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***Teaching Critical Thinking in the Greek School:  
An Infusion Program and its Effectiveness***

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**Abstract**

The school curriculum and the educational legislation of Greece place the development of critical thinking among the first priorities of formal education. In practice, however, teaching is based most of the time on the mnemonic abilities of the students. As a result, schools are subjected to endless criticism and teachers are constantly exhorted, typically in the vaguest of terms, to use teaching practices that engage the higher cognitive abilities of their pupils. This work describes a program which aims to equip teachers with specific and practical, effective schemata for infusing thinking into day-to-day curriculum activities. The first part of the work presents conceptualizations of critical thinking and of teaching for thinking, both of which have been used as tools for developing an infusion program later presented to primary school teachers in an inservice course. The second part presents the results from the implementation of the program, which show that the program is both easy to use and effective in promoting the involvement of primary school-aged children in learning activities which engage in critical thinking.

The development of critical thinking is internationally recognized as one of the fundamental aims of education (Lipman, 1994; Nickerson, 1987; Siegel, 1988), a fact that largely accounts for the spread of the critical thinking movement. In the Greek school system, there has been a sustained concern with the development of pupils' critical thought, not only at the level of national legislation but also in the prescribed curriculum.

In particular, both Law No. 1566/85, regarding the operation of general education, and Presidential Decree No. 583/8, relating to the curriculum, include the

development of critical thinking (CT) among the long-term aims of education. It is also the case that the other long-term aims expressed in the above legislation actually presuppose the development of CT, since the development of cognitive, social, and moral autonomy are clearly contingent upon it. This dependency was recognized by philosophers such as Kant long before psychologists such as Kohlberg (1975; see also Sadler & Whinbey, 1985). In the final analysis, to safeguard the presence of CT in the content and procedure of education is to preserve the system's evolutionary character and to prevent its degradation into an indoctrination apparatus (Matsagouras, 1998a).

Teachers place the development of CT at the top of the pyramid of educational aims, an accolade that parents of primary school children apparently support (Matsagouras & Chelmiss, 1997). This, of course, is not to minimize the size of the gap that exists between educational reality as experienced by children in the classrooms and the theoretical hierarchies that their teachers and others construct (Flouris, 1997). For some time, international scholars have been stressing the need for schools to make their contribution to the development of CT, enumerating educational, social, and economic reasons for its indispensability in the changing circumstances of our post-modern era (Barell, 1991; Bertrand, 1992; McPeck, 1990; Nickerson, 1987; Samuels, 1994) and propounding models for its teaching and assessment (Ashman & Conway, 1997; Costa, 1991; Das, Naglieri, & Kirby, 1994; Hamers & Overtoom, 1997). These models differ significantly in content and in their mode of integration into the school curriculum. They reflect differing perceptions of the nature of thinking, the course of its development, and its relationship with knowledge. Some writers take thinking to be highly generalized, in the sense of domain-free; while others take it to be largely domain-specific. The former kind of model handles the teaching of CT by a skills approach, the latter by a content approach. Similarly, it is assumed by some researchers that thinking is a cognitive process *simpliciter*, while others assume that it includes affective and attitudinal components. Models deriving from these two standpoints show a predictable divergence. Those reflecting the restricted view could be called academic, not just in the accepted sense but perhaps also with the innuendo that this word sometimes carries. Conversely, those models based on the wider view would be claimed to be pragmatic, encompassing the values and attitudes which are inescapable in the lives of all individuals as they make decisions in practical situations and cope with the consequences (Paul, 1990). Taking this view CT cannot be confined within the boundaries of cognition and assumes something like an existential character.

We take the view, in line with the classic insistence of Psychology, that so-called processes are in principle integrated, and we take CT to be a synthesis of cognitive, metacognitive, and emotional elements. We place the teaching of CT in the context of familiar curriculum subjects and see it as maximizing rationality and minimizing indoctrination. Models of this kind are called Infusion Models, since they attempt to water, as it were, day-to-day teaching with the cognitive and noncognitive elements of CT. Naturally the how of this watering or, in terms of the key metaphor of our own model, interweaving CT threads into the material of classroom teaching, differs from model to model.

The aims of the present study are: (a) in its first phase, to document the components of the teaching praxis to determine the extent to which CT comes into play in day-to-

day classroom activities; (b) to evaluate a model for teaching CT within currently taught school subjects; and (c) to assess the results from our proposed model's application.

It should be noted that the model originates in 1990 and assumed its present (and not final) shape by a succession of theoretical and practical modifications. Its development has been reported by the author in Greek and English-language educational literature (Matsagouras, 1995, 1997a, 1997b, 1988b). It has been reported also by other authors in connection with European programs for the teaching of CT (Hamers & Overtoom, 1997). Its theoretical basis derives from the work of: (a) cognitive psychologists investigating the nature and operation of CT (Efklides, 1997; Halpern, 1996); (b) neo-Vygotskian socio-cultural theorists dealing with conditions for intellectual development; and (c) educators whose approach we would characterize as one of Infusion. More details of all this are presented in our ongoing studies (Matsagouras, 1998).

### *An Analysis of Critical Thinking*

We define CT as the cognitive-affective process which selects and combines and brings into play strategies, cognitive and metacognitive skills, and predispositions by which the individual distances himself/herself from personal beliefs and prejudices, and is able to process the unruly mass of incoming information and can arrive at well-founded and logical inferences and choices. This definition makes it clear that, apart from its cognitive side, CT presupposes certain attitudes and, in particular, a willingness to mistrust and re-examine time-honored assumptions. In addition, our definition implies the notion of a personal value system similar to that embodied in Dewey (1910) and reiterated by a succession of educators and philosophers (Orlich, 1990; Paul, 1990; Siegel, 1988).

Before the elements of CT can be integrated into the teaching praxis—our model's stated aim—they need to be identified. We should make it clear that what follows does not purport to stand as a solution to the problems about the nature of CT that have plagued psychologists and philosophers. We simply need to have something serviceable for our immediate purposes, and Figure 1 shows the pedagogically useful elements of CT. These are (a) the three basic kinds of reasoning (inductive, deductive, and analogical), (b) 22 basic cognitive skills, and (c) metacognition.

**METACOGNITION**

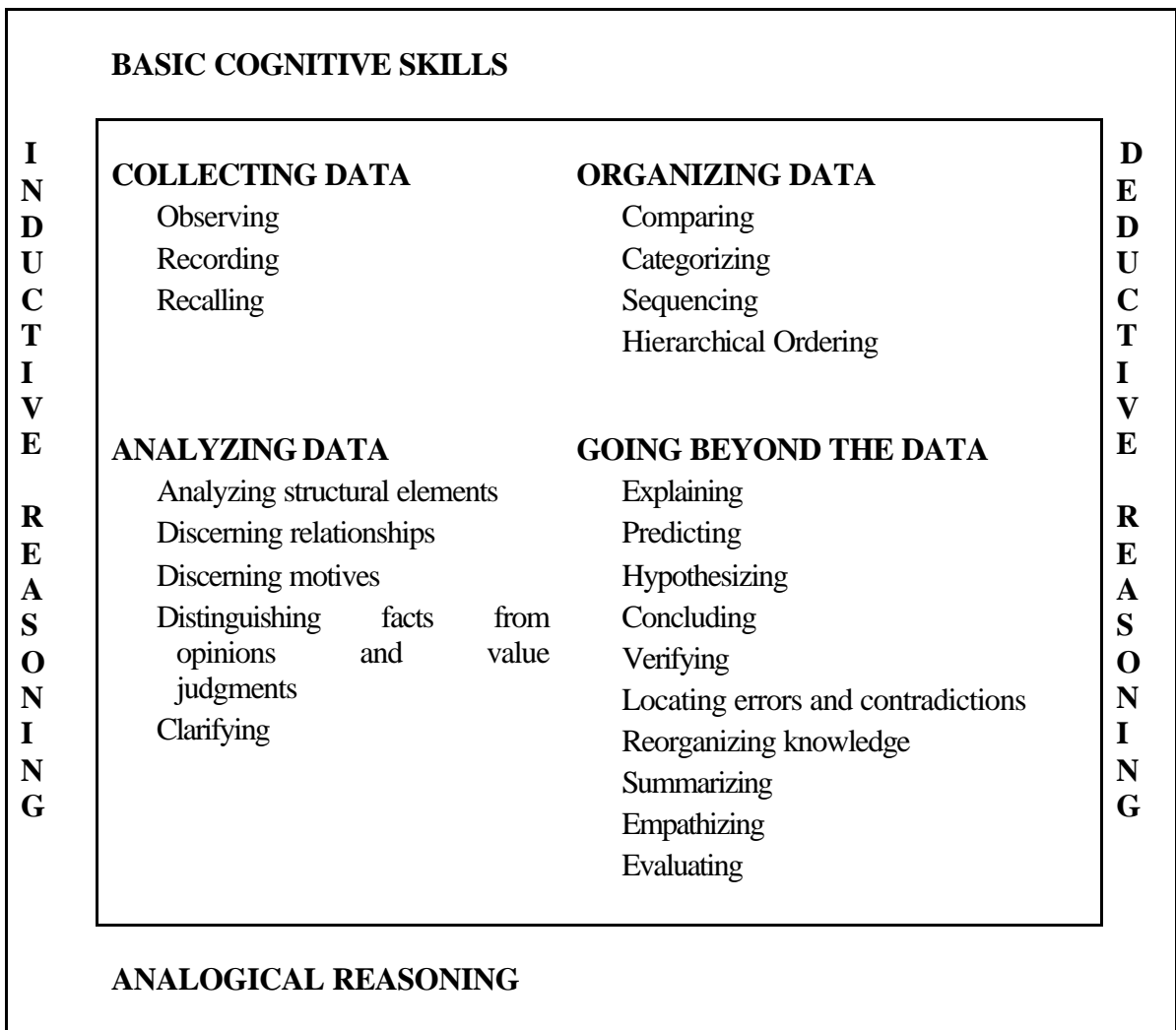


Figure 1: The Framework of Critical Thinking

Our model makes use of 22 cognitive skills. These are organized into four groups: (a) Collecting Data, (b) Organizing Data, (c) Analyzing the Data, and (d) Going Beyond the Data. These four categories constitute a loose hierarchical schema. The great majority of the skills are concerned with the cognitive aspects of CT. Only Empathizing and Evaluating, included in the fourth category, reflect the affective side of CT. This should not be taken as a contradiction of what has been said previously. It is simply the case that the time scale of the present study does not permit us to address such long-term aims of education as the development of personal values. The neglect, however, is not total. It will be seen that we have placed the teaching enterprise in the context of cooperative small-group learning. This ensures that affective and personal-value elements are constantly part of the process. In fact, according to the socio-cultural theory of the neo-Vygotskians, such groups are not just a natural environment for CT, but uniquely so (Adams & Hamm, 1996; Davidson & Worsham, 1992).

## *An Analysis of the Teaching of Critical Thinking (CTT)*

We now come to consider the structural elements of the teaching of CT (CTT), just as we have done for CT itself. We define CTT as any form of teaching which in a Context (characterized by uncertainty, continuous examination, and communication between mutually-valuing participants) actively involves students in Processes of working on the available information which require logical reasoning, the exercise of cognitive skills, and which leads students to schematize interwoven concepts, generalizations, and patterns of interpreting and evaluating the Content of the teaching unit. The end result is students who are able to use the newly acquired knowledge productively. This is meant to make it clear that CTT goes well beyond the level of providing information. It goes even beyond the inducing of new knowledge and of strategies for critical reflection and problem-solving. It strives to enable students to search not only for the relationships between elements (interpretative understanding), but also for the validation procedure to be applied to the relationships, amounting to what has been called functional understanding. This is what is involved when the student acquires some understanding of the methodologies appropriate to particular disciplines (i.e., science, history, math). Moreover, if we take into account that CT in its highest manifestations includes the element of distancing oneself from the other phenomena and regarding the self—including one's own actions and preconceptions—as an object of investigation, then it becomes clear that participants in a critical thinking interaction confront themselves as part of the total experience. CTT, then, develops students' capacity to engage in metacognition, which, in turn, changes and expands their attitudes and values in relation to learning and thinking. This is indispensable for the development of individuals who characteristically base their actions on logical thinking.

CTT is significantly different from traditional teaching, not just in its consequences for learning, but also in its epistemological assumptions. It rejects the traditional assumption that academic knowledge is the objective representation of reality. Instead, it supports the view that the content, the shape, the method of organization, and the applications of that knowledge are contingent upon the ways of thinking pursued by the human mind. CTT perspectives place great importance on the operation of reflection and on systematically teaching procedures for reasoning, organizing, analyzing, applying, and validating the material being taught.

CTT also diverges from traditional teaching in its pedagogical consequences, in particular the role assumed by the teacher, who provides students with support and opportunities for immediate and self-directed processing of the material. This, in turn, changes the role of the student in ways that affect not just individual students but their communities as well. The established social hierarchy between teacher and student is supplanted by a more democratic, egalitarian, communicative ambience *pari passu* with the development of critical awareness.

For the teacher to develop the appropriate attitudes, the inculcation of skills and strategies for autonomous reflection, for making choices, for self-motivation, and for communication on a basis of mutual respect becomes a *sine qua non*. It is these skills

and strategies that uniquely guarantee the collaborative quality of CTT in the form of dialogue and the dialectical establishment of significant correspondences.

From this definition and discussion we must proceed to something more operational. A schematization is required which will help teachers ensure they have the right components adequately built into their lesson plans.

We analyze the teaching, initially following a pattern familiar from the literature, into Process, Content, and Context. Each of these may assume divergent forms. We would place memory and thinking at the opposite extremes for Process; reproduction and production at the poles of Content; and teacher-controlled and pupil-collaborative in the case of Context. Figure 2 presents schematically our model of the basic elements of teaching, the possible extremes of these situations, and the constituents of these situations.

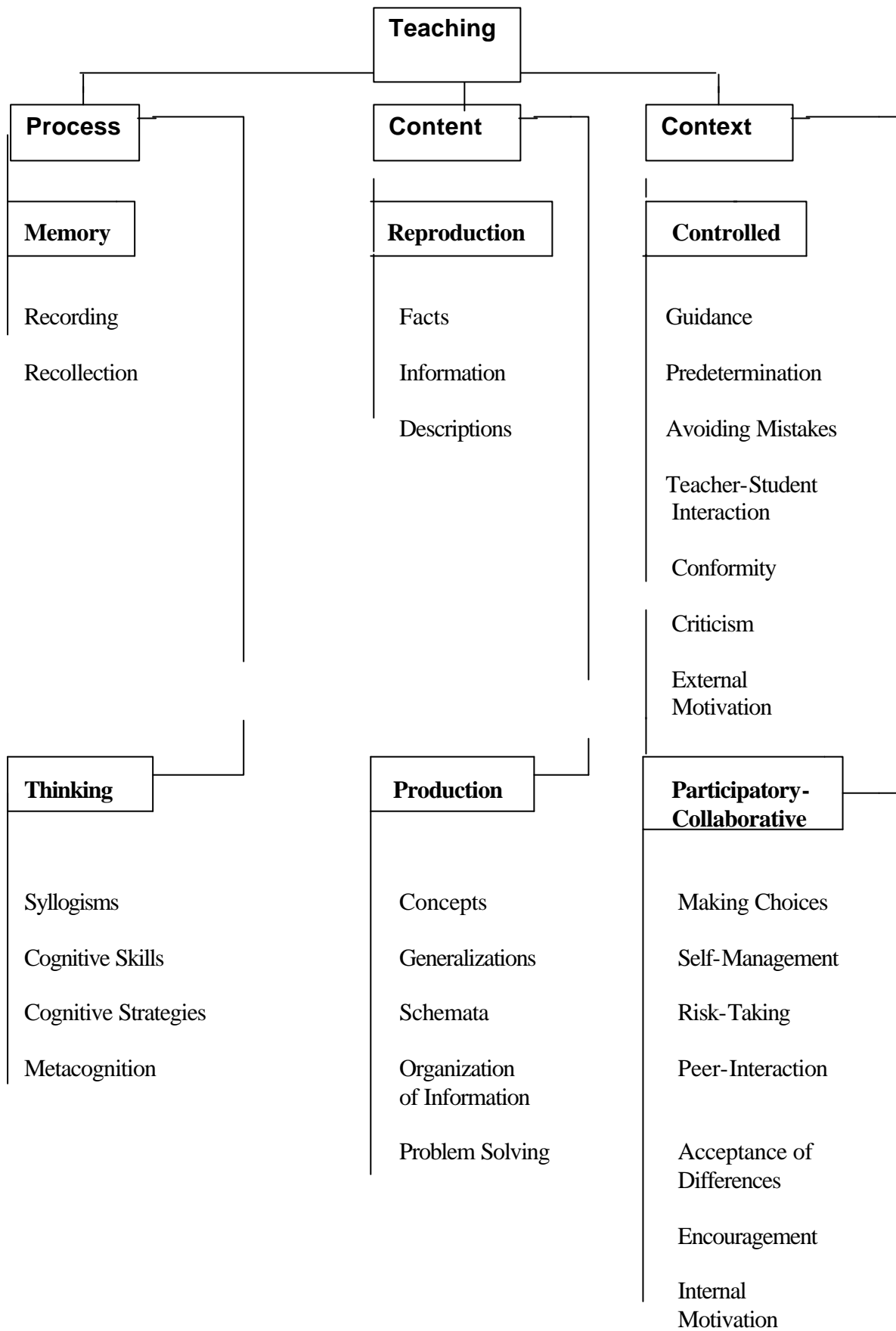


Figure 2: Basic Elements of Teaching



## **CT in the Greek Classroom**

On the basis of the cognitive categories set out in Figure 1, we constructed an observation tool preparatory to our empirical study. With this we gathered data from 36 teaching sessions in Language, Math, and History. The participants were 12 teachers of children in Grades 3, 4, 5, and 6 in Greater Athens. These teachers had volunteered for training in CTT strategies. The schools were attended by children from mainly working-class and lower-middle class families. Our procedure during the lesson was to note and record at (approximately) 3 s intervals which category of cognitive skill was occurring at that moment. The 3 s interval has been used as a unit of analysis in studies concerning time on task and interaction analysis (Fisher, 1995; Flanders, 1966). We also documented whether it was the teacher or a pupil who was demonstrating the recorded skill. These lessons were taught before the training for which the teachers had volunteered and, as such, constitute a control. Preliminary trials of our recording method established an inter-rater reliability of 80% and 90%. As a rule, each kind of communication lasted long enough for the recording to proceed satisfactorily. We saw no reason to change our use of the 3 s interval, although changes could easily have been made. With as many as 22 skills to choose from, total consistency was not thought to be achievable, particularly when there were changes of speaker and changes in the content of communication. The same four judges were involved—the author and three assistant lecturers from his department—in this phase and in the subsequent post-training phase.

### ***Instructing Teachers in the Use of the Proposed Model***

The teachers from whose classes baseline findings were obtained had previously volunteered for involvement in an intensive and time-consuming series of training seminars over three months.

The aim of the program was to help these teachers: (a) enrich their teaching with high-level cognitive skills of the second, third, and fourth category; (b) organize and express the content of their teaching through concepts, generalizations, and schema; and (c) move gradually from a directive stance to one that was participatory and cooperative.

To this end we worked cooperatively with the 12 teachers, holding 11 two-hour meetings over three months. In the early meetings the author gave a theoretical introduction to the nature and importance of CT, explaining in detail what is here outlined briefly in Figure 2. In subsequent meetings, which used a micro-teaching format, each of the teachers was given practice in developing teaching and learning activities based on the systematic use of the higher level thinking skills referred to. The practicalities for promoting these skills through well organized strategies were also presented to the teachers.

Examples of classroom teaching materials drawn from the Greek national curriculum were presented by the author, with the teachers taking the role of students. This was followed by discussion and small-group work in which teachers collaborated in

constructing similar teaching sessions and providing appropriate materials for teaching familiar content in an unfamiliar way. Typically, the 12 worked in groups of two and three, first in preparation, then in presenting material to the larger group. Further group discussion then took place as to how far the presentation had succeeded in leading to the formulation of concepts, generalizations, and schemata. The development of one line of curriculum content is presented in the Appendix.

### *Application of the Proposed Model in the Classroom*

The Greek national curriculum is contained in a series of lesson outlines in the Teacher's Manual, which each teacher is obliged to follow but is completely free to adapt according to his/her judgment. When each teacher felt ready, and had chosen one line of content from the national curriculum as especially suitable for CTT purposes, he/she invited me as inservice course director to arrange for a lesson to be observed. This decision was not so individual and subjective as it might sound. The teachers had become used to working together, criticizing, and accepting criticism. They had built up a collective appreciation of what was required. They had been told that individual records of their teaching would not be presented in any form and were given some freedom in choosing the time for observation. However, none stood out from the general level of competence as especially successful or unsuccessful. It was clear that they were competent and that no seriously distorting variable was introduced into the experimental design by giving them some freedom to choose their own time.

Each classroom was revisited, and the observation tool was used exactly as in the pre-training phase. Thus we were able to compare two sets of data (control and experimental) from two sets of 36 lessons in Language, Math, and History, conducted by the same teachers. During an interview, conducted immediately after the lesson, each teacher communicated his/her aims and justified the methodological choices made. This material is not presented here, but it supported the statement made above about the teachers' being justified in declaring themselves to have assimilated the CTT course content.

## **Results and Discussion**

The results from the pre-training phase of the study are presented in Table 1. The number of 3 s units that were recorded calls for an explanation. The 40 min timetable period theoretically provided 800 units of 36 periods (28,800). In practice the total recorded amounted to 16,190. The reduction in communication time is attributable to announcements, organizational matters, reading time, and individual activities conducted silently. The modest amount of activity reflecting critical thinking will not escape the reader. Of the four main categories, memory skills were engaged in most frequently.

Table 1  
*Results of pre-training phases*

Pre-training	Post-training	
<i>A. Collecting Data</i>		
Observing	1,752 (28%)	1573
Recognizing	1,189 (19%)	902
Recalling	3,317 (53%)	1,544
Total	6,258 (100%)	4,020
<i>B. Organizing Data</i>		
Comparing	864 (42%)	2,512
Categorizing	597 (29%)	812
Sequencing	370 (18%)	464
Hierarchical Ordering	226 (11%)	328
Total	2,057 (100%)	4,186
<i>C. Analyzing Data</i>		
Analyzing Structural Elements	1,256 (55%)	2,721
Discerning Relationships	843 (37%)	1,912
Discerning Motives	137 (6%)	276
Distinguishing Facts/Opinions	45 (2%)	133
Total	2,281 (100%)	5,042
<i>D. Going Beyond the Data</i>		
Explaining	1,454 (26%)	2,112
Hypothesizing	671 (12%)	813
Predicting	448 (8%)	653
Concluding	951 (17%)	1,311
Verifying	559 (10%)	724
Locating Errors/Contradictions	391 (7%)	513
Reorganizing Knowledge	336 (6%)	518
Summarizing	447 (8%)	824
Empathizing	234 (4%)	339
Evaluating	103 (2%)	211
Total	5,594 (100%)	8,018
Grand Total	16,190	21,266

The second class of behaviors in order of frequency of occurrence, with 5,594 recorded instances, was Going Beyond the Data. This group comprises the 10 subskills that represent the highest level of cognitive skills. That this category should have taken second place overall is striking. Further examination of Figure 2 will suggest the reason. Explaining has a very high incidence, and in a didactic setting it is by explanations and requiring explanations that the teacher typically attempts to promote and assess understanding.

We may note at this point the way in which the 3 s units are distributed between teachers' and pupils' activities. Previous studies have provided ample evidence that in the Greek school system it is typically the teacher who is presenting for the majority of the time. Our results show the ratio to be 2:1. The consistency of this ratio in the case of all the most frequently occurring skills is striking.

Our method of data gathering allowed us to compare the way in which skills were deployed and the time taken by them in the three curriculum areas. The most frequently occurring sub-categories were the most frequent in each of the three. Math, however, was somewhat out of step with History and Language in respect to a greater incidence of Analyzing and Going Beyond the Data. We may infer that this is because Math tends to be taught more as procedural than as declarative knowledge and involves a larger share of repetition and practice. We also found that the consistency of our findings was apparent when comparisons were made between the younger and the older children, classes of male and female teachers, and classes of teachers with longer and shorter periods of time in the profession. If our sample was representative, the traditional teaching ethos, with its stress on memory processes, was depressingly pervasive!

The pretest-posttest data are shown graphically in Figure 3.

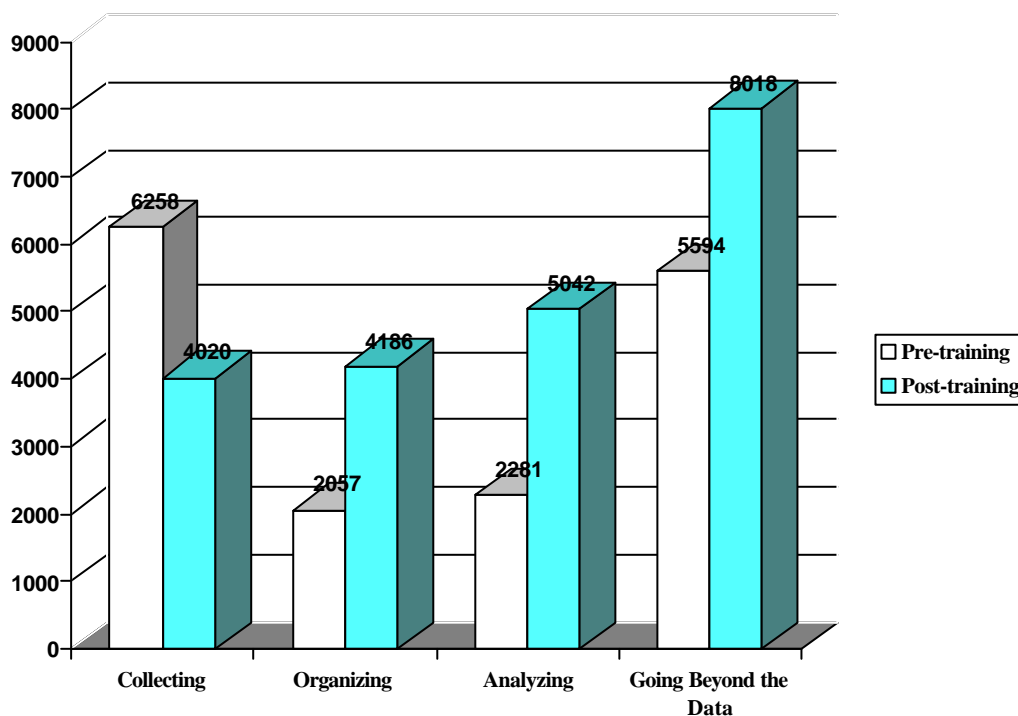


Figure 3. Data collected pre- and post-intervention

It is clear that there has been a large increase in the total number of 3 s units from 16,190 (pre-training) to 21,266 (post-training), a rise of 31% in the amount of instructional interaction.

Even more important is the translocation of activities from memory to thinking processes. Organizing, Analyzing, and Going Beyond the Data are all much increased. The difference is statistically significant for all categories of skills. This follows from the improvement in teaching content and context, which was very visible. In the post-training lessons the content was organized into means of evoking conceptualizations, judgments, and schemata from the children. It was also evident to the observers that this improvement could have gone further. In terms of neo-Vygotskian writings about cognitive apprenticeship, there was a clear presence of “scaffolding” as well as of the “fading scaffolding”, which the teachers had come to appreciate and aim for. With a longer time-scale, we would have expected to see both an enrichment of the cognitive elements of CT and a clear presence of the affective elements referred to in the Introduction as the spontaneity and cooperation of group work took an even larger part.

Mention of the potential for improvement, however, should not be read as facile optimism. The potential for the opposite, for reverting to the status quo ante, is real. Our data were gathered when only a short interval had elapsed after the in-service training sessions. It would be useful to think that the elements of CTT will become stabilized with time. It is, however, idle to suppose that this will happen through a natural process as there are many disincentives acting to discourage teaching that takes more time, including the approach we advocate. There is the force of habit, the attraction of easy routine, and the pathological anxiety to cover the syllabus. This study has addressed one kind of feasibility and confirmed it. There are institutional feasibility factors that await serious attention.

## **Conclusions**

This study shows that notwithstanding the well-known difficulties of defining CT, it is not intrinsically difficult to express its structural features in terms of a model by means of which it was shown:

1. That an assessment of high consistency can be made of the presence of CT in ordinary classroom teaching.
2. That a sample of teachers, in the course of three lessons conducted by each, were not very successful in producing CT among the children being taught.
3. That it was possible to present to these teachers, in a short inservice course and in a form that they understood, accepted, and professed themselves ready to apply under observed conditions, the basics of CTT.
4. That the teachers under these conditions showed a striking improvement in the quality of their teaching judged from a CT standpoint.

## **Author Note**

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## APPENDIX

### **Illustrative Example from the Social Studies Curriculum for Grade 4 Primary— “Primitive and Modern People”**

During a microteaching lesson, the trainer provided the sources of information by posters depicting the life of primitive people as well as modern people. These were carefully considered by the “children” (i.e., the 12 teachers being trained), who then worked under the guidance of the “class-teacher” (i.e., trainer). Through inductive and deductive reasoning the children came to formulate concepts and generalizations relating to the *modus vivendi* of primitive people and their progression to the present day. Primitive and modern people were examined on the basis of a close side-by-side comparison, not in succession. This is a most effective pedagogical ploy for the teaching of parallel concepts, not just because it elucidates similarities and differences, but also because it contributes to a fuller understanding of each of the things being compared. This had been stressed in the early sessions, along with the necessity of a prior analysis of the features to be compared. As shown in Figure 4, prior analysis in this case resulted in the dimensions food, clothing, and shelter.

DIMENSIONS	DESCRIPTION OF CONCEPTS		COMPARISON	EXTENSION	INDUCTIVE EXPL'TION	EVAU ATION -
	PRIMITIVE	MODERN				
FOOD CLOTHING SHELTER	Á1 Á2 Á3	Â1 Â2 Â3	Á1 * Â1 Á2 * Â2 Á3 * Â3			
SPECIFIC CONCLUSION	FOR Á	FOR Â	SPECIFIC COMPARATIVE CONCLUSION FOR Á AND B			
1+2+3=>  CONCLUSION AS AN INCLUSIVE CONCEPT	FOR Á	FOR Â=>	Á*Â=> GENERAL CONCEPT  CONCLUSION FOR A MORE GENERAL CONCEPT			

Figure 4: Dimensions established during preliminary analysis

Following the progression A1, A2, and A3 of the table, the children came to the conclusion that primitive people used animals and plants from their immediate environment for food, skins and foliage for clothing, and caves for shelter. This sort of conclusion is correct, but it is merely descriptive. Higher-level learning takes place when the student works on the information given and begins to formulate more abstract conclusions. In this, the teacher's support is indispensable; by formulating more open-ended questions the children are helped to generalize their inferences. Instead of asking, "What did primitive people eat?" "What did they wear?" "Where did they live?" the teacher should ask something like: "How can we express food, clothing, and shelter in a single phrase?" When some such class-concept answer as Basic Needs is forthcoming he/she can then ask how primitive people met their basic needs. The generalizing of the questioning does not ensure that the generalizing of the answer comes automatically. The children must be given additional assistance to specify the common characteristics of the materials used by primitive people. The teacher might ask "What sort of materials did primitive people use to meet their basic needs, how can we describe them all together?" After a few attempts, Grade 4 children can see the importance of starting with specific facts and proceeding step-by-step from the facts to the generalized conclusion that primitive people used natural raw materials to meet their basic needs. This makes learning more meaningful and permits it to be generalized to other situations, such as primitive peoples' need for weapons and tools. The answer to a question about this should be in keeping with the previously applied concept of raw and natural (e.g., stones, pieces of wood). With carefully prepared interventions from the teacher, the children can discover that primitive people were self-sufficient (concept) and that the more civilization progressed the more dependent they became (generalization). They might even go further and discover that primitive people were socially independent—since they relied on themselves—but absolutely dependent on their immediate natural environment, whereas modern people are *per contra* socially dependent but



independent of their immediate environment, since through trade and technology they have ready access to products from far-off places.

## Résumé

### *Enseigner la Pensée Critique dans l'École Grecque : Efficacité d'un Programme Intégré aux Activités Scolaires*

Les textes officiels et les programmes de l'école Grecque font de la pensée critique l'une des priorités de l'enseignement. Dans la pratique, l'enseignement est cependant la plupart du temps fondé sur la mémorisation. Il en résulte que l'école est en permanence critiquée et que les enseignants sont constamment exhortés, mais en des termes très vagues, à utiliser des méthodes d'enseignement amenant leurs élèves à mettre en œuvre des processus de pensée plus élaborés. Cet article décrit un programme qui vise à fournir aux enseignants des outils spécifiques et pratiques leur permettant d'introduire la pensée critique dans leurs activités quotidiennes. Dans une première partie nous présentons une conceptualisation de la pensée critique et de l'apprentissage utile pour l'enseignement qui a été présentée dans le cadre de la formation continue d'enseignants du primaire. La seconde partie présente les résultats de la mise en œuvre de ce programme ; ils montrent qu'il est à la fois facile à utiliser et efficace pour engager des élèves du primaire dans des apprentissages qui conduisent à une pensée critique.

## Resumen

### *La Enseñanza del Pensamiento Crítico en la Escuela Griega: Un Programa Intensivo y su Efectividad*

El curriculum escolar y la legislación educativa de Grecia sitúan el desarrollo del pensamiento crítico entre las primeras prioridades de la educación formal. Sin embargo, en la práctica la enseñanza está basada en la mayoría de las veces en el desarrollo de las habilidades mnemónicas de los estudiantes. Como resultado, las escuelas están sometidas a interminables críticas y los profesores son constantemente requeridos, aunque en términos muy vagos, para usar prácticas de enseñanza que pongan en juego habilidades de alto nivel cognitivo en sus alumnos. Este trabajo describe un programa que tiene como objetivo dotar a los profesores de esquemas efectivos y prácticos para involucrar el pensamiento en las actividades curriculares del día a día. La primera parte del trabajo presenta conceptualizaciones del pensamiento crítico y de cómo enseñar a pensar, que han sido usadas como herramientas para el desarrollo de un programa intensivo presentado más tarde a los profesores de enseñanza primaria en un cursop de entrenamiento en el

puesto de trabajo. La segunda parte presenta los resultados obtenidos en la implementación del programa, los cuales muestran que el programa es fácil de usar y muy efectivo para la promoción del desarrollo de actividades que incluyen la mejora del pensamiento crítico en niños de la escuela primaria.

#### Zusammenfassung

#### *Das Unterrichten Kritischen Denkens in der Griechischen Schule: ein Vermittlungsprogramm und seine Wirksamkeit*

Das Schulcurriculum und die Unterrichtsbehörde Griechenlands räumen der Entwicklung kritischen Denkens eine hohe Priorität in der formalen Erziehung ein. In der Praxis basiert der Unterricht jedoch meist auf den mnemonischen Fähigkeiten der Schüler. Dies führt dazu, dass Schulen einer endlosen Kritik unterzogen und Lehrer beständig und typischerweise mit vagen Begriffen ermahnt werden, so zu unterrichten, dass die höheren kognitiven Fähigkeiten ihrer Schüler beansprucht werden. Diese Arbeit beschreibt ein Programm zum Aufbau spezifischer, praktischer und wirksamer Schemata bei Lehrern, mit deren Hilfe Denken in die Alltagsaktivitäten der Schüler implementiert werden kann. Im ersten Teil der Arbeit werden Konzeptualisierungen kritischen Denkens und des Lehrens von Denken vorgestellt, die als Instrumente für die Entwicklung eines Programms verwendet wurden, das Primarschullehrern in einer schulinternen Fortbildung angeboten wurden. Der zweite Teil beschreibt die Ergebnisse der Programmimplementation. Es zeigt sich, dass das Programm sowohl leicht durchführbar als auch geeignet ist, Primarschulkinder in Aktivitäten zu fördern, die kritisches Denken erfordern.