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ABSTRACT
                Despite the faith felt in 1965 in the power of
educational research to effect immediate educational improvement, no
sweeping reforms have resulted from research and development
activities to date. This is partly due to lack of funds and to the
fact that Schools of Education have emphasized their roles as
socializers and distributors of credentials rather than as catalysts
for change. Though educational research is carried out successfully
by agencies other than universities, the latter, because of their
contact with almost every aspect of society and their unequalled pool
of scholarship and expertise, should remain at the heart of
educational research and development. This paper is concerned with
how the university can best fulfill its research function and
discusses first, the importance of basic research; second, the
characteristics and needs of mission-oriented research, which include
an overall plan and commitment, team approaches to problemsolving,
attention not only to actual problems but also to models and theories
on the one hand and practical field testing on the other; and third,
mission-oriented research in education and the need for cooperation
and planning. (AF)

Research Management: A University Position

A Paper Presented to the

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Throughout the university's evolution as one of the basic institutions
of western civilization, certain fundamental aspects of it have remained
stable while others have changed as society has. Martin Trow comments
that until recently the university has addressed itself mainly to its
traditional and autonomous functions, which are those which remain
relatively stable and include the preservation and transmission of high
culture, the shaping of the individual's psychological and intellectual
development, the creation of new knowledge, and the issuance of social
credentials.[1]

In the pragmatic American fashion, the university has become increasingly
visible as an active agent in determining the shape and character of
society at large. As Ralph Dungan, Chancellor for Higher Education of
New Jersey, has expressed it, "in recent years the university has become
part of the adaptive system of society and has assumed a more active role
in determining the course that society will follow."[2] The very knowledge
that is discovered, stored, permuted and created effects change, for
knowledge alters people and therefore society, and society in turn alters
the pressures and demands made on the university.

Since World War II, national government, in part in response to pressures
of societal unease, has intensified its efforts to perfect an interface
between institutions of higher learning and our national goals. In the
case of education, the Elementary Secondary Education Act of 1965 was
partially a recognition of the importance of educational research. The
resulting training of researchers, support of individual and project
research, and the creation of research and development centers were
manifestations of a national concern for the improvement of public
education.

Despite the faith felt in 1965 in the power of educational research to
effect immediate educational improvement, the results have been, at least
to the general education community, disillusioning. Reasons for this
lack of development can be cited. Education as a field of study has been
slow in establishing links with other basic disciplines and relatively
ineffective in gathering resources from the primary agents for producing
and applying knowledge. In Schools of Education in particular there has
been an emphasis on the university's role as socializer and distributor
of credentials rather than its function as catalyst for change within the
individual and society.

The relatively bleak research picture in education and in educational
research certainly should not surprise any thoughtful observer because,
among other reasons, funds in amounts adequate to generate powerful
forces for change have simply not been forthcoming. The federal budget
for research education now, for example, is only three-tenths of one
percent of the nation's entire budget for education. Ten percent of
the defense budget, however, is devoted to research, five percent of
the health budget, and four to five percent of the budget for business
and industry.[3]

Or, to view the situation from another angle, from 1965 to 1968, the nine federally sponsored educational R & D centers received support of approximately $28 million. Just as a measure of the extreme modesty of this sum as the total support for nine centers over a four-year period, at my own university $8.2 million is being spent on a single item of scientific equipment, a cyclotron: a highly sophisticated item, admittedly, but the point is valid nevertheless; $28 million represents only a token commitment to the success and efficacy of these centers.

Therefore it is not surprising that no sweeping reforms have resulted from research and development activities to date, although considerable publicity has fostered the expectation that they would. This problem can be ameliorated if funds are available in sufficient amounts to multiply significantly the amount of contemporaneous university research activity underway. However, a most important point is that money -- even in overwhelming amounts -- will not purchase significant educational research and development. Later in the paper I will discuss those components which in my opinion must be combined with financial resources to produce meaningful educational research.

In spite of the fact that educational research is being carried out successfully and well by agencies other than universities, the university, because it is a vast, multi-faceted institution with a nerve center in contact with almost every aspect of society, should remain at the heart of educational research and development. Later I shall speak of the importance of interdisciplinary effort. I shall also speak of the importance of powerful models and theories to unite the efforts of these workers. Again, it is in the university where one finds the richest intellectual resources for formulating these models and theories.

In the university exists a pool of scholarship and expertise such as cannot be equalled or easily duplicated at any other institution. Universities, as perhaps no other institutions, have a large vested interest in the improvement of America's educational system, for the university's own clientele are the product of that system. "A first-rate university," remarks Peter Caws, "can only be the apex of a first-rate education system,' and he goes on to estimate that the rest of the system taken collectively is about fourth-rate.[4]

Under these circumstances, obviously, one part of the system cannot flourish without a general reform throughout. The university -- and I am speaking here of the total institution, not merely that part of it devoted to the education of teachers - has every reason to put full heart and energy into bringing about the best possible educational system on all levels and for all individuals throughout life.

I offer these points less as conclusive arguments than as facts of life, posited as preliminary to the rest of my discussion, which is not a defense of the university as a locus for educational research and development but an exploration into ways in which this function can be dispatched most effectively. My remarks will now be concerned, first, with basic research and then with the nature of mission-oriented research in the university, followed by a consideration of research and development

in the field of education.

The Importance of Basic Research

Basic research in education, which has been notably deficient up to the
present, must be expanded into a major professional concern if schools of
education are to develop beyond the level of trade schools. I have
already noted the low level of funding, a weakness compounded by a
pattern Swanson has pointed out. He notes, "in the field of education,
research has only a fragment of a small proportion /of the responsibility
of/ those in academic teaching careers.... The consequences are huge
gaps in fundamental knowledge about education and educational practice.
This is a reflection of the recency of research in education and its low
priority either as a national goal or as an obligation of the academic
community."[5]

The fact that schools of education are limited in what they can accomplish
in basic research, due partly to limited funds and partly to necessary
emphasis on practical research, underscores the importance of their
establishing ties (within their institution) with other disciplines which
have achieved a considerable fundamental research base, particularly
the biological and behavioral sciences. Close interdisciplinary academic
contact is one of the education school's most valuable assets as part
of the larger university complex.

Since its beginnings, the university's main business has been the
cultivation of ideas. Mission-oriented research is viable only if its
point of departure is securely based on fundamental research. To
define the mission one must know the problems, and to know the problems
one must conduct or be in touch with basic knowledge.

Mission-Oriented Research

Francis Chase has identified five characteristics essential to mission-
oriented research: (1) key individuals within the research organization
who are fully aware of and sympathetic to the principal goals of the
organization (or institution) while working within a broad definition or
the mission itself; (2) ready mobility between the fundamental research
and its application as well as across disciplinary lines; (3) receptive-
ness to new ideas and readiness to act quickly on those judged sound
and promising; (4) reasonable freedom for individual deployment and
redeployment of resources; and (5) full communication of involved
personnel throughout all stages of the R & D process, from original
research through its ultimate applications.[6]

These characteristics suggest a picture quite different from the old
stereotype of the lone researcher encapsulated in his laboratory and
communicating with the pure essence of knowledge. Indeed, Chase goes
on to say that "the essential character of research and development is
in the reciprocal interactions of its component processes and in the
interactions of the total R & D system with the particular systems it
is designed to effect." A powerful system of R & D development for
education requires many institutions and agencies. The importance of
the university role is stressed by Chase when he states that universities

can codify knowledge, identify knowledge gaps, draw theoretical inferences, construct models, and design and test experimental procedures.[7]

Fitting the problem into a larger theoretical construct which can become the affair of a large and varied group of researchers, that is, abstracting from it a major problem field is one main concern of educational research. On the other side of the coin, the problem of translating research into development and application -- of making it concrete through practical application -- is equally urgent. Launor Carter has very usefully summarized a critique made by a team studying the development of a weapons system which might also be used as guidelines in evaluating the transition process in Educational R & D.

> "1. The transition from research to development to use
>   is not a straight forward, orderly process....
>
> "2. There is usually a large time lag between initial
>   discovery and practical application....
>
> "3. Communication in research and development tends to
>   be informal and largely on a person-to-person basis....
>
> "4. Ideas are pushed through to application at the location
>   at which ideas originate....
>
> "5. Strong leadership is essential, but an adaptive rather
>   than authoritarian organizational environment is equally
>   important...."[8]

These observations imply that such devices as organization charts, schedules, information circulars, and reports are likely to be much less impressive in practice than they are on paper. Strength of leadership in the sense of personal dynamics and the ability to communicate enthusiasm and commitment as well as information are important. Related to this type of leadership is the adaptive environment, by which the study team meant that "authority was not based on position in the hierarchy but on the expertise with regard to the task at hand. Critical decisions were not confined to the top but were diffused throughout the organization according to the ability of each person to contribute his knowledge or talent to the job toward which the organization was dedicated.[9]

Mission-oriented research, in summary, requires an overall plan and commitment, team approaches to problem solving, attention not only to actual problems themselves but also to models and theories on the one hand and practical field testing on the other, dynamic leadership, decentralized authority, and a communication flow which is not confined to channels. I shall now speak more specifically on mission-oriented research in the field of education.

Mission-Oriented Research in Education

Mission-oriented educational research will, inevitably, directly involve
university people with groups outside the university setting -- the
public schools, regional laboratories, and model cities programs, to
name a few of the meeting grounds which provide a rich culture for the
development of misunderstanding, mistrust, and misdirected efforts. It
is not surprising that nonuniversity personnel would feel defensive
at the presence in their "territory" of "experts" from another level
of education whose legitimacy in terms of socially acknowledged
credentials is greater than their own. One very unfortunate development
in education today has been the professional separation of public school
and higher education personnel, the latter frequently convinced that they
are the true professionals while the former believe that they must
labor in the fields while others reap the rewards of recognition, higher
salaries and easier jobs, a conviction which is too often reinforced by
poor communications.

In spite of certain friction between the public schools and university
educators, there are developments in education today which require the
cooperation of all educators for vigorous study. For example, significant
policy decisions are being made regarding the governance and financing
of schools, characteristically without adequate reference to theoretical
models or experimentation. A further example is the fact that the lip
service paid to the value of educational hardware vastly outweighs
development and experimentation with such. Finally, many techniques,
such as human relations training, whose potential surely interests anyone
who has been concerned with teacher attitude, are being practiced
without adequate, controlled experimentation.

Turning from what ought to be done to what is now taking place, we can
view the nine federally sponsored university based centers as a major
example of mission-research in education and as a tentative but positive
thrust.

A very recent trend is occurring on many more campuses besides those
which host the national centers, where individual researchers and research
teams are also working on projects whose spin-off will eventually increase
the composite research effort and information base in education. Across
the nation, within the field and in conjunction with other disciplines,
education faculties are making connections with outside agencies,
including school districts, social agencies and independent laboratories,
effecting cross-institutional collaboration in addition to interdisciplinary
efforts within the institution.

A final point concerns the importance of planning for success in
educational research and development, which extends into the planning
for overall institutional development that should be a major factor in
the determination of current research goals. It is to the institution's
advantage to think of the research enterprise as something more than
just another of the many units within the university. The major point
to be made in this regard is that research funds in substantial amounts,
particularly when allocated to projects involving several faculty
members or inter-disciplinary effort, can be used to shape departmental

and institutional development. With informed awareness of possibilities
and intelligent planning for results, the growth and development of a
program could be telescoped, accomplishing in a few years what might
require decades at established rates of institutional growth.

None of this is possible, however, neither the planning nor resulting
institutional growth, unless adequate funds and reasonable freedom
to deploy them are made available to researchers in education.

In a number of ways, the federal government has acted to stimulate and
support research on the campus without strictly categorizing the funds
made available. Historically, these non-categorical funds have been
given to disciplines other than education, allowing them to develop a
richer pool of resources for future arrangements. Until quite recently,
on the other hand, funds for educational research have generally been
marked when allocated, providing little flexibility for institutional
development following natural growth patterns.

In conclusion, two points I wish to make are that we need be neither
surprised nor discouraged by the shortcomings of educational research.
We need not be surprised at them because we have viewed the funding
problems both in terms of magnitude and flexibility, the slow-to-emerge
tradition of scholarship, the lack of linkage between universities and
other institutions, and lack of adequate planning. On the other hand
we need not be discouraged because some of the more established
disciplines with now firmly rooted traditions of research and scholarship
went through similar experiences before realizing their present day
status. Much more significantly, there is evidence in very recent times
of movement in the direction of solutions of these problems of educational
research and development in the university.

I believe, with Chase, that properly conceived, supported, and directed
research and development can contribute both to continuous and
cumulative improvement and to institutional reconstruction in education.
I further believe that the university will play a key role in this
endeavor.

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