Problems And Solutions

Educational Solutions Worldwide Inc.

Caleb Gattegno

In our conversations among ourselves at Educational Solutions, and with friends and, sometimes, with outsiders, we found that again and again misunderstandings occurred between speakers because the word solution (as applied to educational problems) had different meanings for those discussing the proposals. We thought it helpful to dedicate most of this issue of our Newsletter to a careful examination of this matter, and we invite readers to join us in it.

The few contributions included here do not represent the extent of our staff's efforts at clarifying the issues. Not everybody was ready with a finished article at the deadline, and we shall need to find room in future Newsletters to publish those we receive later. The matter is an important one, and we hope the content of these pages will be sufficient to stimulate discussion.

The rest of this issue includes news items, a paper sent in by a language teacher after observing a colleague teaching French the Silent Way (included here to indicate the kind of paper we think valuable for our research in teaching), and a review of a book published last month.

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Some Definitions

A problem is experienced as an inner tension associated with other components of the mind related to other areas of living.

A problem brings with it a feeling that we must take steps to remove the tension.

What allows the tension to be removed is called a solution.

Solution is a word used in physics and chemistry to refer to an amount of matter in which some other matter is not perceptible but can be made evident by certain means. The disappearance of one type of matter in another, is expressed by saying that the first is dissolved in the second, or that the second dissolves the first. So we say that to make a tension vanish we dissolve it in another state: in other words, we find a solution for it.

Thus, within terms of the normal dynamics of each of us, problems come to the fore in association with the bent for finding solutions. Problems remain problems while that tension is maintained in us asking for its removal. Often a solution is found progressively, by replacing one insoluble problem by a succession of problems for which solutions are forthcoming. It is generally assumed, therefore, that only fragmentation of a problem can lead to solutions. Success in analyzing problems in this way for 350 years has established the approach as part of the scientific method and as the most trusted way of working.

There are fields in which this approach may not be the best, and today we know a few of them: meteorology, education, and medicine are good examples.

We shall say that we are in the field of education when human beings enter into a relationship so as to make each other grow and acquire a power not possessed before they got into the relationship. The activities involved in this relationship will be considered to be part of education. Problems in education may not all be educational problems. We shall limit ourselves to the latter; that is, to those problems which call for a solution within the compass of education itself. For instance, we shall not call a problem "educational" which can be solved by pouring more money into a system. But we shall label "educational" those problems which require that we resort to means that resemble the problem in order to reach a solution.

We shall call only these kinds of solutions "educational solutions," and "full solutions" the proposals which integrate all those components needed to change an educational solution into one that can be implemented.

Here we shall concern ourselves primarily with educational solutions, even where we know how to provide a full solution.

The reason for this restriction is the need to observe hierarchical demands in the field of implementation. Only if true educational solutions exist is there any point in taking time and using funds to implement them. Already a great deal of evidence exists to prove that operating otherwise may lead to disappointments and to the abandonment of good ideas.

For a solution to be accepted by us the following attributes have to be present:

1   that it is suggested by the problem,

2   that it resembles the challenge,

3   that it does not include items that are part of the problem,

4   that it does not rest on the assumption that problems as yet unsolved are solved,

5   that the people it involves are ordinary people,

6   that it applies to classes of people and, through them, to individuals,

7   that it implies the use of attributes which people actually possess,

8   that it can take people with ease and certitude from where they were to where they could be.

If these attributes are part of the solution, they make it viable and worthy of the attention of those who are facing the problem.

What Is An Educational Solution?

Education involves people, and people relate at different levels, in different ways, and for different purposes. Hence, we find under the name of educational problems a variety of challenges that belong to a variety of headings which could perhaps be better kept separate.

Thus for example we consider the improvement of our understanding of multiplication <u>and</u> its adoption by teachers to be <u>one</u> problem in education, whereas the first is truly an educational challenge, and the second would be better considered a marketing challenge. Similarly, the estimation of the exact time of any apprenticeship, and its acceptance in the schedules of institutions which provide this apprenticeship — an administrative problem — are taken together as one problem in education.

Scientists talking to each other know when a problem has been solved; they also know that if the solution is to be used outside the frame of reference in which it was found, it is for the outsiders to say whether their problems have been solved or not. A good example illustrating this situation is what happened in the field of engineering when it was found that piston engines could not have their field substantially increased, whatever the alteration of form or change in fuel. Something in the nature of the energy transactions set an insuperable limit. When the design that led to the jet engine was produced, scientists knew that a new principle was at work in it and that a huge leap into the future of aviation was now possible. It took years, and the failure of the first Comet planes for engineers to solve the problems of metal fatigue, of

friction at greater speeds than had been studied. Without jet engines there would not have been a jet age, but with them came other problems, previously unforeseen.

An educational solution is similar to a scientific solution: it provides the necessary condition for progress; but the same condition is rarely both necessary and sufficient for a complex problem to be considered solved. In fact, we can safely say that such problems can be seen as formed by a number of problems, often hierarchically connected. This means that whenever a solution to a component problem is found, its value for the solution of the overall problem will depend on the place of the component in the whole. If it is a fundamental component, needing to be solved first for all the others to become capable of being tackled, its value is considerable. If it is a subsidiary component it may become fundamental if another has been solved in the meantime, but it may also remain without any impact upon the whole for a long time.

Looking at the challenges in the field we can easily elucidate, with respect to each of them, the proposals offered as ways of meeting them, and discover whether or not people are attempting to solve fundamental problems or are mainly concerned with what is cynically called "cosmetics."

For instance, when trying to account for the decline in achievement in public schools, we can see references to the number of pupils per class, to the fact that parents work, to the economic status of those parents or their marital relations, to the salaries of teachers, to the place of television in the students' homes, to the role of drugs, or desegregation, and other components which are easily pointed out. Taken separately, each of these components has some impact upon the overall challenge but, by tackling each of them as a major component, the state of public education has not ceased declining and has even become increasingly unmanageable.

On the other hand, if we become aware that the experience of each of us, to be functional, must be ours genuinely, that learning is highly individual, and that a teaching which does not relate explicitly to learning has little chance of being effective, we sense that we are at the

center of the challenge and that we may increase our chances of finding a proper solution by discovering how to subordinate teaching to learning.

It therefore seems sensible to concentrate on working more specifically on these fundamental problems, and on finding ways to solve them first. No one can say which new problems, once these are solved, will be the fundamental ones on which one should then concentrate.

For a number of years we have been saying that we have found the solution to "the problem of reading." Since almost nobody has heeded us, and therefore implemented our suggestions, we can use this particular situation to illustrate the distinction we make between what is an educational problem, and what an educational solution.

Strictly speaking, the fundamental problem of learning to read can be stated as follows: someone who already owns the spoken language needs to know that there exists an alternative set of signs, reflecting most of the properties of the first, and must acquire this systematically.

This is an educational problem. For the teachers it means knowing how to ensure full understanding that the second system of signs is in relation to the first system — already second nature to the students — and provide the appropriate exercises which lead to acquisition of it. To work on this problem is to leave aside all other considerations, like the presence of capitals and punctuation in a given text, or the different kinds of type used in printing, or the demands of assimilation or comprehension, and so on.

To find an educational solution to the fundamental problem will consist in reaching the real components of the dynamics of the mind, whose functionings will effortlessly bring to the students' awareness that the second system of signs makes as much sense as the first, is readily integrated with the first, and can be relied upon as easily as can the first.

The elaboration of the techniques and materials of Words in Color do precisely this, as can be ascertained by any fair-minded critic. An educational solution is the first requirement. It is what mathematicians call "a necessary condition." It is certainly not a sufficient one. For the adoption and implementation of the fundamental solution, a number of subsidiary problems have to be taken into account and solved.

Is it possible to give the educational solution a form which will be immediately understandable to the many teachers who are engaged in teaching reading?

How can we transmit the spirit which led to the solution, to the practitioners, so that it becomes part of the teaching approach in the classroom, and teachers see how easy it is to learn to read? How can we integrate the approach to reading offered by Words in Color with all the other demands society makes on teachers of reading, in schools? How can we reduce the time needed by teachers to become as expert as possible with the solution represented by Words in Color.

How can we make all those with vested interests in the field of reading re-examine their position, so as to have them assess the educational solution to the problem of reading, for its merits?

There may be more problems which are, socially speaking, as difficult to solve as was the fundamental problem. Being social problems, they can be considered outside the strictly educational one presented by the teaching of reading. Literacy, for nations with vast numbers of illiterates, cannot be contemplated seriously because of its magnitude, unless it is ascertained that once made literate, people will not lose the acquired skill. This can only be the case if reading is no longer an activity resting mainly on memorization. The solution to the fundamental problem can be of unusual service to agencies involved in the eradication of illiteracy: it allows an estimate of the cost of solving this challenge equal to perhaps one hundredth of the ordinary current estimates.

Because we can give some educational problems their corresponding educational solutions, we see established, in the field of education, the

usual manner of working in the scientific and technical fields, which stresses that no solution can be valid unless it resembles the problem.

Suggested by the inner intricacies of a problem, solutions can be assessed by examining to what extent they resemble the problem. In education, as anywhere else, it is open to us to define a challenge in terms which indicate what the educational aspect is for which an educational solution is required, and what the other aspects are for which different solutions may also be required. It seems that everybody is convinced that there is a financial aspect to every educational problem, and that it needs to be considered first. In this article we suggest that, in spite of its great importance, funding is not to be considered an educational problem, nor an educational solution. Ideas cannot be bought. It costs nothing to have one, or many. The right idea becomes financially valuable because of the saving it represents, and this, in its turn, can become a criterion for the evaluation of a fundamental educational solution.

An educational solution, if genuine, will not only save time and therefore money, it will also eliminate frustration in students and teachers and perhaps generate considerable competence and joy.

To close this brief discussion: we have, by separating the educational solutions from others, brought educational problems into relief; this may help us understand where we need to put our stresses first and where, in the hierarchy of solutions required by a given educational problem, we can look for the most urgent aspect to be worked on.

Caleb Gattegno

The Answer Is In The Question

In our day to day life we often face issues which disturb us, and we feel the urge to take steps to bring about change. In order not to endure the uneasy feeling caused by the pressure to act, we may simply brush aside the thought of change by telling ourselves that nothing we could do would make a difference. We may quickly get over the urge, become oblivious to the very existence of the issues concerned, and simply carry on as before. If the feeling persists, we may choose to dismiss it by deciding that "this is not my problem anyway." This kind of decision may, to a large extent, result from a preference for giving our time and energy primarily to that which we are used to and can easily handle.

It can also be that a challenging issue intrigues us. In that case we feel as if the challenge calls upon us to examine it more deeply. We feel prepared to see where it would take us if we engaged in investigating the issue. When we respond in this way to an issue, it can be said that we have given ourselves a "problem," and have launched our search for a solution to it.

But there again, we may be so keen to find a solution quickly that anything which looks like one is taken to be one. We may be so taken by the thought of finding a solution that we abandon our investigation of the problem itself and busy ourselves with putting a "solution" together — even if the "solution" bears hardly any relation to the problem. Our preoccupation may obscure the link between the problem and its real solution altogether.

Nonetheless, there is sometimes an alertness at work in us which does not allow the link between a problem and its solution be severed. It checks — all through the investigative process — whether or not the nature of the problem and that of the solution coincide, whether or not there is a correspondence between the two, whether or not the affinity between the two is maintained in balance.

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Suppose I am a teacher who faces the disturbing fact that many of my students are poor spellers. Do I study the situation to know what the problem really is? Do I investigate it deeply enough to know that what I find is the solution to the problem I am concerned with, and not just any solution?

A close look at the matter suggests that "poor spellers," rather than being the problem, are actually suffering the consequences of the fact that the various aspects of the real problem have not been carefully looked into and are still unidentified. One aspect of the problem of English spelling, for instance, lies in the nature of the ambiguities of English orthography. The solution that corresponds to this aspect of the problem lies in presenting English orthography to students in a form and manner which would enable them to cope with the ambiguities intelligently, to understand them, and to take them in their stride. Another aspect of the problem lies in an approach to teaching which relies heavily on rote memorization — a mechanical process — which is, more often than not, likely to break down. The solution to this problem is to use ways of teaching which mobilize students' mental processes such as imagery, recognition, evocation etc., which are more powerful than memory, and which help to strengthen retention and recall in a dynamic manner. The core of the problem is not how to improve their spelling, but how to work with students so that they have the means to become better spellers. The solution which corresponds to it would be to involve students in activities (related to spelling) which help them become better listeners to their own voices, sharper in their perceptions, more aware of what they see, more responsible for what they do, better able to discriminate between the correct and the incorrect on the basis of criteria acquired.

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One's habitually preferred ways of looking at things prevent one from relating to an issue as a problem. Inertia generated by one's preconceptions is one of the obstacles which makes it hard to relate to even significant issues as problems. Mere intellectual curiosity as a way of relating to issues is a distraction, because the bias is towards acquiring knowledge about the matter concerned for the purpose of expounding one's theories. Wanting desperately to have a solution takes one's energies away from study of the problem, and tempts one to adopt pseudo-solutions and adhere to them.

In the absence of such hindrances and distractions, it becomes possible to engage in the serious study of an issue as a problem. In the course of careful study one finds that the problem undergoes transformation. It is the transformed version of the problem being studied which, at a certain point, turns out to be its solution and is recognized as such; and we see that a problem and its solution are truly akin.

> "If you concern yourself totally with a question, you will find that the answer to your question resides in the question"   (folklore)

Shakti Gattegno

Recognizing An Effective Solution

In speaking of medical solutions, which he calls technologies, Lewis Thomas says: "The real point to be made about (. . . . . .) the real high technology of medicine — is that it comes as the result of a genuine understanding of disease mechanisms, and when it becomes available, it is relatively inexpensive, and relatively easy to deliver."* This principle seems to be true in other areas as well, even in our daily experiences. We are often able to recognize that a solution to a problem has been found when there is a clear saving of energy involved.

A problem creates a tension, which absorbs a certain amount of energy. Once we feel this coagulation taking place we try to free that energy, so as to put it into circulation again for other tasks. Only by attempting to dissolve these tensions can we create solutions. At times, however, we discover that the "solutions" we have come up with are so elaborate, so cumbersome, that they absorb more energy than the tension created by the problem itself. If we are insensitive to this phenomenon we may become rigid, and accept "solutions" already in circulation as good ones, thus depriving ourselves of using ourselves in more effective ways.

I believe that this happens especially in fields like that of education, where tradition is strong and other problems are intermingled with educational problems. Thus, for example, the "desire" of a group to maintain their central, and social, behaviors may both confuse and

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* Ref. "The Lives of a Cell" Bantam Books Inc. N.Y. 1975

interfere with the solution to educational problems. It is very difficult to transcend one's cultural modes of thought and to sort out the numerous problems which may be hiding under one heading, e.g. "the problem of spelling."

Even when we recognize that traditional solutions to a problem don't work, it is very difficult to see that in order to find a new solution we need to look at the problem in a fresh way. Unless this is done, the new solutions are often just as cumbersome and non-productive as the old ones.

A good example of this is the attempt made in the 50's to revolutionize language teaching. Linguists and educators felt that the traditional ways of learning a language, through translation and memorization of grammatical rules and words, yielded results which were too poor in proportion to the amount of time and effort put in. So they suggested new techniques and ideas which, after 20 odd years of experimentation, have proven just as cumbersome and unsatisfactory. The reason for this failure, in my opinion, stems from the fact that when this new solution was suggested the problem was not looked at afresh. Linguists who suggested the new technologies, were still preoccupied with the linguistic corpus to be learned. There was still the model of a corpus of knowledge to be ingested, to be poured into the learner. As a result, a lot of studies were done in that period on basic vocabulary, frequency lists, etc.

I still remember how often we, the teachers, shared an overwhelming sense of despair for the magnitude of our task as each language course started. How could we possibly cover all the material supposedly required for the students to be functional in the language we were teaching, when we had only 45 or 60 hours a semester at our disposal? The statistics from the Army schools, where the audio-lingual method had been used successfully, quoted from 600 to 900 contact hours during a continuous period of instruction before students reached a degree of fluency in the new language. Moreover, what the statistics didn't mention (but we knew from people who had attended those schools), was the fact that student attrition in those courses was very

high. Only a small fraction of the original number of students ended each language program.

It is not surprising that, ten years or so after the experiment, many schools gave up language teaching for good. Language requirements both at the high school and college levels were abolished, language laboratories were closed down and, on the whole, language teaching was restricted to the instruction of a few committed students who either had a "knack" for language learning or a "special interest" in pursuing these studies.

Since then I have come into contact with a solution to this problem which strikes me as a real solution in that it is simple and economical. What it proposes is to turn the problem around and look at the learner, not the language. Because any learner of a second language has already learned one language, the solution, called the Silent Way, asks the teacher to work on the learner's awarenesses and put him in contact with those functionings which allowed him to learn his first language. Language learning is no longer viewed as a matter of memorizing and absorbing a certain amount of "language;" it is rather a matter of using certain functionings properly so that a skill can be developed. It is no longer the "quantity" of a language, the "corpus" acquired, that counts but rather the development of tools which will allow anyone to become independent and responsible in acquiring those portions of the language which he will need in the unique and unpredictable experiences of his life.

When I looked at my own experience, I asked myself questions which helped me better understand the nature of language learning and the solution proposed for it. Why for example, am I still in doubt about the use of certain prepositions and verbal forms in English, in spite of the fact that I have been speaking it for over twenty years, and have a very extensive vocabulary and a pronunciation which is very close to that of a native speaker? Why have I never experienced this sort of doubt in my native language — not even when I had only been speaking it for 3 or 4 years? Why is it that I can pronounce a word like "capable," and all of a sudden realize that I've been mispronouncing the word "capability" all along? Why did it take me numerous hours of practice to learn how

to pronounce the words "collar" and "color" correctly? As I reflect on these matters, and others, I realize that until very recently my attitude towards my second language was very different from my attitude towards my first. The former belonged to "them," the latter to me. I realize now that for a very long time I had relinquished my responsibility to find out whatever I didn't know. It was as if I didn't trust my sense of learning, my sense of discrimination, my criteria for knowing whether something was correct or not. I had also relinquished my autonomy: instead of suspending my judgment, and holding a question until an opportunity to solve it came up, I would ask a native speaker to solve it for me. I always got an answer, but because these answers dissolved the tension created by the questions, they also prevented me from developing criteria for correctness. It takes many many hours to learn a language, but time is plentiful and available to us so long as we know how to use "our own time:" time while walking, washing up, riding a bus, eating, cooking, the time of sleep, etc. We can use this time because we have automatized many of our functionings, leaving the mind free for other things: learning a language, for example. The optimum time to process the "quantity," "the bulk" of any language is this time, not the class time. Class time can be used to alert students to those essentials of the new language which allow them to undertake independent work. The belief that learning takes place primarily in the classroom results in methodologies which are not only too expensive in terms of energy, but ineffectual, because one of the truths that the Silent Way points out is that no matter what the teacher does he cannot "learn" for his students. The idea that whatever we learn we must learn by ourselves, and that nobody else can learn for us, may look like a truism. Yet if we observe our actions and strategies in class, closely and objectively, we may find that we are indeed not guided by it. When we consider ourselves as the informers, and act as such to our students, the illusion that somehow we can pass on what we know by pouring it out is implicit. But if we <u>know</u> that all learning is self-taught, our job as teachers will be: 1) to make our students aware that <u>they</u> must do the work because only <u>they</u> can; 2) to show them that they have access to what they don't know by deliberately putting them in contact with those mental powers which allowed them to learn their native language; namely, their awareness of perceptions, imagination, association, and transformation; 3) to show them that they'll learn only as much as they take initiative for; 4) to be at peace and patient with

themselves during the time of apprenticeship, which will be studded with confusion, mistakes and moments of temporary failure.

To find this solution to language teaching it was necessary to change the problem around and re-examine it afresh. The focus is no longer on the material to be taught; rather, it is on the learner who has to do the job. If we prepare the student to become a conscious learner, he can then decide for himself how much of his time and energy he wants to devote to the task. Our task as teachers becomes that of making our students realize that the enormous and complex challenge of learning a language can be subdivided into smaller and more accessible challenges, and that they already have all they need to attack and master these challenges by themselves if they want to.

Cecilia Bartoli

Improving Through Observing Lessons

Observing S.B.'s French I class August 4 - 6, '78, made me a better teacher by helping me gain the confidence I needed to change to the Silent Way in my classroom. More specifically:

- Her presentation of the sound color chart showed me:

  the value of the chart in training students to concentrate only on the sounds of the language,

  the systematic presentation of the sounds introducing only one new element at a time,

  that students can produce the sounds of the new language without having them modeled by the instructor and check their own production by listening to each other and to themselves,

  that the accurate production of the more difficult sounds can be delayed.

- Her frequent suggestion "work on that" reassured the students;

- Her presentation of specific structures gave me a chance to think through how I might approach the same problem;

- I was able to observe the internalization, after only a few hours' practice, of structures (e.g. j'en ai trois) that had eluded my students as soon as that "lesson" had been studied;

- Listening to student feedback I gained insight into their learning process and their reaction to the approach, and was able to see the value of such sessions, about which I had been doubtful;

- I saw students become very engaged with the linguistic problems presented them — leaning closer over the table to observe, helping each other, spontaneously using the charts to draw conclusions about the language;

- I saw her encourage students to "try out" a structure they had just expressed doubt about.

More generally, here's what I've experienced as a result of choosing to adopt the Silent Way:

- Freedom from my textbook. I'm more inventive than I ever have been, more eclectic and more enthusiastic;

- My students are able to pronounce much much better (by the second week) than any class I've had in twelve years of teaching;

- The students are generally more involved with the materials than any previous class. My advice to them at the beginning that they would have to concentrate was superfluous. They are captivated by the materials themselves;

- The student's retention is very good. I can introduce ten to fifteen new elements (colors, numbers) and expect excellent recall;

- The use of gestures, body language, charts and silence to communicate to the student reinforces the feeling that I'm on their side, I'm helping them towards the right conclusion;

- I am able to feel little or no anxiety whatsoever when a student produces an incorrect answer. It gives us something to work on. And the students seem much less anxious about mistakes than in previous classes;

- I not only accept but welcome observers and criticism, which I had previously disliked, because I feel for the first time that being an effective teacher is the most important work I have to do;

- I am much more capable of giving thoughtful (non-defensive) answers and of confronting problems with students more objectively.

I have become aware of many things I still need to work on:

- Getting out of the way more and using my absence effectively;

- Talking less;

- Learning to make the student aware of what he or she has done right, even when he or she has made an error. For example, J'en ai aucune is only slightly wrong. To correct it without making it seem all wrong is a skill I am trying to master;

- Learning how to deal with students who cause a distraction in the classroom. Do I ignore them? Is dealing overtly with them more distracting than the disturbance they make? Is it in fact not disturbance but the natural activity of learning?

- Becoming more comfortable with teaching (approach and materials) so that I can focus more attention on the learning, especially on observing whether students have really acquired the structure or are merely saying it.

- Creating self-confidence in the student rather than reliance on me.

November 15, 1978. The first part of this paper was written in the euphoria (and it was that) of the first two weeks of classes, a period of time which is always exhilarating and which was even more so due to the Silent Way. There followed a slump during which I was doubtful about what I was doing as a teacher. I was fortunate, however, to be observed by Maria Gagliardo Rosen who was supportive and who gave me many helpful suggestions which I was able to incorporate into my teaching. I do not know whether or not the improvement I have observed in my students in the last two weeks is merely a reflection of my own more

positive outlook, but it seems to me they are finally beginning to function as a group, to understand the wisdom of what they are being asked to do, to exercise their initiative in the direction the class takes, to become more inventive and to become more receptive and sympathetic to the idiosyncrasies of French.

I am particularly pleased with the second year class. This is a level in which I have always had difficulty seeing improvement, yet they have become visibly much more confident about their language abilities, and are with more and more ease able to correct themselves. For the first time in many years I am eagerly looking forward to spending the rest of the year with them.

Each day I am grateful for the initial work we did with the sound chart. It has not only eliminated many of the pronunciation problems I have previously encountered, but is an invaluable tool in self-correction. It was also excellent training in concentration and retention necessary for the rest of the course, and gave the students a real feel for the French language.

In the last two weeks I have found myself able to focus better on the individual learning of each student and have become aware of how much more I have to learn about them and particularly about how to help them eliminate the factors that are preventing them from learning effectively. The feedback sessions held every four to eight hours have proven helpful and have become increasingly more productive, but I am looking forward to being better equipped to handle them.

Finally, I am surprised at the low attrition rate I have experienced. I had expected the Silent Way to be perhaps too much of a challenge for many community college students, but it has proven the opposite. I find students are more readily able to cope with their inevitable absences since structures from the previous day's class occur naturally in subsequent classes, and they have been trained to listen and focus on any new linguistic element they encounter.

<div align="center">Marcia Marvin</div>

News Items

1   A new Animated Geometry film is now available. The sixth of the new series made by computer graphics, it is concerned with a few classical plane geometry matters needed by all students of geometry: the study of angles at the circumference (of circles). The subject covered in six minutes and a few seconds of film can easily occupy a few weeks of classroom work. Viewers perceive more and more of their curriculum contents as they look at the successive segments, and when they discuss them they extract the notions and theorems they contain, many of which are in the official curricula.

Working in this way will make viewers into conscious geometers capable of seeing, isolating, and expressing geometrical facts that are part of many chapters of mathematics, elementary and advanced.

In addition to the content value of these few minutes of film, the aesthetic treatment, conceived by J. L. Nicolet (which can now be produced more easily and more completely thanks to the computer) will fill all viewers with a joy reserved too long for a minute minority of the schools' populations.

2   For three weeks Dr. Gattegno visited Europe, spending 10 days in Paris, where he led three workshops for a total of 80 hours, 3 days in England and 6 in Switzerland teaching, consulting and conducting a weekend seminar. The reason for mentioning this annual lecture tour is to report on work done by the few hundred educators to implant the

subordination of teaching to learning within educational systems tightly controlled from above and essentially traditional.

In earlier accounts of European groups at work, mention was made of the foundation of associations of teachers in centers like Geneva, Lyon, Paris and Besançon in French speaking countries. These groups remain in close contact with each other and with Educational Solutions Inc., which occasionally sends staff to Europe to conduct workshops, language classes or lead seminars.

As the theme for this Newsletter was to be "Problems and Solutions" and a number of studies had already taken place, the topic was found helpful and stimulating at the two seminars in Paris. Particularly, the similarity that must exist between solution and problem came as a new insight to the participants who found it a good basis for their progress at the seminars. Studying closely some of the solutions offered by us to the educational public, it was found that —

- the problems were better defined and better perceived whenever it became possible to localize the tension felt by the person considering each of them,

- that as soon as a true solution was suggested it did take care of a problem by dissolving the tension associated with it.

The week long seminar was reserved to teaching Arabic the Silent Way at Orly Airport Technical Center, to 34 employees of Air France. The latter were concerned either with travel to the Arab countries or work on the aircrafts, or with language teaching to flying personnel. The new Arabic charts and the sound color charts were used and found suitable for making the Silent Way work effectively and smoothly. Generally speaking, the instruments were making these students able to produce flows of sounds which were as accurate as those which foreigners who live in an Arab country do not on the whole achieve before six months of residence. Moreover, having learned at the same time to read and write, they could recognize the statements they were able to utter in the forms put down on paper or on a chalkboard by other students in the group trying their hand at writing what they wanted to say. Again, generally speaking, the participants were amazed at their own

achievement, specially at their awareness of items in words, heard or read. This led them to know something of why such items are needed when one finds oneself present in a given situation. Arabic being as close as one can imagine to a "mathematical language," it was possible to enhance sensitivities in the students which, thanks to specific transformations, multiplied the extent of the vocabulary committed to memory. This meant that, beyond retention and recognition, the powers of the mind were called in as often as possible.

Some students could articulate on behalf of the class what had characterized this unusual and intensive week long study of a language considered by many as very difficult. Arabic became familiar because everyone initiated utterances and formed criteria that functioned in the manner their own language did. It became attractive because a wider view of an outline of its architecture had been opened up by the instruments and the techniques of the Silent Way (color, Fidels, selected words on the charts, meanings immediately perceptible either in the classroom situation or because of the colored rods...). Using one's will, accepting being wrong and defining criteria, helped students to be relaxed all the time to concentrate on one particular item, to sort out one thing after another, to contrast one's performance with that of one's peers and to sense when one was right and sure of being so. More particularly the steady progress, the constantly moving scene, the total involvement of one's gifts, one's experience, one's intelligence, permitted a mobilization of energy that eliminated the fatigue expected in such a concentrated study. The joy of working in that way was also mentioned.

Suggestions from the class clamoring for a follow-up, included shorter days in the classroom and materials to be taken home for individual reviewing and consolidation. They still believed that the traditional approach that had served them well in the past could serve again, while expressing at the same time that they still doubted that they had learned a great deal. The evidence was not of the kind that can convince newcomers to this way of working.

3   Dr. Gattegno, this time, was interviewed on four radio channels and for the national television news of France. One of these radio

interviews, "Radioscopie," lasted for one hour and reached millions of listeners in French-speaking Europe (France, Belgium, Switzerland and hams in Canada). It generated signs of widespread public interest in what the subordination of teaching to learning can do. A copious set of letters and telephone calls asking for information and follow-ups were received by the station. Another program, originating from the town of Mons in Belgium (a few miles from Thuin of Cuisenaire fame), also serves the northeast of France; the interview from radio Monte Carlo serves the southeast, and France Inter another region. The news item on television concerned the course at Orly. In all, this exposure of a pedagogy based on awareness (in which the Silent Way was stressed in particular), indicates that many more people are ready to respond positively to it than one would have guessed from contact with the educational hierarchies.

In Japan in October, the English language monthly magazine PHP published a profile of Dr. Gattegno, again mainly centered upon learning languages. It seems that the people in need of languages other than their own, are seeking ways of benefiting from the efforts put into learning them. Many have concluded that they are not able to acquire a language, never thinking that perhaps they were made to waste their time and energies.

4   Kuo Shiow-Ley, our colleague, was in Paris and Zurich for ten days giving Mandarin classes. There is a great demand for Silent Way courses in a number of languages. Our colleagues now travel the world lanes to meet that need.

Book Review

In his latest publication, "On Death," Caleb Gattegno leads us on an unsentimental journey of investigation into the phenomenon, based on those factual observations which he, as a living person, is able to make for himself.

Drawing the parallel, in his introduction, with the approach which led him to an understanding of sleep, Dr. Gattegno suggests that in looking at the question of death a similar approach yields results.

In the case of sleep, the explanation became plain only when sleep and wakefulness, two mutually exclusive states, were considered together. Integrated into one entity by the presence of the self in both, with its capacity to switch itself out of one and into the other, their separate functions in relation to the self became clear.

Similarly, if we consider death on its own it remains a mystery; but if we take life and death together, as different aspects of one entity, we can search for a common integrator. Approaching the question from the standpoint of the living, as of necessity we do, we have an entry into the matter through our capacity to make observations about life.

To lay the groundwork, there follows a brief exposition, both factual and historical, of the functionings of energy and energy systems as seen by physicists. We are made to realize that we ourselves are energy systems, interacting with other energy systems in this universe in which energy is the common currency.

During a period immediately following conception, the newly fertilized egg floats, self-sufficient, unconnected to any other energy system until it implants itself on the wall of the womb. Once implanted, it will use the energy from an outside source, the mother's blood, to convert this into the objectified structure of the soma, and to direct energy into other areas of the self, such as the psyche, which are necessary to the functioning and manifestation of human life.

From the beginning, the newly fertilized egg has a quality of energy which directs it. This quality of energy is distinct from that pertaining to an unfertilized gamete, either in its state of readiness for fertilization, or in the state following that, if fertilization does not take placer it is the energy which characterizes the individual throughout life, and which will direct all operations during that life. It is at the helm, and is termed the "quantum," or self.

In observing death from the point of view of the living, we see that what is left behind at death is the body - the objectified energy - but that that which animated the individual, and directed the functionings, is gone. The self, that which enabled the living person to make the statement "I am," is no longer present.

Thus, life and death are two complementary forms of manifestation of the self - that imperceptibly small quantum of energy which descended into the fertilized egg at conception and directed the organism throughout life. At death it departs, leaving the evidence of its works behind.

But what are the functions of life and death to the self? Here again we find that the parallel with sleep and wakefulness is of use, raised to the scale of evolution. The meaning of life (in human terms) ultimately concerns the self which, through living, acquires attributes. These are "qualities, " rather than objectifications, and it is these which the self takes with it at death, leaving the rest behind. The self, with its attributes, gives itself another soma, entering upon another span of life, in order to pursue its evolution and achieve what is not possible by remaining in the same soma indefinitely. Death is therefore the movement the self gives itself in order to be able to start afresh,

uncommitted a) biologically to what was perhaps adequate before but is no longer, and b) socially, to an environment which has already been explored for those achievements aimed at consciously in that life. Just as the self enters sleep to sort things out and recuperate energy, and enters the waking state to act and perform, the same self leaves one life in which it has experimented with living, to pass through death and enter another in which other experiments in living which the first could no longer accommodate can be undertaken.

This theory of reincarnation is arrived at through a process of making sense of a) the existence of death, b) the existence of learning brought from one life into the next, c) the place of life in evolution and d) the role of evolution in the cosmos. Some readers may be skeptical when it comes to the subject of reincarnation — I have not yet fully accepted it myself. Nonetheless, this book presents the synthesis of a large number of observations concerning issues which heretofore were left hanging separately. As one reads and assimilates what has been put forward one finds that a light is brought to focus on one area after another which formerly lay in shadow in one's consciousness, sometimes even only barely perceived; the issues become progressively clearer until they are finally resolved in the continuum of one coherent, comprehensible whole, and the uneasiness formerly experienced in relation to them is released in a new found understanding.

Charlotte Balfour

About Caleb Gattegno

Caleb Gattegno is the teacher every student dreams of; he doesn't require his students to memorize anything, he doesn't shout or at times even say a word, and his students learn at an accelerated rate because they are truly interested. In a world where memorization, recitation, and standardized tests are still the norm, Gattegno was truly ahead of his time.

Born in Alexandria, Egypt in 1911, Gattegno was a scholar of many fields. He held a doctorate of mathematics, a doctorate of arts in psychology, a master of arts in education, and a bachelor of science in physics and chemistry. He held a scientific view of education, and believed illiteracy was a problem that could be solved. He questioned the role of time and algebra in the process of learning to read, and, most importantly, questioned the role of the teacher. The focus in all subjects, he insisted, should always be placed on learning, not on teaching. He called this principle the Subordination of Teaching to Learning.

Gattegno travelled around the world 10 times conducting seminars on his teaching methods, and had himself learned about 40 languages. He wrote more than 120 books during his career, and from 1971 until his death in 1988 he published the Educational Solutions newsletter five times a year. He was survived by his second wife Shakti Gattegno and his four children.