

# What's Worth Knowing

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Suppose all of the syllabi and curricula and textbooks in the schools disappeared. Suppose all of the standardized tests-city-wide, state-wide, and national were lost. In other words, suppose that the most common material impeding innovation in the schools simply did not exist. Then suppose that you decided to turn this "catastrophe" into an opportunity to increase the relevance of the schools. What would you do?

We have a possibility for you to consider: suppose that you decide to have the entire "curriculum" consist of questions. These questions would have to be worth seeking answers to not only from your point of view but, more importantly, from the point of view of the students. In order to get still close to reality, add the requirement that the questions must help the students to develop and internalize concepts that will help them to survive in the rapidly changing world of the present and future.

Obviously, we are asking you to suppose you were an educator living in the second half of the twentieth century. What questions would you have on your list?

Take a pencil and list your questions on the next page, which we have left blank for you. Please do not be concerned about defacing our book, unless, of course, one of your questions is going to be "What were some of the ways of earning a living in Ancient Egypt?" In that case, use your own paper. Now, if one of your questions was something like "Why should you answer someone else's questions?," then you undoubtedly realize that we will submit our own sample list with some misgivings. As we have said, the ecology of the inquiry environment requires that the *students* play a central, but not necessarily exclusive, role in framing questions that they deem important. Even the most sensitive teacher cannot always project himself into the perspective of his students, and he dare not assume that his perception of reality is necessarily shared by them. With this limitation in mind, we can justify the list we will submit on several grounds. First, many of these questions have literally been asked by children and adolescents when they were permitted to respond freely to the challenge of "What's Worth Knowing?" Second, some of these questions are, based on our careful *listening* to students, even though they were not at the time asking questions. Very often children make declarative statements about things when they really mean only to elicit an informative response. In some cases, they do this because they have learned from adults that it is "better" to pretend that you know than to admit that you don't. (An old aphorism describing this process goes: Children enter school as question marks and leave as periods.) In other cases, they do this because they do not know *how* to ask certain kinds of questions. In any event, a simple translation of their declarative utterances will sometimes produce a great variety of deeply felt questions.

Our final justification rests with our own imagination. We have framed-as we asked you to do-some questions which, in our judgment, are responsive to the actual and immediate as against the fancied and future needs of learners in the world as it is (not as it *was*). In this, we have not surveyed thousands of students, but have consulted with many, mostly in junior and senior high school. We have tried variations of these questions with children in primary grades. By and large, the response was enthusiastic-and serious. There seemed to be little doubt that, from the point of view of the students, these questions made much more sense than the ones they usually have to memorize the right answers to in school. At this point it might be worth noting that our list of questions is intended to 'educate' students. Contrary to conventional school practice, what that means is that we want to elicit from students the meanings that they have already stored up so that they may subject those meanings to a testing and verifying, reordering and reclassifying, modifying and extending process. In this process, the student is not a passive 'recipient'; he becomes an active *producer* of knowledge. The word "educate" is closely related to the word "educer." In the oldest pedagogic sense of the term, this meant drawing out of a person something potential or

latent. We can, after all, learn only in relation to what we already know. Again, contrary to common misconceptions, this means that, if we don't know very much, our capability for learning is not very great. This idea-virtually by itself-requires a major revision in most of the metaphors that shape school policies and procedures.

Reflect on these questions-and others that these can generate. Please do not merely react to them.

What do you worry about most?

What are the causes of your worries?

Can any of your worries be eliminated? How?

Which of them might you deal with first? How do you decide?

Are there other people with the same problems? How do you know? How can you find out?

If you had an important idea that you wanted to let everyone (in the world) know about, how might you go about letting them know?

What bothers you most about adults? Why?

How do you want to be similar to or different from adults you know when you become an adult?

What, if anything, seems to you to be worth dying for?

How did you come to believe this?

What seems worth living for?

How did you come to believe this?

At the present moment, what would you most like to be-or be able to do? Why? What would you have to know in order to be able to do it? What would you have to do in order to get to know it?

How can you tell 'good guys' from 'bad guys'?

How can 'good' be distinguished from 'evil'?

What kind of a person would you most like to be? How might you get to be this kind of person? At the present moment, what would you most like to be doing? Five years from now? Ten years from now? Why? What might you have to do to realize these hopes? What might you have to give up in order to do some or all of these things?

When you hear or read or observe something, how do you know what it means?

Where does meaning 'come from'?

What does "meaning" mean?

How can you tell what something 'is' or whether it is?

Where do words come from?

Where do symbols come from?

Why do symbols change?

Where does knowledge come from?

What do you think are some of man's most important ideas? Where did they come from? Why? How? Now what?

What's a 'good idea'?

How do you know when a good or live idea becomes a bad or dead idea?

Which of man's ideas would we be better off forgetting? How do you decide?

What is 'progress'?

What is 'change'?

What are the most obvious causes of change? What are the least apparent? What conditions are necessary in order for change to occur?

What kinds of changes are going on right now? Which are important? How are they similar to or different from other changes that have occurred?

What are the relationships between new ideas and change?

Where do *new* ideas come from? How come? So what?

If you wanted to stop one of the changes going on now (pick one), how would you go about it? What consequences would you have to consider?

Of the important changes going on in our society, which should be encouraged and which resisted? Why? How?

What are the most important changes that have occurred in the past ten years? twenty years? fifty years? In the last year? In the last six months? Last month? What will be the most important changes next month? Next year? Next decade? How can you tell? So what?

What would you change if you could? How might you go about it? Of those changes which are going to occur, which would you stop if you could? Why? How? So what?

Who do you think has the most important things to say today? To whom? How? Why? What are the dumbest and most dangerous ideas that are "popular" today? Why do you think so? Where did these ideas come from?

What are the conditions necessary for life to survive? Plants? Animals? Humans?

Which of these conditions are necessary for all life?

Which ones for plants? Which ones for animals? Which ones for humans?

What are the greatest threats to all forms of life? To plants? To animals? To humans?

What are some of the 'strategies' living things use to survive? Which unique to plants? Which unique to animals? Which unique to humans?

What kinds of human survival strategies are (1) similar to those of animals and plants? (2) different from animals and plants?

What does man's language permit him to develop as survival strategies that animals can- not develop?

How might man's survival activities be different from what they are if he did not have language?

What other "languages" does man have besides those consisting of words

What functions do these "languages" serve? Why and how do they originate? Can you invent a new one? How might you start?

What would happen, what difference would it make, what would man *not* be able to do if he had no number (mathematical) languages?

How many symbol systems does man have? How come? So what?

What are some good symbols? Some bad?

What good symbols could we use that we do not have?

What bad symbols do we have that we'd be better off without?

What's worth knowing? How do you decide? What are some ways to go about getting to know what's worth knowing?

It is necessary for us to say at once that these questions are not intended to represent a catechism for the new education. These are samples and illustrations of the kinds of questions we think worth answering. Our set of questions is best regarded as a metaphor of our sense of relevance. If you took the trouble to list your own questions, it is quite possible that you prefer many of them to ours. Good enough. The new education is a process and will not suffer from the applied imaginations of all who wish to be a part of it. But in evaluating your own questions, as well as ours, bear in mind that there are certain *standards* that must be used. These standards may also be stated in the form of questions: -

Will your questions increase the learner's will as well as his capacity to learn?

Will they help to give him a sense of joy in learning?

Will they help to provide the learner with confidence in his ability to learn?

In order to get answers, will the learner be required to make inquiries? (Ask further questions, clarify terms, make observations, classify data, etc.?)

Does each question allow for alternative answers (which implies alternative modes of inquiry)?

Will the process of answering the questions tend to stress the uniqueness of the learner? Would the questions produce different answers if asked at different stages of the learner's development?

Will the answers help the learner to sense and understand the universals in the human condition and so enhance his ability to draw closer to other people?

If the answers to these questions about your list of question are all "yes," then you are to be congratulated for insisting upon extremely high standards in education. If that seems an unusual compliment, it is only because we have all become accustomed to a conception and a hierarchy of standards that, in our opinion, is simultaneously upside-down and irrelevant. We usually think of a curriculum as having high standards if it covers ground, requires much and difficult reading, demands many papers, and if the students for whom it is intended do not easily get "good" grades. Advocates of "high standards" characteristically and unwittingly invoke other revealing metaphors. One of the most frequently used of these is "basic fundamentals." The most strident advocates of 'high, and ever yet higher, standards' insist that these be "applied" particularly to "basic fundamentals." Indulging our propensity to inquire into the language of education, we find that the essential portion of the word 'fundamental' is the word "fundament." It strikes us as poetically appropriate that 'fundament' also means the buttocks, and specifically the anus. We will resist the temptation to explore the unconscious motives of 'fundamentalists.'" But we cannot resist saying that *their* 'high standards' represent the *lowest possible standards imaginable* in any conception of a new education. In fact, so low, that the up-down metaphor is not very useful in describing it.

What one needs to ask of a standard is not, 'Is it high or low?,' but, is it appropriate to your goals?" If your goals are to make people more alike, to prepare them to be docile functionaries in some bureaucracy, and to prevent them from being vigorous, self-directed learners, then the standards of most schools are neither high nor low. They are simply apt. If the goals are those of a new education, one needs standards based on the actual activities of competent, confident learners when they are genuinely engaged in learning. One must be centrally concerned with the hearts and minds of learners-in contrast to those merely concerned with the 'fundament.' No competent learner ever says to himself, 'In trying to solve this problem, I will read two books (not less than 30 pages from each). Then, I will make a report of not less than 20 pages, with a minimum of 15 footnotes...'" The only place one finds such 'standards' is in a school syllabus. *They do not exist in natural, human learning situations, since they have nothing to do with the conditions of learning-with what the learner needs to be and to do in order to learn about learning, or indeed about anything.* Any talk about high standards from teachers or school administrators is nonsense unless they are talking about *standards of learning* (as distinct from standards for grading, which is what is usually meant). What this means is that there is a need for a new-and "higher"-conception of "fundamentals." Everyone, at present, is in favor of having students learn the fundamentals. For most people, 'the three R's,' or some variation of them, represent what is fundamental to a learner. However, if one *observes* a learner and asks himself, "What is it that this organism needs without which he cannot thrive?," it is impossible to come up with the answer, "The three R's." The 'new fundamentals' derive from the emotional and intellectual realities of the human condition, and so "new" answers (well beyond the three-R's type) are possible in response to the question. In *In Defense of Youth*, Earl Kelley lists five such possible answers:

1. the need for other people
2. the need for good communication with other people
3. the need for a loving relationship with other people
4. the need for a workable concept of self
5. the need for freedom.

One does not need to accept all of these in order to accept Kelley's *perspective* on what is fundamental. Obviously, we would want to add to his list 'the need to know how to learn,' as well as some others which are suggested by our list of standards' questions. The point is that any curriculum that does not provide for needs as viewed from this perspective-'What does the organism require in order to thrive?'"-is not, by our definition, concerned with "fundamentals."

We would like to invite you now to reexamine our sample questions. They represent, after all, a possible curriculum for the new education: The What's-Worth-Knowing Questions Curriculum. This curriculum has several characteristics that require elaboration here. For example, note that all the questions are of a divergent, or open-ended, nature and that each one demands that the learner narrow its focus. Part of the process of learning how to learn is the rephrasing, refining, and dividing of a "worth knowing" question into a series of "answerable worth-knowing questions-., It is a fact not easily learned (and almost never in school) that the 'answer' to a great many questions is 'merely' another question. This is not only true of such questions as we have listed, but even of such questions as 'What is a noun?,' "Who discovered oxygen?," and "What is the principal river of Uruguay?"

To illustrate the point, we have reproduced below a problem that is sometimes given to students by teachers who regard the process of question asking as basic to education-.

1. Study the following questions.

- a. What is the name of this school?
- b. Are children of permissive parents more creative than children of nonpermissive parents?
- c. Who discovered oxygen?
- d. Who is the most beautiful woman in America?
- e. Are the people on Mars more advanced than the people on Earth?
- f. Will it rain tomorrow?
- g. How are you?
- h. Will you get into the college of your choice?
- i. *Is love* a noun or a verb?
- j.  $8+6=?$
- k. Why do airplanes crash?

2. Answer the following questions.

- a. Which of the questions above can you answer with absolute certainty? How can you be certain of your answer?
- b. What information will enable you to answer other questions with absolute certainty? Where will you get the information?
- c. Which questions restrict you to giving factual information? Which do not? Which require no facts at all?
- d. Which questions require the greatest amount of definition before you try to answer them?
- e. Which questions require the testimony of experts? What makes one an expert?
- f. Which questions assume the answerer is the expert?
- g. Which questions may have false assumptions?
- h. Which questions require predictions as answers? What kinds of information may improve the quality of a prediction?

In working this problem through, students quite frequently discover that the question "Who discovered oxygen?" (to cite only one example) is ambiguous in that form. Usually, they rephrase it to read something like, 'According to the *Encyclopaedia Britannica*, who is given credit for the 'discovery of oxygen?'" If you feel that there is no important difference between these two questions, or that "everyone knows" that the former implies the latter, may we remind you that, as a matter of fact, the answer to the question "Who discovered America?" will vary depending on whether you ask it of an Italian, a Swede, or an Irish monk.

Our Questions Curriculum, in addition to requiring the exploration of the nature of questions, has the capacity to *generate* questions that learners are not, at first, aware of. In other words, divergent questions are instruments of 'consciousness expansion.' They reveal to learners new and relevant areas of inquiry, permitting, quite often, the discovery that one's original question is far less significant than two or three others it has suggested.

Below is a transcript of the first five minutes of an actual lesson conducted in an inquiry mode. In previous lessons the class had inquired into the meanings of the word "right" in three different contexts:

1. It is *right* for a man to give a woman his seat on a bus. -
2. It is *right* for children to be vaccinated against polio.
3. It is *right* for citizens to vote.

In this lesson, the students are dealing with the divergent question "What does 'right' mean in statements about language, such as the statement "It is *right* to say 'He doesn't' instead of 'He don't'" Notice the number of new questions that the students produce in five minutes.

Teacher: We have spent a few sessions exploring the shifting meanings of the word 'right' in the sentences, 1. It is right for a man to give a woman his seat. 2. It is right for children to be vaccinated. 3. It is right for citizens to vote. Now I have written a fourth sentence on the board, which I would like you to look at: 'It is right to say 'he doesn't' instead of 'he don't.' And what we'll be exploring today is what the "right" means in that sentence. Now who will start us off.? You might, if you like, compare its meaning there to its meaning in any of the other sentences.

Marcia: I think that in that sentence saying 'he doesn't' instead of 'he don't' that "right" means "accepted." This is what educated people do, or people who have been brought up well. In think that number 1 about the man giving up his seat is pretty much the same thing.

Teacher: Are you saying that in sentence 4 we are dealing with a question of etiquette just as we are in sentence 1?

Marcia: No, it's not exactly etiquette, it's more a reflection of your training and the way you've been brought up. If you've been brought up by hillbillies, you'd probably say 'he don't,' but if you've been brought up by parents who went to Oxford, you'd say 'he doesn't.'

Teacher: O.K Dan?

Dan: I'd like to ask one question. She said, 'If you've been well educated.' Who decides who is well educated?

Marcia: Who decides whether you are well educated? O.K Well, let me give you a couple of examples! Would you say that someone who had had a sixth-grade education was well educated?

Dan: I wouldn't know.

Marcia: You wouldn't know?

Dan: It depends on the individual. A person who didn't even go to school but went around the world and just discovered things and read and everything might know more than a person who went to college all his life!

Teacher: We may have here then right at the beginning a problem with another word. We started our exploring the word "right" and in just three or four minutes of conversation we've come across the word 'educated.' I think Marcia was suggesting that people who have been to Oxford are educated and hillbillies aren't. Is that what you meant to say?

Marcia: Well, that's rather the extremes, but yes, more or less.

Dan: Well, you can take a look at our President Lincoln. I don't think he had too much schooling. He had a few private lessons for a couple of years and he was a pretty well educated person. His speeches weren't bad. They were well written.

Bob: Most Presidents hire someone to write their speeches, Dan.

Dan: But he didn't. I remember seeing a film on that. He wrote on the train.

Teacher: - On the backs of envelopes, I think. Well, let's get Judy's ideas here.

Judy: Well, Marcia also said that you speak correctly, but you may be well brought up if you live in slums; your parents might, you know, want to give you what they didn't have and they send you to a good

school and things, but still in the house they say 'don't' instead of 'doesn't' and you most likely will pick up 'he don't' instead of 'he doesn't.'

Teacher.- Well, are you saying, Judy, that one who says 'he don't' is not speaking correctly?

Judy: Maybe in his own home he is speaking correctly. It's his accepted way in his own home.

Teacher. Oh, well now let's stay with this point for a minute. If I interpret what you've said correctly, you are saying that you cannot say that one thing is correct?

Judy: That's right.

Teacher: That what may be correct here in our classroom, might not be correct some- place else?

Judy: Yes, maybe you might say "he doesn't" in school, but when you go home, you say 'he don't' because this is how your parents might understand you or someone who lives with you.

Teacher: Well, Bill, what do you think about this point of view?

Bill: Just because your parents say 'he don't' and you say 'he don't' in your home, that doesn't make it right. That's just what you do. We do a lot of things that aren't right. Teacher: Well, this is what we are trying to find out, Bill. What do we mean by "right" or, "correctly"?

Bill: I think in that sentence it means that in the language 'he doesn't' are the words that are accepted and used to convey that idea.

Teacher: Well, who accepts these words and who uses them, and who tells you not to use them?

Bill: The English teachers.

Teacher: In other words, what English teachers say you should do, becomes right or correct.

Bill: In the classroom, but they get their information from books and other sources. Teacher: Well, you have a touching faith in English teachers and I appreciate this. Do you listen to your Social Studies teacher with as much attention as you listen to your English teachers? For example, if the History teacher tells you that a Republican candidate is a better man than some Democratic candidate or vice versa, would you value his judgment as much on that as you would an English teacher's judgment on what's right? Bill: No, because he's conveying an opinion. The English teacher is telling you a rule that was set down, not by the English teacher, but by somebody else.

Teacher: Sue, what do you think about this?

Sue: Well, I disagree with him because I think you learn patterns of speech in the years that you are going to elementary school, and when you come up to the junior high and senior high schools, you learn why they are right. But the way you learn to talk is taught to you in your early ages. I don't think by the time you're in high school you can change your pattern of speech, because, I mean, they are like different dialects really

Teacher: Dialects. What do you understand the work "dialect" to mean?

Sue: Well, like the Southern people might say 'you-all' before they start their sentences, and the people in the East won't say this.

Teacher: They don't say this?

Sue: No.

Teacher: Well, now, is you-all' a correct pattern of speech or not?

Sue: Well, perhaps down there it might be but I don't think it is a correct pattern of speech. I can't really know.

Teacher: Eric, what do you think?

Eric: When you spoke of dialects, and you can't change a dialect, my mother-came from Richmond, Virginia, and when she came up north she used to say 'you-all.' She doesn't say that any longer. And now when she goes back to Richmond, Virginia, they all say she has a Northern accent, and she has completely changed her dialect.

Sue: You might be able to pick something up after a while, but I mean like he said you learn how to speak from your English teachers, but you didn't have an English teacher when you were down in-

Bill: I didn't say you learn how to speak. I said you learn the rules that govern how you speak. You learn how to speak when you're a little kid.

Richard- I think there have to be some certain rules that are set down by people who think they know what the rules should be. I think in the English language the rules are written in the dictionary and English teachers have followed these rules, and these rules are necessary because, if nobody obeyed the rules, you would not understand what the next person was saying. He might be speaking English, but certainly the rules have to be followed even if you don't like them.

Teacher: What is your reaction to that? Richard says there must be rules because, if there were not, we could not communicate with each other very well and these rules are written down in books called 'dictionaries.' Jim?

Jim: These dictionaries-the way people are making it sound as if some small group is sitting in a dark room and they decide how they think about this rule and they decide no we don't like this rule. We will throw it out. Well, this is not the way it is done. The lexicographers sit down and they-

Teacher: The what?

Jim: The lexicographers.

Teacher: Let me just put that down. Is that how you spell it, do you know? Jim: I don't know.

Teacher [*writes on blackboard*]: I think that's it, but I think you have to know how to spell it in order to look it up in the dictionary

Jim: Well, lexicographers. They sit down and they read. They read all the books put out; they read newspapers, magazine articles, speeches, they listen to speeches; they listen to television and radio, and they pick out the way the majority speak. Say they want to see whether you say 'he doesn't' or 'he don't.' They read books, they listen to every- thing, and they see what the majority uses, and therefore, the dictionary dictates what the majority says.

You noticed, we are sure, that by conventional standards the teacher behaved quite oddly. He had no information to impart and seemed preoccupied with getting the students to question and clarify their own perceptions and statements. Another way of saying this is that the "subject matter" of the lesson was the responses of the learners to the questions they confront. In the next chapter, we shall attempt to explain why *there can never be any other kind of "subject matter" regardless of how the teacher behaves*. Here, we want to point out that at least a half dozen questions were generated by a five-minute discussion of a divergent question and that these questions were produced by the students themselves. These questions include:

1. Who decides what "educated" means?
2. Are English teachers reliable authorities on what constitutes "correct" English?
3. Is there a different standard of "correctness" for each environment?
4. Are dialects "correct"? What is a "dialect"?
5. Are "rules" necessary for communication?
6. What do lexicographers do?

Our 'curriculum,' when turned over to a group of learners, may therefore, produce 200 further questions. Or, perhaps, a thousand. On one occasion, a group of learners was confronted by the question 'What is language?' They transformed this into 'What is a language system?' Then, into "What are the characteristics of different language systems or language situations?" After two weeks, the students (with guidance from their teachers) compiled the following list of questions:

#### **ON THE LANGUAGE OF ADVERTISING:**

What are its purposes? What are its most important symbols? What kinds of relationships does it maintain toward its audiences? What social values does **it** express? To what extent do these values reflect those of the audience? How do its metaphors work? What are the situations in which its symbolism is most effective? What standards may be used to judge its truth? In what sense can the language of advertising be "true"?

#### **ON THE LANGUAGE OF NEWS REPORTING:**

What are its purposes: What is "news" anyway? What is a fact? What do we mean by "objectivity"? From whose point of view is news written? How can you tell? What standards may reasonably be used to evaluate news? In what sense can the language of news be said to be "true"?

#### **ON THE LANGUAGE OF POLITICS:**

What are its purposes? What are its major assumptions? What are its controlling metaphors? What are its various kinds of statements? What attitudes are required to interpret it intelligently? What is its characteristic tone? What are the meanings of some of its key terms: law, theory, defense, sovereignty, freedom, peace, etc.?

#### **ON THE LANGUAGE OF RELIGION AND PRAYER:**

What are the functions of prayer? How does it accomplish its work? What are its rules? How is it organized? From what point of view are religious statements to be evaluated? What are their major assumptions? In what sense can religious statements be said to be true? What are their most important metaphors?

#### **ON THE LANGUAGE OF SCIENCE:**

What are its purposes? What is its characteristic tone? What are its various levels of abstraction? What use does it make of metaphor? From what point of view is it written? What is the meaning of the phrase 'scientific truth'? How does it differ from a 'religious truth'? From a 'political truth'? What standards may be used to evaluate the language of science?

These questions were framed and subsequently answered in an 'English' class. But it is fairly obvious that the questions might just as appropriately have been asked in a "social studies" class, or in a course in 'anthropology,' 'linguistics,' 'semantics,' 'sociology,' 'psychology,' 'theology,' 'philosophy,' 'human relations,' 'group dynamics.' All of which brings us to another characteristic of our questions curriculum: subjects as they are commonly thought of and talked about in schools are rendered less distinct and discrete. They may even disappear.

The first, and less, important reason for this is that it is increasingly difficult to decide what 'subjects' to include in a curriculum. Why history and geography? Why not cybernetics and ecology? Why economics and algebra? Why not anthropology and psycho-linguistics? It is difficult to escape the feeling that a conventional curriculum is quite arbitrary in selecting the "subjects" to be studied. The implications of this are worth pondering.

The second, and critical, reason for the breakdown of 'subjects' in a new education is more subtle and powerful. Focusing on the asking of questions leads directly to the probing of relationships among "subjects," which, in turn, permits the development of a synoptic and frequently original view of knowledge instead of the traditional segmented view. We have here the crucial difference between a process-oriented perception of knowledge and a static one.

On this point, we find ourselves (regrettably) in disagreement with Jerome Bruner (again). Bruner has advocated a discovery or question-asking approach to teaching in order to help students gain an understanding of what he calls 'the structure of the subject.' Although there has always been some confusion about exactly what Bruner had in mind with this phrase, it is clear that he sees no reason, when using discovery methods, to abandon the abstraction that is called a 'subject.' He writes in *The Process of Education*, "The task of teaching a subject to a child at any particular age is one of representing the structure of that subject in terms of the child's way of viewing things." Although he is far too sophisticated to believe it, in this statement and many others like it, Bruner seems to think of a subject as a closed system of finite, fixed, "structured" bits of data. The "subject" is given. It is *there*.

For reasons we have already implied (remember McLuhan of ABCED-minded people?) and which we will elaborate on in the following chapter, this conception of knowledge is much too mechanistic. To begin with, whatever "structure" there is to anything is a product of the cognitive processes of the structurer, i.e., the perceiver, the learner. To quote Heisenberg on this matter: "We have to remember that what we observe is not nature itself, but nature exposed to our methods of questioning" In other

words, we do not 'get' meanings from our environment. We *assign* meanings. And yet Bruner seems to suggest that there exists in nature a "subject" and that 'it' has a 'structure.'" All we then have to do as educators is to find a way of translating the structure that is "out there" so that a child can see "it." But it is clear that the "structure" that is perceived in a 'subject' is solely some perceiver's way of viewing things. The structure was made, invented, imagined by a perceiver. If there is one firm conclusion that our intellectual history makes possible, it is stated in the preceding sentence.

We trust that you will not, at this point, accuse us of being solipsistic. We are not saying that there isn't anything 'out there.' We *are* saying that the meaning of what is out there is ascribed to 'it' by a perceiver. Thus, a literal translation of the statement of Bruner's we quoted a moment ago would be something like this: 'The task of teaching a subject to a child is to make the child perceive objects and relationships the way authorities perceive them.' This sounds more like the old education than a new one, especially because it directs the child to see *only* what some previous perceivers have seen. We have already referred to the "discovering your pendulum" application of Bruner's work. The children are taught to see" exactly what the teacher wants them to see because that is the nature of the "subject." Another name for this is the Seductive Method of Learning. The purpose of this method is identical with that of the old education: to get the learner to "ventriloquize." Ventriloquizing, as Wendell Johnson explained the process, consists essentially of speaking as if with the voice of another-usually an "authority." In school this commonly takes the form of saying back to the teacher what the teacher said or what some book "said." Whatever else this process does, it virtually insures that no thinking (questioning) will occur. Indeed, the penalties for refusing to ventriloquize are elaborate and are ruthlessly invoked.

Of course, in fairness to Bruner, it must be said that he also means by the 'structure of a subject' the questions automatically raised in certain 'fields.'" It is certainly true that "historians" ask different kinds of questions from "biologists," and "biologists" from "linguists." But such men are finding, increasingly, that what they thought was someone else's 'field' turns out to be theirs as well. We now have mathematical biologists, biophysicists, anthropological psychologists, and so on. They are discovering that the traditional ways of structuring ("seeing") what is out there are both inadequate and arbitrary. As Alan Watts says, the universe is wiggly. Our attempts to take snapshots of the wiggles must not lead us to think that the photograph is the wiggle. Besides, someone else may take another photograph and capture an altogether different aspect of the wiggle. And that is exactly what happens when children are allowed to function as question askers and answer seekers. They frequently perceive relationships that others have not noticed before. Let them start with a question in "biology"-for example, "What are the conditions for sustaining life in plants?"-and they will soon start asking questions about "physics," "anthropology," "chemistry," etc. This will happen over and over again unless the teacher insists that they "stick to the subject." But who is to say what the subject is or is not? Besides, the students don't particularly care what *name* is given to the subject. They are engaged in finding things out, in "structuring" what they think they see. And when you are doing that, you have to look where you think there's something to be found. If there's no "official category" for what you're looking at-or for-well, that may even be an advantage. Leeuwenhoek invented the microscope, and the Wright brothers invented the airplane, not knowing that they "couldn't." At least, authorities of their times "knew" and could "prove" that they couldn't. The career of Charles Kettering, one of America's most prolific inventors, is a chronicle of his "doing things that couldn't be done" mostly because he was not suffering from 'hardening of the categories.'" Alfred North Whitehead made the point that taxonomy is the death of science. And, we would add, the memorization of taxonomies is the death of education.

And so in our questions curriculum, "subjects" frequently lose their "clear" and arbitrarily limiting dimensions. We will need to start talking more about the "structure of the subject."

There are two other characteristics of our questions curriculum that should be mentioned here. The first has to do with that recently discovered (invented?) category of human beings called "disadvantaged children." Generally speaking, these children are reputed to be 'slower' learners than other types of children. If this is true, it simply means that they do not function so well as others *in the existing school environment*. It cannot be inferred from this that 'disadvantaged children' would be a "problem" if the

ecology of the school environment were entirely different. If we may paraphrase Heisenberg: "We have to remember that what we observe children doing in schools is not what they are, but children exposed to us by our methods of teaching." We are, in fact, confident that the disadvantaged child is much more likely to find the conditions which will satisfy him as a learner in the kind of environment we have been trying to describe than in any other. In a way, this statement is a tautology since the environment we are describing is devoted to making the learner "satisfied." It is based on what we know about learners, and not on what we know about what we want them to learn.

Finally, note that the questions we listed are capable of being pursued by children at every grade level. Their answers, as well as their *way* of answering, will vary depending on their experience: where they've been, what they believe, and what their purposes are. This curriculum does not call for a single set of answers. Therefore, it does not require a single set of *answerers*. There is an old joke about a school administrator who was dismayed when he and his staff had taken great trouble to prepare a new and wonderful curriculum, only to discover that the **"wrong"** kids showed up. That's the trouble with the old education and its functionaries; it virtually insures an endless and increasing number of 'wrong' students.

It remains for use to say here that the function of the 'What's-Worth-Knowing Questions Curriculum' is to put two ideas into clear focus. The first is that the art and science of asking questions is the source of all knowledge. Any curriculum of a new education would, therefore, have to be centered around question asking. This means that, even if a school system is unwilling to scrap its present curriculum structure (i.e., "history," 'English,' 'science,' etc.), it will need to transform its instructional program so that the major content of what is to be learned by the students results from inquiries structured by the questions that are raised. This implies that students will spend a great deal of their time finding answers to their questions. Question asking and answer finding go hand in hand. And answer finding requires that students go to books, to laboratories, to newspapers, to TV sets, to the streets, to whenever they must go to find their answers.

The second idea is that question asking, if it is not to be a sterile and ritualized activity, has to deal with problems that are perceived as useful and realistic by the learners. We do not mean to suggest that a child's perception of what is relevant is an unalterable given; indeed, the thrust of the 'curriculum' we have been describing is to extend the child's perception of what is relevant and what is not.

Simply said: There is no learning without a learner. And there is no meaning without a meaning maker. In order to survive in a world of rapid change there is nothing more worth knowing, for any of us, than the continuing process of how to make viable meanings.