The Spaces in Between

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> It needed great scientific imagination to realize that it is
> not the charges or particles in themselves, but the field in
> the space between, which is essential for the description of
> physical events — and from which ultimately arose the
> theory of relativity.[1]

So write Einstein and Infeld in their book *The Evolution of Physics.*

Education is still characterized by an emphasis on particles or
elements; denial of the interaction process between particles (i.e.
persons) is paramount in contemporary institutions of learning. At
a time when the social sciences and medicine (particularly psychia-
try) are revising their own basic assumptions with respect to the
nature of man and the nature of change, education still persists in
viewing the process of change as one which is almost entirely, uni-
directional; at most, the term "exchange" is used, but seldom, if
ever, "interchange."

Stated in another way, two things stand out for a student of communication who looks at education today: firstly, the denial of a mutual two (or more) person interaction system. The key element in the denial is rejection of the mutuality of the interaction; persons are acknowledged to exist within the communication process, but they are usually perceived in ping-pong stimulus-response terms (perhaps Skinner was being ironic in the training of his pigeons!). Thus the teacher is seen as providing the stimulus and "shaping" the responses (perhaps our major advances in psychology have been terminological). What is neglected here is the whole "open-ended" nature of communication and learning; not only must we reject an S-R series concept, but even a linear S_1 - S_2 - S_3 . . . process is unsatisfactory. What is involved is a network of non-sequential stimuli and responses (if we wish to continue using these terms), from out of which a pattern emerges as interaction progresses. Both on logical and psychological grounds the overriding assumption of linearity of thought, learning and communication has been roundly scored, starting with Dewey's initial criticism of the "reflex arc concept," continuing into the various analyses of Piaget and Brunner, and even reaching popular currency with the flamboyant writings of Marshall McLuhan.

The second facet of education which strikes one is the well-nigh schizoid denial of anything other than verbal communication. Not only is dialogue restricted largely to teacher-student "exchange" (reflecting all the aforementioned assumptions), but exchanges other than verbal are denied for all practical purposes. Not only do we ignore other forms of communication (e.g. visual, tactile, etc.) but we positively discourage them. This is, of course, a reflection of a much more generalized societal attitude, as can be seen from our unwillingness (bordering on panic) to maintain eye contact, touch other persons, or even become aware of one's own self and its manifestations. By way of example, a colleague of mine requested a group of children and, later, a group of university students, to write down those things they perceived in their environment in a ten-minute period. While the youngsters were very much aware of their own bodies and signals (e.g. heart-beat, odors, and other personal sensations), the older students completely denied anything except sounds generated by others or other parts of their environment (coughing, motors running, etc.).

Is it any wonder, I ask myself, that students today completely

mistrust their own experiences, mistrust their own feelings? One does not have to encounter a psychiatric patient to discover persons who do not know when they are angry and who see personal inter- action primarily in terms of some sort of bargaining enterprise (the "exchange" of information!).

For those (and there are many) who aver that this state of affairs is temporary ("until our cultural lag catches up with re- search"), I would urge that they read some of the prognostications offered by educators today. The emphasis on technical aids (e.g. programmed learning, closed circuit television, etc.) and on the techniques of social control (including chemical and neuro-surgical intervention) deny many facets of human interchange. Indeed, the most frightening document I have read this year (The *Daedalus* issue "Towards the year 2000") restricts the section on Education to developments in socio-technological manipulative techniques of the present and future.

I could quote at length from various articles in this issue, but let me refer to a particularly chilling article by Garner Quarton in which he reviews current efforts being developed to control human behavior and modify personality. Some of the headings are: *Modifi- cation of the Genetic Code, Gene Selection by Controlled Mating, Use of Drugs, Neurosurgical Intervention, Surgery Outside the Brain, Environmental Manipulation:*

> (e.g. The behaviour of an individual is much influen-
> ced by the opportunities that are made available or
> denied to him, some of these are quite simple and mod-
> ern systems analysis and flow-charting schemes permit
> them to be extensively applied; much greater control
> of opportunity to act is possible using modern com-
> munication and control techniques; similarly behaviour
> is readily modified by supplying or *withholding* maps
> or models of how other individuals behave. — Shades
> of 1984!)[2]

Monitoring & Mixed Methods (e.g. electrodes implanted in the cortex).

Further on, in discussing some of the problems of resistance and acceptance of these control methods the author notes "Psychia-

trists, particularly, often have value systems of their own that stress
the importance of individual differences . . . they use manipulative
techniques only when other methods fail, *but it is important that
they do use them on occasions.* Casual but well intentioned use of
these techniques is a reality today; it would, therefore, be naive to
think it will not occur to a significant degree in the future." (Ital-
ics mine.)

This approach is, to my mind, totally destructive, in the long
run, of anything which promotes or characterizes effective human
communication. The information exchanged in any dialogue is
(essentially) of secondary importance to the psychological (largely
non-verbal) affirmation embodied in the process of human interac-
tion. The "generation gap" is an affective rather than cognitive gap,
and is one which shows every sign of increasing rather than dimin-
ishing. Yet the very emphasis on the technical processes of com-
munication leads inevitably to fewer and fewer opportunities for
interpersonal experiences. My particular concern here is that we
may choose to use whatever time is "saved" to increase the flow of
information exchange.

Such a choice would be to ignore the potential shift in emphasis
in our educational institutions. Freed from the (practical) necessity
to commit all resources to the communication of information, these
institutions will be freed to facilitate those interchanges (both inter-
and intrapersonal) from which emerge the valuing processes. This,
it seems to many, will be the central role of education in the future;
providing a context in which personal values can be examined, tested
and embraced.

How would one accomplish such an aim?

Firstly, there would be more dialogue; dialogue not only be-
tween the so-called "teacher" and "student," but also between
students; dialogue not only on issues relevant to the particular
space-time context of the classroom, but on issues relevant to the
school and the community, between communities and even between
the various sub-systems within the individual himself.

Secondly, potential communications between students should
be far more diversified; opportunities should be provided for dia-

logue with younger students, older students, adults, with students of various abilities, skills and intellectual capacities. In a world of intense variety, communication should not be limited to particular segments of the population. Moreover, the multiple modes of communication — not merely verbal — should become part of any educational experience. The present developments in the fields of art, theatre and music all attest to the interest, indeed, demand for other forms of sensory communication with the environment.

In short, the educator must very soon face up to the implications contained in the opening quotation: "It needed great scientific imagination to realise that it is not the charges or particles *in themselves,* but the field in the space between which is essential for the description of physical events." We as educators must recognize that we are dealing with a series of interactions, a series of "fields in the space between" rather than with discrete, individual students. In the same way that it is meaningless to reify the concept of intelligence as a function or capacity separate from action so, too, is it meaningless to conceive of the individual as a self-contained unit divorced from the interaction process. Equally suspect, however, is the approach which reifies the group as an entity (a concept which presently appeals to the overburdened teacher).

The task facing us, therefore, requires a radical shift away from a focus on the student *per se* and even on the class *per se;* what is required is a re-orientation towards the *processes* of interaction and communication. This insight has been pursued by Martin Buber, particularly in his book *Between Man and Man.* Buber observes that:

> [Our] first step must be to smash the false alternative with which the thought of our epoch is shot through — that of 'individualism or collectivism'. Its first question must be about a genuine third alternative — by 'genuine' being understood a point of view which cannot be reduced to one of the first two and does not represent a mere compromise between them.[3]

Buber expands this argument by reminding us that both individual persons or aggregates (e.g. a group or class) are nothing more than convenient abstractions. In essence, "the fundamental fact of human existence is man with man," and we can never talk

about man except in relationship to, or with, another individual human being who must necessarily be in some form of interaction with him, either consciously or unconsciously.

Consequently, Buber comes to the conclusion that:
> The view which establishes the concept of 'between' is to be acquired by no longer localizing the relationship between human beings, as is customary, either with an individual soul or in a general world which embraces and determines them, but in actual fact between them. 'Between' is not an auxiliary construction, but the real place and bearer of what happens between men; it has received no specific attention because, in distinction from the individual soul and its context, it does not exhibit a smooth continuity, but is ever and again re-constituted in accordance with men's meetings with one another.

"This," concludes Buber, "is where the genuine third alternative must begin."

Such an alternative calls for "great imagination" on a scale even more daring than that demanded in the field of physics. Not merely the complexity of the task challenges us, but indeed the denial of a subject-object separation would appear to be a very denial of the possibility of such conscious effort. And yet the artist daily resolves this paradox in his music, his painting, and his poetry.

It may be then (and here I make a prediction) that we, as educators, will turn increasingly to the artist for our models, rather than to the scientist, or technician.

REFERENCES

1. Albert Einstein & Leopold Infeld, *The Evolution of Physics.* New York: Simon and Schuster, 1938.
2. *Daedalus.* Massachusetts: American Academy of Arts & Sciences, Vol. 96, No. 324 (Sept. 1967). (Italics mine.)
3. Martin Buber, *Between Man and Man.* London: Routledge & Kegan Paul, 1947.