjusting strategies at each iteration of the evaluation review cycle.

A few of the inherent weaknesses are:

- Micro-politics that often appear at every level of the project may influence the success of the participatory approach.
- Entrenched values may prevent the use of findings in decision making (e.g. suggestions may be dismissed or marginalized).
- The practical logistics of gathering representatives from all stakeholder groups together for the initial meeting to develop behavioral markers and other evaluation markers.
- Participation of stakeholders may wane if not invested in the process either by financial obligation (paid to participate), emotionally committed (cares about the project), or professional support (administrative interest or obligation).
- Stakeholder groups may have competing interests which must be identified and resolved before this methodology can be implemented.

There is no single answer to address these weaknesses. However, by being aware of them, attention may be given to ameliorating their impact on the overall evaluation. As it has been described, Outcome Mapping offers a participatory methodology that assists evaluators in developing a system that can be used to meet both accountability and project assessment needs. In addition, this methodology has also shown promise for cross-program evaluations in that it can facilitate a standardization of indicators without losing the unique richness of each program, thus combining both quantitative and qualitative approaches. The next section explores the utility of OM and a rationale for its use in education evaluation.

General Systems Thinking

As discussed earlier, traditional social research methods have been found limiting for conducting comprehensive evaluations of complex social interactions such as those found in education. However, this is a topic for further discussion and validation in another paper. New approaches to education evaluation need to take into consideration the inherent unpredictability and the underlying values, norms and behaviors that shape responses to education interventions and programs. This requires a different mindset that creates the conditions for contextualized solutions. A “general systems thinking” or “systemic” approach offers compelling perspectives for all aspects of education especially in the areas of evaluation. Broadly speaking, systemics provides a methodological framework for understanding phenomena that emphasize the relationship *between* parts rather than simply focusing on the parts themselves. These relationships are driven by feedback loops which are often complex and invisible. Systemics has grown into widespread use in many areas of business, manufacturing, and economics because it offers an approach to complex and persistent issues, issues not unlike those found in education. The intent of this paper is not to fully explicate the use and function of systems thinking, but rather, to pull a filament from the systemic tool box to develop a context and rationale for the use of Outcome Mapping in evaluating education programs.

We live in a complex world of systems, made up of people, groups of people, things, rules, practices, and constraints. In each domain, systems create patterns of activities which help individuals accomplish their goals and most often help those individuals interact with one another (e.g. air traffic control systems, banking systems, wireless networks). Every system that is created or occurs naturally embodies a tension: one of *responsiveness* at the local level or the parts of the system and at the same time the system as a whole provides *coherence*. From a systemic educational perspective we would like the *parts* of a system to be *responsive* to local circumstances and the system *as a whole* to be *coherent*. This may mean a single individual if one is looking at the “class” as the system, or it may mean how individuals and classes respond to themselves and each other if the system in question is the school. As Harrison & Henderson (2010) suggest “the more a system’s parts are responsive to the diversity and dynamism of the world, giving people the ability to meet their needs, the less we can know about how the whole system will behave. The more the system drives towards coherence, the stronger the relationships between the parts and the less freedom each part has to adapt to its circumstances in unexpected ways” (Harrison & Henderson, 2010)). This interplay is often seen as a zero-sum choice in which a gain for one side or characteristic entails a corresponding loss for the other side or characteristic. In this example, to increase responsiveness one must lose control and continuity or lose responsiveness to maintain control and overall system coherence.

In the world of educational evaluation we might see Randomized Control Trials (RCTs) at one end of the spectrum (high cohesion) where there is very tight control over the evaluation. Here each variable is accounted for and assigned, allowing very little freedom or responsiveness in order to maintain reliability and validity over the variables being measured. On the other end one might place Phenomenological studies where the evaluator puts aside any structure, control, or preconceptions to document experiences and perspectives from the vantage point of the subject. Here there is great freedom or responsiveness on the part of the individuals and almost no structure or cohesion imposed by the researcher. Other dichotomies in education can be similarly viewed, such as teacher-centered or student-centered instruction and traditional vs inquiry pedagogy. All of these can be illustrated as a binary choice along a zero-sum continuum. Figure 1 shows the dichotomy between educational evaluations.

Coherence (RCT) ----- Responsiveness (Ethnographies)

Figure 1

However, Harrison & Henderson (2010) offer another proposition where these dichotomies are viewed systemically. They recommend we examine the tension itself – that we examine the tension in terms of the relationship between the two ends of the spectrum. Thus the zero-sum line transforms into

a trade-off curve, as shown in Figure 2. Trade-off curves are used in many types of design practices and describe the limits of performance that are possible within a given design approach. Typically they characterize the relationship between two or more key parameters.

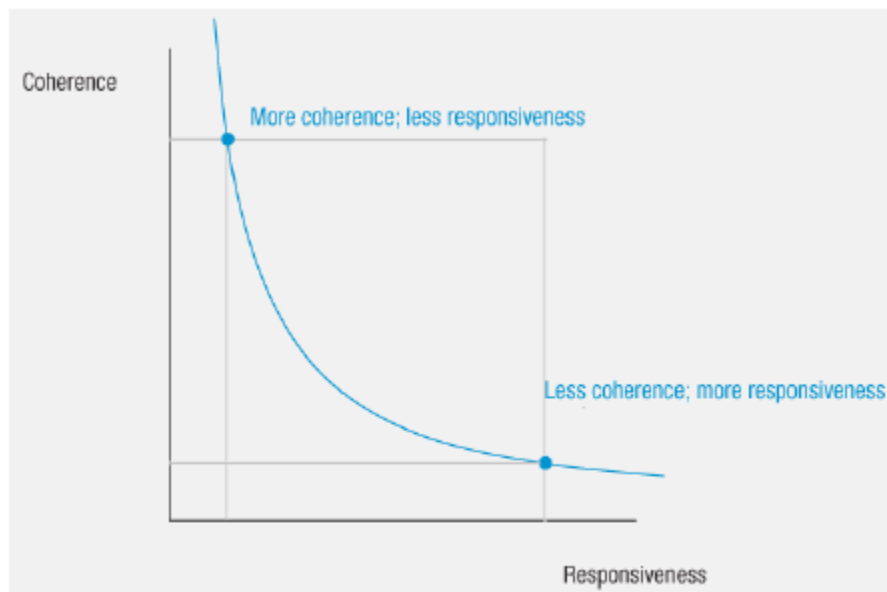


Figure 2

We can move from the zero-sum trade-off curve (as shown in Figure 2) by redesigning processes. This then makes it possible to do *worse* than zero-sum, a bad system can be both incoherent and unresponsive; or we can improve a system and do *better* than zero-sum by improving both coherence and responsiveness. In manufacturing, we can move to the higher trade-off curves by making processes more efficient or finding better materials. One can slide to the lower trade-off curve by poorly maintaining the factory or using inferior materials.

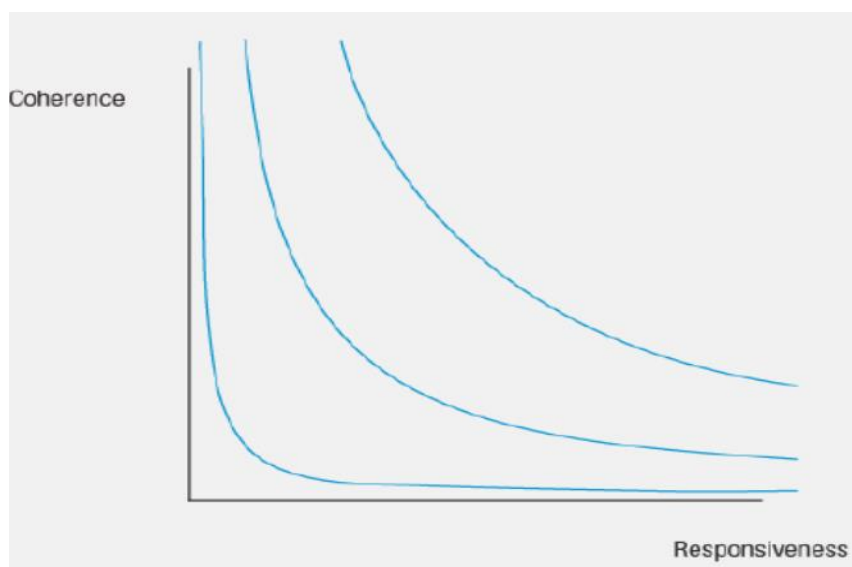


Figure 3

In this paper trade-off curves allow us to systemically conceptualize how outcome mapping can move us to a higher trade-off curve which increases both the coherence and responsiveness of education evaluation activities.

Moving Education Evaluations to Higher Trade-off Curves

Several caveats are in order before venturing further. First, the conceptual framework for the use of Outcome Mapping offered here is an initial, suggestive one. It has not been evaluated, although it is hoped that if it appears promising it will be subjected to extensive testing in practice. Second, the example given, though familiar, is for the most part created for purposes of this discussion. There is no literature beyond that found in international development where Outcome Mapping has been used. Third, it is hoped that this paucity of information should be seen as an opportunity for further investigation and exploration of this methodology in the context of education evaluation. We begin by examining an imaginary project and apply Outcome Mapping to introduce a higher trade-off curve into the project evaluation effort.

Take for example a project that is looking to test the impact and efficacy of a new curriculum for an earth science (any discipline would work here) class for all 6th grades students in a particular district. Most often, teachers are simply given new texts or resources and told to use them in their classrooms. Teacher training may or may not be provided in the particular content or pedagogy implemented in the curriculum being evaluated. As is often the case, textbook and curriculum developers tend to believe that their resources are teacher-proof and applicable across diverse classrooms and populations. Tips and pointers may be provided to teachers for students with special needs in the end notes of the teacher resource. The curriculum is developed with the intention of providing coherence to the educational event or system. Daily guides indicate what will be taught each day and administrators perform spot-checks in classrooms to ensure teachers are on task and the targeted content indicated by the curriculum map is being taught. This is often an effort to ensure the program is implemented with fidelity.

At the end of each unit and at the end of the semester standardized exams are distributed and scores documented.

The evaluation for this type of project would usually seek to show the curriculum positively impacted science achievement or knowledge of science content. It may also wish to show that teachers and students enjoyed the process and through the use of the curriculum students were motivated to continue to study science. To “prove” the impact of the curriculum it would be necessary that *coherence* to the curriculum (or system) would take priority over *responsiveness* to the teacher and/or student needs (parts of the system). This does not mean that the evaluation must be a Randomized Trial, but rather when any evaluation seeks to prove causal effect, coherence must take precedence over responsiveness otherwise the number of confounding variables would be so great no causal links could be made. When local needs don’t fit a system’s design, the drive for coherence can make local work inefficient. In response, people do whatever they can to adapt the system to their needs. For instance, in our example teachers may find their students need more time to learn the content than allotted on the curriculum map and therefore skip units to attend to student needs. It’s possible that the teachers may not know the science content being taught and therefore may pass along misconceptions or not address student misconceptions which result in poor test grades. Our trade-off curves show that when we examine the relationship between cohesion and responsiveness humans will tend to augment the system and reshape activities of the project to suit the reality of their experiences, thus making it difficult to adhere to cohesion and prove causality.

However, it has been shown that systems can move to higher trade-off curves through local and non-local adjustments (Harrison & Henderson, 2010). Outcome Mapping offers a means of providing local and non-local changes in interaction between cohesiveness and responsiveness, which can be a profound means of moving to higher trade-off curves. By *shifting our attention from attribution to*

contribution and progressing toward impact and improving effectiveness, evaluators are capable of finding the right balance between generality and particularity. This shift in perspective allows for simple infrastructures to manage very complex interactions. The infrastructure recommended by OM is highly permeable and permits a high level of control by users, while still giving the collaboration or system as a whole the ability to maintain coherence.

Outcome Mapping provides a continuous system for thinking holistically and strategically about achieving results. Recall that OM does this by monitoring three key areas: **changes in the behavior of partners within a program, the program's strategies, and the way in which a program functions as an organizational unit.** In the above example, if we use OM to evaluate the new 6th grade curriculum, our focus shifts from "proving" the curriculum increases science scores to showing *changes in behavior that would lead to* increased science scores. In addition, since boundary partners such as administrators, teachers and students participate in defining and recording these behavior changes on a recurring basis and provide ongoing insight regarding obstacles to behavioral change, the system (current curriculum, curriculum developers and/or evaluators) can respond to these local needs by adapting the program's strategies as required. Such adaptations are *essential* for enabling systems to respond to a complex, diverse and changing world. Though the strategies may change the outcome from "this curriculum increases student achievement scores in science" to "this curriculum increase positive behaviors (specific behaviors would be identified and clearly articulated) that lead to higher achievement in science"; the newly developed curriculum remains steady, resulting in high system coherence. These local and non-local adjustments raise the level of the trade-off curve as the system becomes permeable to human concerns.

In addition, Miller and Campbell (2006) reviewed 46 studies where "stakeholder empowerment" though measured in diverse ways, found that when any stakeholder felt empowered, outcomes improved. This was especially true when "group process in which the group collectively decided on the evaluation aims, evaluation design, and evaluation procedures and collaboratively collected, analyzed, and reported evaluation data" (p. 305).

In the international development world, program stakeholders such as local community funders, service providers, and boundary partners have worked together to develop a common core set of indicators and measurement tools that can be used to regularly collect data and guide evaluation. Educational evaluators wishing to explore the use of OM could, over time, identify appropriate core outcome indicators and measures specific to their needs. As eluded to earlier in the Stage 2 description, these might entail such things as increases in class attendance and student participation, demonstrated curiosity, the willingness to learn something not previously known, tolerance to ambiguity, no expressed anxiety regarding test-taking, and an interest in sharing their knowledge. In addition, boundary partners could assist in capturing learning experiences that may illuminate how the learning process of participants is enhanced, and assist in making visible otherwise tacit activities, behaviors, and knowledge. This would entail identifying robust and reliable affective constructs and building instruments to measure these constructs. Many such instruments are available but lack the research base to validate them (Liu, 2010) due to the changing understanding of affective constructs. These types of measures would be used in addition to the usual cadre of standard science content tests, surveys, and classroom observations.

Change in education is slow and laborious. The use of Outcome Mapping in conjunction with the usual evaluation methods would be a positive move in shifting our perspectives to a more systemic way of viewing education evaluation; an affirmation that the process of learning is truly a personal and individualized endeavor - that attention to the journey is as important as arriving at the destination.

Conclusion

Education is a complex endeavor; interventions, curriculums, and professional development are more like networked interactions between stakeholders than linear processes of problem articulation,

project design, and implementation. Complex problems require strategies that entail changes in established patterns of action. Utilizing systemic evaluation frameworks can play a role in helping to move educational developers, policy-makers, and researchers to embrace a more realistic approach to identifying patterns and resolving problems in education. Pressure to be accountable for impact leads to conceptualizing and evaluating programs as successful or unsuccessful. However, experience tells us that education, like all social development, is more complex and cannot be isolated from the actors with which it will interact, nor insulated from outside influences. We need to make sure that the tools we have at our disposal for evidence generation are sophisticated and nuanced to acknowledge this messy reality, and that we are sharing ideas on how to do this in a practical and affordable way. Outcome Mapping provides a continuous system for thinking holistically and strategically about achieving results. OM assumes that in reality it is the boundary partners who control real change and the programs themselves are simply facilitators of the process by providing opportunities, training, and resources.

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Miscellany

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