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ABSTRACT

The symposium celebrated the 50th anniversary of the Division of Continuing Education at the State University of New York at Buffalo; changes in higher education during those 50 years have moved adult learning into a primary area of attention. Traditional lines of learning are bluring and assumptions about the adult learner are rapidly changing. The andragogical concepts Dr. Malcolm Knowles brings to the symposium and Dr. Paul Baltes' speech on learning abilities of older adults contrast with traditional learning assumptions. Dr. Thurmon White's keynote address asserts new ideals; Drs. Flaherty, Monge, Borwinick, and Bugelski add academic insights into various aspects of the theme of the symposium: intellectual decrement, assessing adult learning ability, age differences in capabilities, and behavioral aspects of aging. Two panel discussions of these topics are also included in the document. (Author/AJ)

A SYMPOSIUM ON ADULT LEARNING PSYCHOLOGY: IMPLICATIONS FOR HIGHER EDUCATION

Division of Continuing Education
State University of New York at Buffalo
October 15, 1973

This symposium was offered during the celebration of the 50th anniversary of the Division of Continuing Education at the State University of New York at Buffalo.

Over the past 50 years we, as others, have witnessed changes in Higher Education, which have moved adult learning into a primary area of attention. Now we are clearly within a period when traditional lines of learning are becoming blurred and assumptions about the adult learner are rapidly changing. The history of this Division offers a comment on these changes.

Selecting a topic which has both celebrational and academic impact is an unusual task. The andragogical concepts Dr. Malcolm Knowles brings to the symposium and Dr. Paul Baltes' speech on the learning abilities of older adults provide a powerful contrast to the traditional learning assumptions. The keynote address by Dr. Thurman White is a vigorous assertion of new ideals. Drs. Flaherty, Monge, Botwinick, and Bugelski add academic insights into various aspects of the theme of the symposium. Humor and celebration are expressed throughout the proceedings.

Speaking for the symposium committee, and on behalf of Dean Berner, who chaired the event, I hope that the enclosed speeches and panel discussions become as lively in print as they were when our speakers delivered them. Their contributions were effective, timely, and persuasive.

Committee Members: Dean Robert F. Berner, Chairman
Allan L. Canfield, Co-Chairman
Phyllis S. Herdendorf
Patricia A. Hollander
Dean K. Olsen, Jr.
Ethel E. Schmidt

Special thanks are given to Janice MacKenzie and Dr. Donald Nichols for designs, Gina Kankiewicz and Mary Rauch for typing, and to Phyllis Herdendorf for proofreading. Photography was provided by Donald Holmwood.

Allan L. Canfield,
Editor
Assistant for Conferences and Institutes
Division of Continuing Education
State University of New York at Buffalo

TABLE OF CONTENTS

Table of Contents

INTRODUCTORY REMARKS AND INTRODUCTIONS

Dr. Robert F. Berner
Dean
Division of Continuing Education
State University of New York at Buffalo

Ladies and gentlemen, it is a real pleasure for me to welcome you to this 50th Anniversary Symposium. Certainly we are honored by the fact that you have joined us in celebration, but more importantly, we are pleased that you came to hear about and to discuss the state of the art of Adult Learning Psychology: Implications for Higher Education.

Before embarking on our program this afternoon I want to introduce to you two individuals who are with us today as representatives of organizations which have a significant interest in the development of high quality programs in higher continuing education. They both come to bring words of greeting. First we have Dr. Hy Lichtenstein, who is Dean of University College at Hofstra University and Professor of English at the same institution. He serves this year as President of the Association of University Evening Colleges, which represents slightly less than 200 institutions involved in continuing education. I am very pleased to have Hy with us and I introduce him to you now.

Dr. Hy Lichtenstein

Though I have several purposes in being here today, my function at this point is as simple and brief as it is pleasant. As current President of AUEC, The Association of University Evening Colleges -- I want to point out that in three weeks I will be an ex-president -- I bring greetings and congratulations from the Association and its entire membership on this most auspicious occasion. These greetings and congratulations go to the State University of New York at Buffalo for continuing to recognize the need for such an entity as the Division of Continuing Education; they go to the Division itself for its past and current enterprises in the field of continuing education; and most warmly and most happily they go to Dean Berner and his staff for the years of commitment and leadership in the field, not only through their work here in the Division, but on the national scene as well.

These days almost everyone in higher education including presidents of colleges and universities, in the august foundations and commissions, and even in the news media, seem to be discovering the adult as actual and potential students. We find new phrases being coined almost by the hour, whether it's, university without walls, external degrees, lifelong learning, independent study, life experience, open university, less time, more options, and so forth. The latest report of the Carnegie Commission on Higher Education, -- and if some of you saw last week an editorial in the New York Times labeled College for Adults -- seemed to indicate that they too are discovering the adult, as it nobody ever cared before.

Thus, it is good to be reminded on occasions such as these that some institutions and some individuals have known about, have been caring about, and have been studying and have been doing something about the continuing higher education of adults for quite a long time now, and have even been willing and able to change and modify as needed throughout the years to meet the changing times, needs, and aspirations of adults.

It is primarily for this continuity in continuing higher education, that I add my own personal congratulations to those of our association and its members and to Dean Berner and his staff. I hope and believe that another such occasion will be held at the end of the next fifty years, whatever continuing education will look like at that time, and with or without those of us here assembled. My congratulations to all of you.

Robert F. Berner

Also here to bring words of greetings is Mr. Jack Bunting. Jack is an employee of the Dunlop Tire & Rubber Company here in Buffalo, and a student at Millard Fillmore College. He will be earning his Baccalaureate Degree in June of 1974. Beyond that, Jack has served with dedication and real service to the Millard Fillmore College Student Association as its president for the last two years. We are privileged to have Jack with us -- Jack.

Jack Bunting

Thank you Dean Berner. Our University has often been a proving ground, a breeding ground for innovative educational concepts. New ideas come primarily from bodies such as this. From your successes we select the best that is good, and from your failures we will re-affirm our old values. In this spirit of eclecticism more than 5000 students in continuing education in Millard Fillmore College welcome you. I personally say, to paraphrase a student salute, "Power to strong, clean minds". Thank you.

Robert F. Berner

Back in 1925, the Buffalo Educational Council (a group of educational agencies) embarked on a survey (supported in part by the American Association for Adult Education) of the facilities and programs of adult education existing in the City of Buffalo. Data on number of courses and on number of enrollees or attendees are impressive indeed. But of significance to me at this particular moment in time is the following statement taken from a section dealing with a need for philosophy: "An adequate philosophy of adult education must rest on a more intimate knowledge of the learning processes of the adult. We must enable him to take advantage of any facilities he may have acquired by reason of being an adult; and we must fortify him against discouragement when study may seem more laborious because of his years. He has no time to waste. If we knew more about the learning processes of the adult, we could probably make a more intelligent grouping of subjects to be taken concurrently or in sequence. It may be also that methods of teaching need radical revision. The last two decades have witnessed an enormous amount of research on the subject of the learning processes of children. Surely the adult merits serious and sustained consideration.".

I believe that much the same comment can be made today. This is not to say that there has been no research on adult learning in the last four decades. Rather, it does imply that the quantity of research has been small relative to that which focuses on learning of children and youth. Our speakers today, referring to their own research and to that of others attest to the fact that research on adult learning has been continuous, though sometimes inconclusive.

In the field of adult higher education, there has been a movement which has provided a new flexibility for learning for adults whose life-style or work commitments precluded learning within the traditional mold of regular classroom attendance. Beginning with the Brooklyn College Special Degree Program for Adults, the movement has been gathering momentum at an accelerated pace. The concepts inherent in these programs, like individualization of educational goals, independent study, study centers equipped with video and audio tapes or cassettes, and assessment of prior learning, have been accepted and espoused by the Carnegie Foundation, the Commission on Non-Traditional Study, the Ford Foundation, and the U. S. Department of Health, Education, and Welfare. Beyond this we have seen the development of the British Open University, the University Without Walls, Empire State College, The State Education Department External Degree Program -- just to name a few.

We here at Buffalo have opened some new doors through our Adult Advisement Center, the Office for Urban Extension, the Office for Credit-Free Programs, and most recently the Individualized Major for students in Millard Fillmore College. Just this morning I turned the switch which enabled our WBFO

public radio to broadcast in stereo. Too, a sub-carrier system will enable us to beam educational programs to special audiences.

What we need is an injection of dollar resources to support applied research associated with the many innovative and experimental non-traditional learning modes. Too, funds are needed to support faculty involvement in the identification and assessment of alternative learning objectives and of procedures to be used in measuring performance towards such objectives.

I close my remarks with one other quote from the 1925 survey -- it represents the last of a series of objectives recommended to institutions working in the field of adult higher education. It is: "A generous willingness to grant credit for work of collegiate grade done anywhere, together with a zealous safeguarding of the college degree as something to be striven for." I feel that this remains an important objective for all of us involved in continuing higher education. -- But I also feel that it must be coupled with on going evaluation and research, not only to safeguard the degree, but also to protect the rights of adult learners.

Robert F. Berner

Our lead-off speaker this afternoon is Dr. Malcolm S. Knowles, a long time friend of ours and a scholar in the field of adult education.

Dr. Knowles is currently Professor of Education in the School of Education at Boston University. He also ably serves many institutions as a general consultant in adult education. In his early career he was Director of Adult Education in the Boston YMCA. Later he became Executive Secretary of the Chicago Central YMCA. Still later he served as Executive Director of the Adult Education Association of the USA.

Having eaned his AB from Harvard and MA and Ph.D. from the University of Chicago, Dr. Knowles authored several articles and books. The most recent titles are: The Adult Education Movement in the U. S. (1962); Higher Adult Education in the U. S. (1969); The Modern Practice of Adult Education Androgogy vs. Pedagogy (1970); and the very new The Adult Learner -- A Neglected Species (1973).

Ladies and gentlemen, I present to you. Dr. Malcolm Knowles.

ISSUES IN ADULT LEARNING PSYCHOLOGY

Dr. Malcolm S. Knowles
Professor of Education
School of Education
Boston University

When I read in the May issue of Lifelearn, the Division of Continuing Education's Community Newsletter, the opening sentence -- "We've come a long way since 1923." -- I had two reflexive responses. The first was, "You sure have; Millard Fillmore College and SUNY Buffalo have been pathfinding pioneers in the establishment of higher adult education as a field of practice." My second was, "How much farther we have to go in the next fifty years." And then, as I reflected on the theme of this symposium, I decided that SUNY Buffalo still wants to be a pioneer. For it is now looking ahead to the establishment of the theoretical and scientific foundations

of our field.

As I began preparing myself for this presentation last summer I had the intention of making a scholarly analysis of the issues regarding adult learning psychology identified in the literature, perhaps even with a frequency distribution to give some sense of priority order. Within a few days of scanning scores of books and journals, I had accumulated more sheets with lists of issues on them than I could count. And then I started feeling inhibited. I always feel inhibited when I put myself in the position of speaking for someone else -- such as "our literature" or "our field" or "my colleagues." After all, I thought, the planning committee asked me to speak on the issues.

And so what you are going to hear now is a very personal statement of my own perceptions of the most critical points of debate or controversy about adult learning which require action of some kind during the next fifty years. And I'm not going to pretend to be objective or neutral about these issues. When I'm confused about them I'm going to say so. Where I have a strong position about how an issue should be handled I'm going to advocate it -- knowing that our distinguished panel will be forceful in presenting alternative or counter positions.

I long ago discovered that I communicate poorly to abstract audiences, such as all of you in this hall, or to scholars in general, or to "the field." So I am going to address my remarks to specific persons -- Bob Berner, Allan Canfield, and their colleagues and successors in the Division of Continuing Education. I invite the rest of you to eavesdrop, and to be thinking of what you would like to say to these real agents of change.

As I see it, the most critical issues are subsumed under these questions:

1. What is the purpose of education?

This might at first sound like a purely philosophical issue, but I think it is profoundly a psychological issue. Certainly our answer to it will be influenced by our conception of the good society -- our value system. But it also will be influenced by our model of man, and this is what psychology is all about.

As I see it, our educational system has evolved from the Middle Ages on within the framework of a mechanistic model of man, the basic metaphor of which is that of the machine. This model defines the human being as a passive, empty, robot, reactive organism, which is inherently at rest. Activity is viewed as a resultant of external forces. As Reese and Overton have pointed out, "The epistemological position that derives from this model

is that of naive realism, a copy theory of knowledge according to which the knower plays no active role in the known, and inevitably apprehends the world in a predetermined way."[1] The purpose of education, according to this model, is to transmit the culture, fill the empty vessel, shape the individual to a pre-determined mold. The educational consequence of this model is the lock-step content-transmittal curriculum and teaching methodology that we all grew up in.

Another model of man that has been available to us at least since Leibnitz's time, but which only recently has started influencing our educational system, is the organismic model. Its basic metaphor is the living, organized, active, growing and developing organism. This model presents the human being as an inherently and spontaneously active organism -- the source of acts rather than the collection of acts initiated by external forces. This model also represents man as an organized entity, a configuration of parts which gain their meaning, their function, from the whole in which they are imbedded. The epistemological position which derives from this model is that of constructivism, which asserts that the knower, on the basis of his inherent activity and organization, actively participates in the construction of the known reality. The purpose of education, according to this model, is the continuous development of individuals toward their full and unique potential through their lifespan and the continuous renewal of the larger social systems of which they are a part through their constructive interactions with them. The educational consequences of this model include the replacement of lock-step curriculums with competency-based learning systems, emphasis on the significance of processes over products and of qualitative change over quantitative change, and stressing of the role of experience in facilitating the course of development rather than the role of training as the source of development. The contemporary explosions of open classrooms, personalized teaching, nontraditional study, learning laboratories, and external degree programs are manifestations of the infiltration of the organismic model into the educational establishment.

It seems to me that adult education has been schizoid about these two models. On the one hand, because of its marginality in the educational establishment, it has striven for academic respectability by holding on to many of the curricular and methodological trappings of traditional mechanistic schooling. On the other hand, because its survival has depended upon its satisfying the real developmental needs of voluntary adult learners, it has almost surreptitiously -- and often with a sense of guilt -- adapted bits and pieces of its curriculum and methodology to the organismic model.

It may be that in some of his functions man is like a machine, and that education for these functions is appropriately based on the mechanistic model. If this is so, we need to know precisely what these functions are so that we can limit mechanistic education to them. Or it may be that the

mechanistic model was appropriate in an era when social change occurred at a snail's pace. But, as Alfred North Whitehead pointed out in 1930, the pace of change is accelerating at such a rate that a number of major cultural revolutions will from hereon take place during a single lifetime. And under this condition, it is no longer functional to define the purpose of education as the transmission of the culture. Its purpose now must be to produce lifelong learners.[2]

It seems clear to me that adult education will be stunted in its next stage of development unless it aggressively (and joyously) takes a stand in favor of education as a lifelong process, unless it gears its learning and teaching strategies to this concept, and unless it helps the educators of children and youth to reorient their strategies to the production of lifelong learners.

This is the fundamental issue, from which all other issues flow.

There is another issue having to do with the purpose of education which is perhaps more philosophical, but which has psychological overtones. This is the issue of what priority should be placed on using adult education toward the societal ends of eliminating poverty and illiteracy, raising the level of awareness of oppressed peoples -- in Paulo Freire's term, conscientization, and reconstructing society.[3] Some psychological implications of this issue will be explored when I discuss "How Do Adults Learn?"

2. What is Learning?

Those of us who have been working with adults have long been baffled about what the learning theorists are talking about when they talk about learning. We can understand the concepts they use, such as stimulus-response, conditioning, reinforcement, and the like. And I, personally, found Gagne's hierarchy of eight types of learning (signal learning, stimulus-response learning, chaining, verbal association, multiple-discrimination learning, concept learning, principle learning, and problem solving learning) helpful in understanding their thinking.[4] But the writings of the learning theorists haven't helped me very much in understanding the process that is taking place when I see adults learning. And they do almost nothing to help me in facilitating that process.

I think I know why this is so. Most of the pedigreed learning theorists until recently have been proceeding in their investigations from the mechanistic model of man. Defining learning as changing the products of the machine (or shaping the behavior of individuals) by manipulating its responses to stimuli, they limited their inquiry to fragmentary acts of imposed influence. They were interested in the process of control, not

the process of growth and development. And note that with few exceptions their subjects of study were the "empty vessels" of animals and children.

As I have observed people in the process of learning, it has seemed to me that their whole beings were involved -- that the entire structure of the organism, not just particular behaviors, was changing (or even better, developing). I haven't even found Bloom's taxonomy of cognitive, affective, and psychomotor objectives especially helpful in understanding what learning is, for I personally have had the experience of working hard to try to help learners achieve cognitive objectives only to find that the chief effects were on their emotions or values.[5]

Thus, it seems to me that the organismic model is a more accurate representation of a man and a more fruitful source of insights about learning. Those who proceed from this model see learning as the holistic development of the individual's capabilities for perceiving, knowing, thinking, feeling, valuing, and doing, in order to cope more confidently with life. This definition of learning requires that we educators shift the focus of our attention from transmitting content to helping learners develop the skills of inquiry, and providing environments that are rich in the resources needed for various kinds of inquiry.

The implications of this issue for program development and methodology are staggering. I have the impression that the Division of Continuing Education at SUNY Buffalo began taking a stand on this issue in favor of the organismic model definition of learning with its launching of the Educational Planning Program for Adults. The challenge lies in bringing everything else the Division does into congruence with this conception of learning.

3. How Do Human Beings Grow and Develop, Naturally?

It seems tragic that we should even be asking this question in the second half of the twentieth century, for this is what our human sciences should have been investigating in the first half of the century. With few exceptions, they were investigating the phenomena of socialization -- of manipulative shaping -- instead. So what we know about natural development comes largely from the studies of primitive societies by the anthropologists, and this has limited transfer value to more complex cultures. Furthermore, even the studies of socialization have focused on white middle class subjects and the process of their being shaped into middle class molds.

And although our knowledge of natural development during the years of childhood and youth is deplorable, our knowledge of development during the adult years is atrocious. The reasons for this state of affairs are many, but the principal reason is that most of what knowledge we have has come from

cross-sectional studies rather than longitudinal studies. In cross-sectional studies characteristics of different age groups at a single point of time are compared and differences are attributed to organic developmental processes. The fallacy in this approach is that different age groups grow up in different milieus. The person born in 1890 was born on a farm and grew up in a milieu of low social activity, while the person born in 1920 was most likely born in the city and grew up in a milieu of frenetic social activity. Thus, if the social activity of both were studied in 1970, the chances are that the eighty-year-old would be leading a much less active social life than the fifty-year-old. From precisely this kind of investigation Cummings and Henry promulgated one of the tragic myths of our time -- the Disengagement Theory, which postulates that it is natural for people to disengage from life as they grow older.[6] Fortunately, subsequent research has pretty well demonstrated that the disengagement Cummings and Henry observed was more of a generational than an organic phenomenon. But many of the practices of workers with the aging are still geared to the assumption that is is natural for old people to become vegetables. And unfortunately, many other myths about the developmental process abound and continue to affect adult educational practice.

I am not sure that I have a lot of wisdom to share about what we adult educators might do about this problem. In my own practice I find myself making the most optimistic of the choices of assumptions about human potential and discovering that they usually turn out to be self-fulfilling prophesies. We can also lobby. We can make loud noises about our need to have more and better knowledge about human development, especially during the adult years. We can shout that if we are to become more effective in helping the disadvantaged we need to know more about how such cultural factors as sex, socio-economic status, ethnic identifications, ecological environment, and the like, affect growth and development. We can proclaim that we want to know what optimal development, not just existent development, is. Perhaps our colleagues in the relevant sciences will hear us and bend more of their energies in this direction. Perhaps even more constructively, we can give support to our colleagues (including Paul Baltes and Jack Botwinick on our panel) who are trying to establish life-span psychology as a potent discipline by becoming informed about their work and disseminating their findings.

4. How Do Adults Learn?

The central issue subsumed under this question is, do adults learn differently from the way children learn -- and, consequently, do they have to be taught differently; or is learning the same across the life span?

On this issue I take an unequivocal position. It is "yes" and "no". Yes,

there are some characteristics of adults which differentiate them from children and youth that affect their learning. But no, the fundamental process of learning is no different in adults from in children if the process we are talking about is the one that occurs in reality rather than the one that occurs in the assumptions of traditional mechanistic schooling. Let me explain my position, starting with the "no" part first.

The schools of the Western World, from kindergarten through college, have shaped their programs and practices around a set of assumptions about learners that were formulated in the monastic schools between the seventh and twelfth centuries. These assumptions and strategies became institutionalized under the label "pedagogy,", which was derived from the Greek words "paid," meaning child, and "agogus," meaning leader or guide. Thus, pedagogy has the literal meaning of the art and science of teaching children.

When adult education began to emerge as a field of social practice (in Europe in the second half of the nineteenth century and in the United States in the first half of the twentieth century), it simply borrowed the assumptions and strategies of pedagogy as the conceptual framework for the education of adults. Accordingly, the educational programs for adults that were organized in schools, colleges, business enterprises, religious institutions, government agencies, and voluntary organizations appeared to be no different from those organized for children and youth. They were predominantly subject-transmission courses taught by didactic teachers.

But before long these teachers began discovering that they were losing their students; the retention rate in early adult education was disastrous. So the teachers began experimenting with different assumptions and strategies, and there began to emerge a growing body of literature describing the "artistic experiences" of more successful teachers of adults. In the late forties and early fifties this literature began being woven into a comprehensive theory of adult education practice. During the next decade the assumptions and theoretical constructs underlying these practices began being made explicit and subjected to testing through research. In the early sixties European adult educators, especially in Germany, France, Yugoslavia, and the Netherlands, started using a new label to identify this increasingly differentiated body of theory and technology. The label was "andragogy," from the stem of the Greek word "aner," meaning man (as distinguished from boy). The connotation given to this new label was "the art and science of helping adults learn."

The basic difference in assumptions and strategies between pedagogy and andragogy can be summarized as follows:

A COMPARISON OF ASSUMPTIONS AND PROCESSES

OF PEDAGOGY AND ANDRAGOGY

Assumptions			Process Elements		
	Pedagogy	Andragogy		Pedagogy	Andragogy
Self-concept	Dependency	Increasing self-directiveness	Climate	Authority-oriented Formal Competitive	Mutuality Respectful Collaborative Informal
Experience	Of little worth	Learners are a rich resource for learning	Planning	By teacher	Mechanism for mutual planning
Readiness	Biological development Social Pressure	Developmental tasks of social roles	Diagnosis of needs	By teacher	Mutual self-diagnosis
Time perspective	Postponed application	Immediacy of application	Formulation of objectives	By teacher	Mutual negotiation
Orientation to learning	Subject centered	Problem centered	Design	Logic of the subject matter --- Content units	Sequenced in terms of readiness --- Problem units
			Activities	Transmittal techniques	Experiential techniques (inquiry)
			Evaluation	By teacher	Mutual re-diagnosis of needs ---- Mutual measurement of program

Although the assumptions on which the theory and technology of andragogy are based were initially derived from the deductive-intuitive analysis of experience, they have been gaining increasing support (and refinement) from empirical research. Certainly the investigations of adult intelligence starting with Thorndike in the 1920's and continuing through Lorge, Wechsler, Birren, Botwinick, Jones, and others, demonstrate that adults maintain their ability to be continuing learners. The work of the developmental psychologists -- especially as synthesized by Pressey and Kuhlen and by Goulet and Baltes -- has documented the continuity of the developmental process during the adult years; adults behave like organisms more than like machines. Research from the field of psychotherapy has borne out this finding and has reaffirmed the central position given by andragogy to the notion that it is an organic need of human beings to move from dependency toward self-directedness. I know of at least thirty doctoral dissertations currently investigating andragogical hypotheses.

But these studies are shedding light mostly on the actuality and conditions of adult learning. They have so far told us little about how adults learn. This topic has been the focus of recent research by Allen Tough and his colleagues at the Ontario Institute for Studies in Education which, in my estimation, is breaking through to totally new territory in our understanding of adult learning.[7] Tough wanted to find out how adults learn naturally -- when they are not being taught. He has come up with some fascinating findings so far. For one thing, he found that deliberate efforts to learn turn out to be very common and important among adults: a typical adult conducts eight major learning efforts in a year and spends about 700 hours at them. Very significantly, he found that the natural unit of learning is what he calls a "learning episode," which in sequence with other episodes become "learning projects." Very often the goals of a project don't become clear and specific until well along in the sequence of episodes. Tough describes with clinical precision the processes by which adults decide to begin a learning project, choose a helper, find the necessary resources, and carry through to completion. His findings about the characteristics of effective helpers are remarkably similar to N. L. Gage's recent findings regarding effective teachers: they tend to be warm, indirect, cognitively well organized, enthusiastic facilitators and resource people rather than coldly efficient transmitters.[8]

It seems that the more we learn about how adults learn the more dysfunctional our traditional didactic, subject-centered approaches to teaching become. I am coming to see the role of adult educator as becoming less and less that of manager of the logistics of instruction and more and more that of manager of the processes and resources of educative environments. But before this shift in role can be effective, we need to do a better job than we have been doing of helping adults learn the skills of self-directed learning.

Important as an andragogical approach to the education of adults in general might be, it is crucially important for the education of the undereducated. They are the victims of pedagogy. They have been turned away from education by being treated like children. I suppose that one can get away with treating a corporation president like a child for a while; after all, he knows he is of more worth than his teacher. But not an illiterate; for all he has that is of worth are his experience, dignity, and self-respect.

We know enough about how adults learn to be able to do better than we are doing in helping them learn. But, as the title of my most recent book suggests, we need to know more. The title is: The Adult Learner: A Neglected Species.[9]

There are many other, much more specific issues in adult learning psychology. But from where I stand, these seem to me to be the most fundamental, and they certainly provide us with an awesome agenda for the years ahead. I should like to close by brainstorming some of the implications these issues suggest to me for Bob Berner, Allan Canfield, and their colleagues in the Division of Continuing Education here at SUNY Buffalo.

For one thing, you have an obligation to confront your administration, colleagues, and publics with the fact that SUNY Buffalo, along with most other institutions of higher education, is no longer essentially a youth serving agency. It has become predominantly an adult and community serving agency; and this change will accelerate in the years ahead. You have an obligation to help them look at the implications of this change in institutional character for policy structure, governance, curriculum, allocation of resources, and institutional climate. What I am suggesting is that forces beyond our control are moving adult education from the periphery to the center of our institutions' lives, and we have an obligation as employees, educators, and change agents to help them adjust to this mutation.

Secondly, you have an obligation to proclaim the integrity of the adult learner and to inform the public in general and your colleagues in particular about the unique characteristics of adults as learners and their meaning for educational programming.

Thirdly, you have an obligation to apply the principles of andragogy as rigorously as you can to your own program, and to rid it of all vestiges of pedagogy. Above all, this means mounting massive efforts to help your students and to help your teachers to learn to be facilitators and resources for self-directed learners.

Fourth, you have an obligation to be aggressive in energizing your colleagues in the cognate fields to turn more of their attention to basic research on human development through the life span and, particularly, to the phenomena of adult learning.

Fifth, you have an obligation to engage your own staff and faculty in innovative efforts to improve the technology of adult education, particularly in the areas of need diagnosis, experiential learning, and evaluation.

Finally, you have an obligation to share the fruits of all these efforts with your less energetic colleagues in other agencies of adult education.

Notes

[1]Hayne W. Reese and Willis F. Overton, "Models of Development and Theories of Development," in R. Goulet and P.B. Baltes, Life-Span Developmental Psychology, (New York: Academic Press, 1970), p. 132.

[2]Alfred N. Whitehead, "Introduction," in Wallace B. Donham, Business Adrift (New York: McGraw-Hill, 1931), pp. viii-xix.

[3]Paulo Freire, Pedagogy of the Oppressed (New York: Herder and Herder, 1970).

[4]Robert M. Gagne, The Conditions of Learning (New York: Holt, Rinehart & Winston, 1965.

[5]Benjamin S. Bloom (ed.), Taxonomy of Educational Objectives, Handbook I: Cognitive Domain (New York: Mavid McKay Co., 1956).

[6]E. Cumming and W.E. Henry, Growing Old: The Process of Disengagement (New York: Basic Books, 1961).

[7]Allen Tough, The Adult's Learning Projects (Toronto: Ontario Institute for Studies in Education, 1971).

[8]N.L. Gage, Teacher Effectiveness and Teacher Education (Palo Alto: Pacific Books, 1972), pp. 34-39.

[9]Malcom S. Knowles, The Adult Learner: A Neglected Species (Houston: Gulf Publishing Co., 1973).

PANEL INTRODUCTIONS

Robert F. Berner

Our Chairman for the panel discussion is Dr. B. Richard Bugelski. Dick, like me, has tread the walkways of the old University of Buffalo, and now the new State University of New York at Buffalo, for many years, perhaps more than we would really like to talk about. He is currently Distinguished Professor of Psychology at the University, having served earlier as Chairman of the Department, during years of significant growth and change. He has authored many articles and books, including The Psychology of Learning , and the Psychology of Learning Applied to Teaching . Not to be overlooked is the fact that he taught experimental psychology in our Millard Fillmore College for a period of 14 years. We are indeed privileged to have Dick Bugelski as Chairman of our panel.

Next we have Dr. Jack Botwinick. Jack is at this end--my right, holds the M.A. and B.A. degree from Brooklyn College, and Ph.D. degree from New York University. He is now Professor of Psychology and Director of The Aging and Development Program at Washington University, St. Louis. He has been a Research Psychologist at the National Institute of Mental Health. He was Professor of Medical Psychology, Department of Psychiatry at Duke University Medical Center. He, too, has authored many articles and books, most recently a book on aging and behavior.

Next to him is Dr. Josephine Flaherty, who is Professor and Dean of the Faculty of Nursing of Western Ontario. She has a very real interest in the field of adult education, as is evident in her educational history. Her M.S. thesis was entitled, An Inquiry into the Need for Continuing Education for Registered Nurses in the Province of Ontario, and her Ph.D thesis was entitled, The Prediction of College Level Academic Achievement in Adult Extension Students.

Also such interest is evidenced in the fact that she held a position as Associate Professor in the Department of Adult Education at the Ontario Institute for Studies in Education in Toronto. Among her most recent research activities are Prediction of Academic Performance of Adult University Students and the Learning Capacity of Adults -- A Theoretical Investigation.

At my far left is Dr. Rolf H. Monge, who in addition to being Associate Professor of Psychology at Syracuse University, is serving at that institution as Assistant Dean of the College of Arts and Sciences. December 15th, he will assume a new position as Associate in Academic Affairs, reporting directly to the Vice Chancellor of Academic Affairs. He is now acting in that capacity. Dr. Monge worked with the Rand Corporation and Systems Development Corporation as a mathematician and computer systems analyst and manager. He has published

several articles and book chapters, essentially on psychology aspects of the aging process.

Next to me on my left is Dr. Paul Baltes, who is Associate Professor and Director of the Division of Individual and Family Studies in the College of Human Development at the Pennsylvania State University. Born and educated in Germany, he earned his Ph.D from the University of Saar. Dr. Baltes came to the States in 1968, as Assistant Professor of Psychology at West Virginia University. His recent studies have included components of change in the cognitive development of adults. He authored, Life Span Developmental Psychology Research and Theory. A second book entitled, Life Span Developmental Psychology, Personality, and Socialization will be published in 1973.

Dr. Bugelski, I turn the meeting over to you.

PANEL REACTION TO DR. KNOWLES' ADDRESS

Dr. B. Richard Bugelski
Distinguished Professor
Psychology Department
State University of New York at Buffalo
PANEL CHAIRMAN

Now let me begin by congratulating Dr. Knowles on one of the finest pieces of pedagogy that I have ever seen! I am privileged to witness a very effective, charging performance. I think that we all learned without his having taken the trouble to take us into his confidence and solicit our concerns and our goals; I hope that our panel might have some astute observations to make about some of his philosophical distinctions.

Dr. Knowles raised four questions for our panel. We have all been privileged to have his paper some time in advance, so we have had some time to ponder Dr. Knowles' remarks. We will spend these few minutes considering some of the major questions that Dr. Knowles has thrown at us. Suppose that we look at the four questions Dr. Knowles raised. We might think in terms of adult education when he asked, "What is the purpose of education?" I wonder if we

might not do best by starting at either end. Dr. Botwinick would you be so pleased?

Jack Botwinick

I hope I have some astute remarks that I can make in regard to that excellent presentation. What is the purpose of education? I think Dr. Knowles would agree that the question could have been, and perhaps should have been raised, "What are the purposes of education?" If we focused on the purposes we might have seen that the routes to one of these goals might have been different from the routes to the other.

For example, if our purpose is to elect or develop an elite, if our purpose is to develop mathematicians, if our purpose is to develop technical people, if our purpose is to develop self-awareness, to develop social service, to solve one's own problems, then I think the tack we would take might be different. I would suggest that they ought to be different. So with this general outlook, I could only hope for -- and agree with -- Dr. Knowles, or wish that he had focused on other directions and other possibilities.

B. Richard Bugelski

Dr. Flaherty, do you think that you are ready to react to this general question? I know that in your paper, you will do this at some length, perhaps on a more general level on the problem of the purpose of education.

Josephine Flaherty

Thank you. I think one of the most difficult things in dealing with a paper that Malcolm Knowles wrote is that he really is one of the most slippery characters I have encountered.

You know, you listen to Malcolm, and you think, "Aha, I've got it," and then he goes along and says something else, which just kind of slides him out of the position in which you thought you boxed him. With regard to this whole question of purpose, I really am wondering if we in adult education have somehow copped out of this whole question of what the purpose of adult education is. We are very good at making generalizations about what the purpose is, but rarely do we get down and specify, as well as we say we should be doing.

What are some of the objectives of the activities in which we are engaging? Some people talk about writing behavorial objectives; we in adult education look somewhat askance at some of these because they are so mechanistic, and we talk about the organismic model and so forth. Yet it seems to me that we haven't been able to get down and specify what it is that we're about.

We talk about the person becoming a more highly developed person, and we're always talking about this potential. Somebody or other has this potential that we're supposed to be developing. We are always talking about a potential, but I have never seen one; someone should show me a potential. (Laughter)

However, no one talks about purposes or the development of this individual throughout his life span. We talk about the continual renewal of social systems through constructive interaction with them. I think this sounds reasonable, but it seems to me that then we apply androgogy and we always take for granted that it is androgogy that is going to cure all of this. I always get acutely uncomfortable when Malcolm starts comparing androgogy and pedagogy because androgogy always comes out looking so much better than pedagogy. Nobody in his right mind would agree to be anything but an androgogue after Malcolm describes one!

My big concern is that I do not think he has come close enough to telling me who all these androgogues are. I have never met one. And I certainly am not one by this description -- I see too much of the pedagogue in me.

B. Richard Bugelski

I grant you that I, too, have great difficulty in recognizing potential, but I think I'd rather stick to Dr. Knowles' comments for the present. Dr. Baltes are you ready to give us some reaction to the purposes?

Paul Baltes

There is a pervasive attitude when dealing with science, that science has to be value free. This relates to the purposes of education. It leads to a gap between knowledge generation and knowledge application. The issue is very evident in education. Most scientists have a tough time responding to the question because it is a value based question.

Let me try to give you my personal view since I am away from Penn State and can function as if I were in a very different country! I think the main purpose of education is survival of one kind or another. The question is for education, "What should be the proper context to answer that question?" If I look at the response to the question conventionally, the main answer is found in the transmission of knowledge.

It is the transmission of what is already there. I think that Knowles has made a very important point when he went back to 1930 and asserted that someone had said that what is true for yesterday is not true for today. We clearly have to define the purposes of education in a futuristic perspective - I

agree with Dr. Knowles.

If you have an infant who has to learn certain developmental tasks, there is a certain sequence to his or her growing up. The assumption is that the sequences of education therefore are invariate and stable over time. I think if we can learn anything at all from the last fifty years, it is that educational tasks are not fixed. They are not invariate.

I think that education should be dealing with a range of behavior at any given age - not normatization, not teaching the same things all the time, but teaching as many things as possible. If survival is the main purpose of education, we have to increase the range of tasks to deal with variable behavior.

Rolf Monge

A former chancellor at the University of Syracuse, defined a professor as a man who thinks otherwise!

I find that to be very helpful in dealing with professors, and in dealing with myself.

I often like to refer to the six blind men of Hindustan. If you recall, six blind men went out to find what an elephant was. One of them thought the elephant's leg looked like a tree trunk. Another man grabbed the trunk and said, "Ah, the elephant is very like a rope," and another man leaned up against the elephant and said that the elephant felt very much like a wall. Each of them had a pretty clear view of one part of the elephant, but none of them had a clear view of the total elephant.

I think that this same sort of an elephant applies to the mechanistic versus organismic views of man. Both have a clear view of man, or a part of him, but not of the whole. Both have limitations but strengths. We need to integrate these things. We cannot throw one out and adopt the other. We must integrate them in some way, in some sort of a Hegelian dialectic.

I think that it is the production of flexibility which we need to develop in education - flexible ways of meeting life - adaptability in Baltes' words. The way one does this is by producing life-long learners as Dr. Knowles has suggested. Learning skills should be taught along with content. There is a large psychological literature on learning how to learn. Harlow's classical 1949 paper called the Formation of Learning Sets is a work that has been built upon since that time. I recommend it to you.

Several interesting papers have been published recently. Paul Baltes and associates at Penn State are doing a great deal of work in looking at learning sets among adults. Adult learning theory is taking on new dimensions.

I don't think that the tools themselves can be taught free of content. I think that the very clever teaching of content will allow a drawing out of the tools of learning.

This is the way in which flexibility can be learned and the learning of skills can take place.

B. Richard Bugelski

I wish to throw in a little minor comment of my own just to give the panel a chance to think about the question, "What is learning," a question which I hope the panel will not have an answer to, or I will feel very much ill at ease.

Whenever we have a gathering of this nature there is an atmosphere or a sense of something being wrong, something isn't being done right, and we must change or improve or we will all suffer some terrible consequences.

I make this remark in terms of the current criticism of education generally. Education is attacked on all sides - at all levels by all kinds of participants and non-participants. I used to be one of these critics, too, until I began to wonder how all of these critics got so smart. It turned out that these critics had done the same things as I. They had gone to grammar school and college, and somehow got all this big brainpower and knowledge to criticise what is going on.

I am not too unhappy with this. I somehow surmise that we cannot do all the things we want to. We cannot do a great deal better than what we are doing. After all, we are only dealing with people. The average IQ is somewhere around 100, which is enough to get you out of eighth grade. I am not at all too depressed. So instead of having a negative kind of reaction, I hope that you will come out with more hopeful view of what is happening.

Let's get to the second question.

Dr. Botwinick, have you found out from Dr. Knowles or any other source what learning is?

Jack Botwinick

I am going to pick up the tack on what Dr. Knowles asked. "What is learning?"- He has not told me very much about the process. We all wish to know about process. But it is not all that interesting. Take the concept of teaching. We are learning an awful lot without asking question's of process. I think that we always have questions regardless whether they are relevant to the situation or not.

We often focus on the very thing that perhaps we ought not to. Why push the issue of process if a person can learn skills and be flexible without asking the question about process. On the other hand if your techniques are not adequate, then if the process question is crucial, push that.

Josephine Flaherty

Thank you; I have not learned what learning is either. I think that the fact that I am here is evidence that I am surviving! I was a little disturbed in a way that Malcolm said that the learning theorists have not given him help in understanding the process and then I sat down and tried to think about what I had learned about the process from learning theorists, and I am not sure that I learned a great deal either.

One of the references which Malcolm made was in reference to Bloom's taxonomy and he said that he had the experience of working hard with students attempting to help them define objectives only to find that the chief effects were upon their emotions and values. I guess my immediate reaction to that was, "Great!" It may well be that in the end we will find that we feel much more comfortable with the cognitive domain and certainly Bloom and his colleagues did. I am wondering if we do not have a sense of security in dealing with the cognitive. If indeed we are talking about the holistic approach to learning, it seems to me that we want to get into the emotions and values anyway.

Paul Baltes

First of all thank you for hearing me out and saying that we should not get too soon frustrated. At the same time I become a little amused when I heard Dr. Bugelski saying that he did not know anything about aging at the same time he was demonstrating exactly what happens to most of us about the age of 35 or forty... he was going back through his life and reflecting on how everything is fine and good.

I like to comment on the notion of learning also. The model of man in question is closely related to how we define learning. I would like to take it one step further than Dr. Knowles did. He makes the distinction between the mechanistic and organismic model, and Monge pointed out that one model may be useful or not useful.

My view of learning in line with a survival definition for the purpose of education, is that there may be a different model of learning we need which has some different characteristics that go beyond the mechanistic and organismic ones. I am not sure exactly what to call it. You may call it a revolutionary model or a dialectic model, but it should have at least one more dimension.

If we assume that we live in a rapidly changing world, and in a rapidly changing ecological context, then I think that one of the most important criteria which a model should have is a feedback system which allows you to define not only how the person changes but also how the environment changes. Because how could we otherwise explain cultural change if we simply assume that it is only the person who is changing?

This is a statement for a dialectic view, if you will, which is not necessarily philosophical, but in the sense that indeed we need an evolutionary theory of learning, which can explain how the environment is a function of what people do and what happens to the person in an environmental context.

This is a learning model which at the same time puts activity into the organism, and activity into the environment. We need a model that simultaneously has activity both in the context and in the organism. It is this type of learning model which we have to focus upon if we try to develop a learning model which deals with the activity of cultural change and the change in the individual.

Rolf Monge

I believe all the pedigreed learning theorists. I am at least a grandson of Spense - I think legitimate, but probably prodigal - by which I mean that I am an enlightened behaviorist I suppose.

I must take issue with the idea that because behaviors have directed their attention to fragments of behavior that they have not produced something valuable. It strikes me that the approach taken by Hull, by Spence, by Skinner and all the others - that position is the logical way to do business, working from the part to the whole. I think that the large problems of learning cannot be focused upon very well unless one knows what goes on at a more molecular level.

I agree that man is more than a mechanism. I don't believe, however, that I agree with the view that the idea of a mechanistic model of learning assumes that man is mechanistic. I think that a view of the cardiovascular system as a hydraulic system does not mean that man is an hydraulic mechanism, un-

less we are Freudian about it.

You must spend some time in an animal laboratory, in a rat laboratory - something which I do not do anymore; I have vowed that these hands will never touch rat fur again! Still, I did find it rewarding to sit and watch and learn. I think I learned two things by watching animals running in mazes, in a Skinner box. First, they are not empty. There is a great deal that goes in the heads of rats, and a great deal which goes on in the heads of children as well. I think Toulmin in an early work took quite a different view of rats versus children generally. They, however, are very definitely not empty organisms.

The other observation that I thought was of value to me was that the Skinner, Hull, Spence views from their part of the elephant were valid views, within the limited realm in which they worked. They did have a very clear and very precise view of what was going on. I think there is a great deal we learn in trying to generalize these processes from animal to man in helping us to understand human behavior.

B. Richard Bugelski

The third question Dr. Knowles developed for us was, "How do we develop and grow naturally". I did not understand the question myself, nor his answer. And while they are thinking of their answers, I would like to drop a few more remarks so Dr. Baltes can sting me again!

On the question of learning, I am certainly going to read your book, Dr. Knowles. I was hoping that the panelists might bring to you some of the orientation that has been developing in the last decade or two. We have given up rats, to be sure, and we are much more cognitive. People are beginning to realize that some of the old considerations that we concerned teachers hold were viable, real, and meaningful and that there are certain variables that are basic to the acquisition of knowledge that I think are most pertinent to what we are discussing this afternoon.

We cannot expect to learn a great deal in a short time. This is one of Skinner's preoccupations. He wants to improve our efficiency by something like 400 percent, learning something in half the time. Whereas we find ourselves now going to school for longer and longer periods of time trying to keep up with knowledge, which is growing exponentially, I suppose, compared to our chronological plodding day by day.

I just do not think that it is feasible to us to expect that man is going to learn a great deal more than he is now learning in speed because time is one of the variables. This is something that all of us should give heed to,

because it takes a very few seconds to learn one thing, but at the same time it takes a great deal of time to master other things. To master more than something, to keep on acquiring knowledge endlessly as culture keeps changing on us is a tremendous responsibility, that we can hardly hope will be possible with a great many people.

It just takes time to learn, and unless we provide that time in one way or another, -- and I know our panelists are going to point in that direction -- our hopes and our biases will be of no value whatsoever.

The other factor which I thought about as Dr. Knowles was talking, was that of attention. If you can get a man like Dr. Knowles to do the teaching, so that the attention of the audience is held like he held it, as he went through his pages, I think a great deal of learning takes place.

But now I think our panel is ready to talk about how we grow or develop naturally. Dr. Botwinick, I think you are probably as qualified to speak on that as anybody.

Jack Botwinick

I had my first comment usurped by Dr. Bugelski. I don't understand what naturally means either. The monkey in the jungle swinging might be what is meant by natural, but I do not think he has this in mind, and even if he did, when the scientist came to observe it, it would not be the same culture as before the scientist arrived. So, I did not understand that, I am just going to have to pass that.

Josephine Flaherty

I have just been usurped, too. I am not sure I just grew up naturally. I am not sure that any of us actively goes out seeking knowledge naturally. But it does seem to me that the only way we learn is by subjecting ourselves to conditions which make us uncomfortable. I do not believe that is natural.

Paul Baltes

The questions made some sense to me. Since I know that after 35, I am going to look into the past instead of the future, let me look into the past to make some sense out of the question. First of all, I don't think that the conclusion should be - that we develop in a natural setting or in a natural context. I think if Knowles takes his own paper into his heart, he should have concluded that we must be careful in making that statement, because what he suggests is that what changes over time is very different for different people.

But another perspective to it which I appreciate more and more - this time in the College of Human Development at Penn State - I think it means that the canons of science have tremendously focused on what has been labeled internal validity. The design of experiments for the most part has focused on what we mean by B as caused by A. There is very little regard for whether B or A occur anywhere else but in the laboratory.

A colleague and I are trying to write a paper that has as a title, External Validity Precedes Internal Validity. We are trying to observe that a large body of knowledge has very little to do with real life due to the fact that the treatment of the action forms are produced in a manner which are highly artificial with very little generalizability.

Now I know there is an easy way out for the empiricist, which is to say that the canons of his field require him to do this, but I do believe that the behavioral scientists would be well advised to think about external validity when they do their experiments. The question of internal validity is not the only one. I maintain this is an important question which asks whether what the laboratory scientist is doing really occurs somewhere else.

Rolf Monge

Well, since both sides of the issue have been covered, I cannot take either side comfortably, can I? I did write on my paper, earlier, this remark "Natural growth -- I do not understand it." Yet, I do think I know what the roots of it are. I see it not exactly as Baltes does. I believe it comes out of the concerns of Rousseau and his Nobel Savage.

The practitioner in Rousseau's view was Benjamin Franklin with the coonskin cap, who played the part of the noble savage. I am not sure that anyone has done a great deal with the concept since then.

We must deal with the concept of socialization wherever man grows up, whether it be in the jungle or not. And if that man is on a vine in the jungle, by himself, then I think I understand something about natural growths. But if there is someone else swinging with him, then I think there is socialization at work. If there is a plea here for cross-cultural study, then I applaud; otherwise I am mystified.

With respect to the issue that cross-sectional studies have led to the belief in the disengagement theory, I believe that -- there are many, many people who wish to disengage at later life, who wish to move out of the society they have known. So again, Henry, having seen a piece of the elephant, overgeneralized his theory concerning withdrawal in later age. Dr. Baltes do you wish to comment about cross-sectional versus longitudinal studies?

B. Richard Bugelski

I am the moderator here! Androgogy gets into the blood! I am on the point of announcing that we will not get to the fourth question because of the time.

B. Richard Bugelski

We'll resume our presentations now in the form of individual addresses by the several members of the panel. I'll try to follow the pattern of giving you a brief insight into what each person is going to talk about, not what the person will actually say. For example, Dr. Botwinick is going to tell us about sensory functions, intelligence, learning perception, and personality in his address, which is entitled, The Behavioral Aspects of Aging, so if you'll keep those four points in mind as he comes to them you might be able to make suitable mental notes. Dr. Botwinick, will you speak from here please?

BEHAVIORAL ASPECTS OF AGING[1]

Dr. Jack Botwinick
Professor of Psychology
Director, Aging and Development Program
Washington University

It is almost axiomatic that however great may be the differences among young adults in behavioral or physiological function, the differences among old adults are greater. This appears to be true in most all areas of function. This fact, plus the unknown elements of genetic programming and random, environmental "hits" in the course of living, makes accurate prediction of late life abilities and status for any one individual very difficult -- perhaps impossible. Most of what we have to say about behavioral aspects of aging applies more to groups than to individual persons. It is like the actuarial tables of life insurance companies. People like to think that they can outlive and outperform the expected averages, and they arrange -- and should arrange -- their lives in accord with this. But they had better not ignore the going odds or else catastrophe could be the consequence.

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The betting odds indicate that difficulties arise in later life, not only because of decreased ability but because of alterations in the environment. There is loss of sensory functions, of psychomotor speed, of memory, of other abilities. There is also loss of income and job; and, through death, there is loss of husband or wife and friends. There is a fast-changing world of increasingly altering values. How do people cope with all this?

How much a burden failing eyesight will be depends, very obviously, on how bad the eyesight is, but it also depends on how much and for what purpose sight is used. It makes a difference whether a man sits and chats with friends most of the day, or whether reading is what is most important. Not all activities require top grade seeing ability. Simililarly, adjustments to death of spouse depend on the former relationship with the spouse, but they also depend on whether there are friends and how much they are needed. It also depends on whether there is meaningful work or hobbies to compensate. Perhaps most important, it depends on how well adjustment to adversity is habitually made.

DEMOGRAPHY - In the United States, about 10 percent of the total population is over age 65. There are about 20 million of these people to whom we give labels: old, elderly, and senior citizen. (This statistic and the others that follow in this section have been reported in several booklets by the Administration on Aging, DHEW; 1971.)

It comes as a surprise to many that only about 5 percent of all the people over 65 are in institutions. While most of the elderly are not institutionalized, most are poor. In 1970, half of the families with heads of household aged 65 years or over earned $5,000 per year or less. Almost a quarter of such families had incomes of less than $3,000. Many old families have much less income than this.

In the over-65 group, there are fewer men than women. The average life expectancy at age 45 is about 72 years for males and about 77 years for females -- a 5-year difference.

Older people tend to live in the central city rather than in the urban fringe or suburbs. There is a relationship between the age of a suburb and the age of its population. People have a tendency to buy their homes when they are young and beginning their family. They may have bought a home in a newly developed area but as they age the area ages. Older people tend to stay where they are.

SENSATION - In studying the behavior of old people, most psychologists find it more interesting to focus on broader aspects of function than the relatively narrow consideration of sensory function. However, so much of the daily life and needs of older people relate to, or derive from, simple

sensory loss that is becomes important to focus on this problem.

Some of the best documented age-related changes are those pertaining to sensation. It has long been very well known that, typically, the old can't see well at close range; they have prebyiopia (e.g., Duane, 1931). It usually starts much earlier in life than many people realize. Far vision, as, for example, the opposite end of the room, also declines with increasing age (e.g., Chapanis, 1950). Therefore, signs that the older person must read should be written in large print. The larger the print the better they will be able to see it.

Older people, compared to younger ones, typically need more illumination in the room to see well (e.g., Weston, 1949). Among the reasons which may account for this is that the size of the pupil of the eye decreases with age (Birren, et al., 1950) allowing progressively less light to reach the retina. Again, this need for increased illumination begins relatively early in adult life. There is an approximate linear decrease in the amount of light reaching the retina from the 20's to age 60 years (Weale, 1965).

The lens of the eyes tends to yellow with increasing age. The yellowing of the lens makes the color "blue" difficult for older people to differentiate. Differentiation among blue, green, and violet is especially difficult for older people; differentiation among the reds, yellows, and oranges is easier (e.g., Gilbert, 1957). Thus, if color coding is to be used, colors at the blue end of the spectrum should be omitted.

When hearing starts to deteriorate, the high frequency tones are the first to go (prebycusis). The tones at the lower end of the audible frequencies are easier for the elderly to hear (e.g., Spoor, 1967). This becomes most noticeable at about age 50 with a tone of about 1,000 Hz. There is also loss across the board, i.e., lower and middle frequency tones as well as higher ones. Thus louder sounds are better for the old at all frequency ranges. Sometimes this makes for problems. Loud volume may be uncomfortable for others who do not have appreciable hearing losses.

Another problem in hearing is often experienced when many people are gathered in groups, such as at cocktail parties. It is difficult to carry on and hear the conversation because of the background noise -- there is much masking of the signal. There is reason to believe that masking becomes a problem for the elderly. There may be far fewer conversations going on at one time, but the elderly may experience difficulty in sorting them out.

There are changes in most or all of the other senses too (e.g., Corso, 1971). Taste sensitivity seems to decline in old age (Cooper, et al., 1959). This has a tendency to make food unappealing. This sensory problem may be

combined with other practical problems. How is the food presented? Is the person eating alone or with other people? Food may be unappealing or unappetizing if the person eats alone all the time.

In old age, the sense of pain (Schludermann and Zubek, 1962) and of touch (Birrin, 1964, p. 101) decline also. There is some indication that the older person may be less sensitive to heat or to sharp-pointed objects and, therefore, may not draw away from them as quickly. He may injure himself to larger degree than a younger person would. The sense of balance sometimes becomes disturbed and can lead to falls and accidents.

TIMING AND SPEED OF RESPONSE - It is possible that falls and accidents also come about partly because of problems of timing environmental inputs and of slowed speed of response. More time is needed in old age to carry out even simple functions. In crossing streets, for example, it is necessary for car traffic to diminish appreciably before crossing is safe. In supermarket or cafeteria type situations, choices are made and executed slowly.

There is a large body of research dealing with this slowing, and the research has resulted in a change of opinion regarding it. It used to be thought that the loss of speed associated with reaction and movement was due mostly to alterations in muscle and, perhaps, peripheral nerve systems. It is now thought that the alterations underlying the slow-down are more basic. It is thought that the central nervous system plays a role in this (Birrin, 1964, pp. 111-112). Despite this, some aid to the elderly seems possible.

Even though only a small fraction of the total reaction time is taken up with motor function (Botwinick and Thompson, 1966), and even a smaller fraction seems to be associated with the time taken for the stimulus to reach the cerebral cortex (Davis, 1957), and thus, most of the time is in central processing, it may be possible to manipulate conditions experimentally to speed up responses of older people.

Increasing the loudness of the auditory stimulus (Botwinick, 1972) or possibly the brightness of the light stimulus will quicken the reaction times of the elderly. This is not to say that the old will be as fast as the young, but performance of the elderly can be improved.

Old people can be helped to be quicker in responding in ways other than increasing the intensity of stimulation. When there is a change in the environment and this change comes as a surprise, the responder is thrown off guard and responds with relatively long delay. This seems to be especially so for the aged (e.g., Botwinick, et al., 1957). Pitchers in baseball games and athletes in other sports make use of this fact of surprise by changing

the speeds of their pitches and directions of their movements. When, however, there is attentive expectation of when and where the stimulus change occurs, when the place and timing of the stimulus are known, reaction time is quick. The older person can be helped in his slowness by arranging optimum stimulus and pacing conditions (e.g., Botwinick and Brinley, 1962). This involves relatively constant or fixed conditions, and ample pre-warning or opportunities for preparation.

On high speed turnpikes, for example, signs indicating approaching stoplights could be especially important for the elderly. Similarly, a greater time period in advance of a green light about to turn red may be desirable for the elderly. To some extent, the older driver arranges this by himself. He does this by driving more slowly. When elderly people are seen driving, it is not difficult to get the impression that many of them control the speed of their inputs by slowing the speeds of their behavior. Whether or not this slowing is purposeful, however, is an area full of controversy.

INTELLIGENCE - The slowing in later life is so encompassing that it is seen in many aspects of function. It is seen in the measurement of IQ, for example. In the administration of the most widely used test of adult intelligence (WAIS), a bonus is given for quick response and no credit for some performances when latencies are too long. A controversy developed as to the meaningfulness of this type of IQ test for old people. This controversy was resolved to some extent when the WAIS was given both with and without time limits, and when the age patterns were found essentially the same in both conditions of testing (Doppelt and Wallace, 1955). But, as with many of the controversies in psychology, the resolution is not complete. In the measurement of intelligence, the decision of which test to use, or what items to include in constructing a test is crucial. Intelligence is in part defined by these decisions, and age changes in intelligence are described by them. For example, a practical test of intelligence was developed with which subjects were tested on the use of the yellow pages of a telephone directory, on common legal terms, and on getting services needed in everyday life. A rise in scores through middle and later years was seen with this test, even when with conventional tests decline was seen (Demming and Pressey, 1957).

Even though conventional test scores decline with age, this is not true for all functions. And, even when a test shows decline with one method of age comparison, it does not necessarily show it, or shows it to a lesser extent, with another. For example, it is maintained by many that cross-sectional age comparisons show decrement but longitudinal age comparisons do not. This may be a generalization too quickly accepted by many -- too quickly accepted for reasons such as sampling problems (e.g., Riegel, et al., 1967).

It is nevertheless, true that the extent of differences among age groups in intellectual functioning is a function of the method used in measurement. More often than not, the following generalizations hold: IQ tests measuring achievement or stored information tend to show maintenance of function in later life. The initially more able remain more able, and may even improve some in this type of function. On the other hand, manipulative skills, perceptual functions, and abilities of integrating new information decline. The greatest decrements are seen in the initially least able (Foulds and Raven, 1947).

LEARNING - Since aspects of intellectual functioning decline in old age and since learning and intelligence go hand-in-hand, it may be expected that learning ability declines too. Does it? Much research has been directed to this question but with equivocal answers.

The most recent and better research has distinguished between learning as a process and performance as an act expressing this process. Often overlooked is the fact that what is commonly called "learning" involves some behavioral expression which in itself is not learning. For example, we must speak or do something to demonstrate what has been learned. If there is disability in the effector process, in the speaking, then this may give the impression of a defect in the cognitive process when, in fact, this is not the case.

Most of the studies have been carried out with tests of rote learning of verbal materials. These point to an age deficit. But, when performance limitations are accounted for, learning is seen to hold up reasonably well; at least, the decline is diminished to an appreciable extent (e.g., Arenberg, 1965; Canestrari, 1963; Eisdorfer, et al., 1963; Monge and Hultsch, 1971). Among the performance limitations most often investigated is response slowing. However, there are other kinds of non-cognitive limiting factors too. Memory drums, projector displays, and even research psychologists may be limiting in their strangeness to older subjects; they are very commonplace to young adults.

PERCEPTION AND PERSONALITY - In some types of experiments the different behaviors of old and young people to the same laboratory context is very obviously a disadvantage to the experimenter. In other types, however, it can be turned into an advantage. When the input is simple and clear -- as a loud pure tone, for example -- there is relatively little room for personal interpretation of the stimulus. But when it is ambiguous or weak there is much room for interpretation: The nervous system processes complex information in individual ways based upon individual experiences; decisions and behavior reflect this processing. Psychologists like to take advantage of this by using ambiguous and weak stimuli to provide a minimum

of structure and thus maximize individual differences.

Ambiguous and weak stimuli make for uncertainty. With uncertainty there is an interesting error that old people tend to make. They simply fail to respond. They choose to do nothing that the experimenter calls a response. The young may guess, or may otherwise make effort to respond when unsure; the old tend not to do this. The omission error was interpreted in one study as "a defensive reluctance to venture responses for fear of recognizing their inadequacy" (Basowitz and Korchin, 1957, p. 96).

The fear of failing often takes the form of cautious behavior. While general cautiousness on the part of the elderly has been emphasized in several studies, it became evident in one of them that the cautiousness might be more in the nature of avoiding problems than in dealing with them timidly (Botwinick, 1969). The error of not responding may be part of a greater disengagement process, a process by which older people are thought to dissociate themselves from others and from activities (e.g., Cumming and Henry, 1961).

Perhaps the least investigated area of aging is the study of personality. Data from studies on personality are difficult to integrate. One reason for this is that many of the studies have used tests to describe traits or combinations of traits. So many different tests have been used that the trait list is long and sometimes conflicting.

Many of the investigators end their studies unimpressed by the scope and magnitude of changes with age in personality (Neugarten, et al., 1964, p. 187). Yet, it is difficult to know what is impressive and what is not. For example, a typical finding with the MMPI is that there is a slight elevation of the D-scale score (e.g., Swenson, 1961). There is a slight but consistent trend for greater depression among the elderly than the young. What does an elevation in the depression score, especially when slight, tell about life in the real world? Depression is seen clinically in old age, especially among the aged of poor health. The range of depression is from mild melancholy to severe affect states. Some experts consider depression as the cornerstone of aging personality (Zinberg and Kaufman, 1963).

Hypochondriasis (Busse and Pfeiffer, 1969, p. 202) and Social Introversion (Gutman, 1966; Heron and Chown, 1967) are also seen, but less persistently. Constriction is another characteristic which is seen. It seems to be prominent in the Rorschach protocols of older people. An example of what tends to be reported in Rorschach studies is: fewer responses, a decrease in the variety of content categories, and an increase in the response based upon form (Ames, 1960). Individual differences are always stressed in

these studies and, in fact, it is often reported that some elderly people present just the reverse patterns. One series of studies showed that, when age comparisons are based upon intellectually intact elderly, the negative Rorschach indicators are not found at all (Eisdorfer, 1963).

The specific procedures, as well as the details of sampling, are important in describing age changes. For example, unlike some of the Rorschach studies, data based on a T.A.T. type of test indicated that when constriction was seen it tended to be more with men under 65 than over. The area of personality study in later life seems to be an important one but much more needs to be done to provide a basis for meaningful generalization.

SEXUAL BEHAVIOR - Whatever the personality changes with age, it is not unreasonable to assume that they are at least the partial result of a changing physiology. For example, sexuality changes, and people respond to this. The thought of sexual activity in old age is often embarrassing or repugnant to younger persons. The sexual life of older couples is often thought to be non-existent; this is flagrantly untrue.

A severe limitation to a satisfactory sex life is the frequency of widowhood in later life. Approximately 44 percent of women between the ages of 65 and 74 are widows. Only about 14 percent of men in this age bracket are widowers. Of those women over 75, 72 percent are widows; only 38 percent of men over 75 are widowers (1960 U.S. Census). Men marry later in life than women, and they die earlier in life. Thus many more women are left without marriage partners than are men. Men find it easier to remarry if their mates die; they are less inclined than women to remain alone.

These facts become even more stark when considered with the available evidence of a decrease in sexuality of men. In women the decrease is uncertain or non-existent up to age 60, at least. After this age, there may be some small decline. On the other hand, for men the decline is linear from the late teens on (Kensey, et al., 1948). We come up with this fact gained from interview data: when intercourse was stopped, it was at median age 68 for men and 60 for women. Women ceased having sexual intercourse nearly a decade earlier than men. The reason for stopping was attributed most often to a lack of interest on the man's part or to his demise (Pfeiffer, et al., 1968).

There are several reasons for the loss of responsiveness in males, and one of them is especially important psychologically: fear of failure. Masters and Johnson (1966) point out that, when aging men express a lack of interest in sexual performance or when they seek sexual stimulation extraneous to the marriage, their wives are often left without insight into their husbands' fear of performance. They may feel personally rejected by the withdrawal

from marital sexual activity. If understanding is present, the wives fear to push the reluctant aging male because of the possibility of recurrent episodes of erective failure. In any event, sexual separation takes over the marriage. It seem that when the aging male is not stimulated over long periods of time, his responsiveness may be lost. There is every reason to believe, however, that maintained regularity of sexual expression, coupled with adequate physical well-being and healthy mental orientation to the aging process, will combine to provide a sexually stimulative climate within a marriage (Masters and Johnson, 1966).

PSYCHOPATHOLOGY - For older people, the decrease in sexuality is part of an over-all physiological decrease. When physiological degeneration is severe, senile psychoses may develop. Most often, fortunately, the disturbances in old age are much less severe. Disturbances also result from a loss of social roles -- work roles, roles of mother, or of spouse when the mate dies. When this happens, there is need to search for new roles. This is a difficult process, requiring much energy and ability. The search for new roles is made more difficult, very often, by increasingly poor health.

People respond in varying ways to poor health. While the majority respond in a manner suitable to the condition, some people respond to their increasing health problems by complaining unduly and becoming hypochrondriacal. They visit the doctor more often than necessary and even become nuisances. Paradoxically, some people respond to their increasingly poor health by a denial of it. Medical care is resisted despite clear indices of negative changes.

DEATH AND DYING - The combination of poor health and depressive states seems to underlie the increase in suicide rates with increasing age. For some reason, the increasing suicide rate with age is true for white males but not females nor non-white males (U.S.P.H.S. report, 1967). To age 70, the suicide rate increases steeply in almost linear fashion for white men. After 70, it increases at even a faster rate.

Most deaths, of course, are not suicides and are of more natural causes. Studying death is relatively new to psychologists. Three kinds of death have been defined: biological death, psychological death, and social death (Kalish, 1966). Biological death used to be easy to define, but now there are so many ways to sustain life that the definition is not at all easy. Psychological death is usually defined as occurring when the individual loses awareness of his environment. Legally, there is no question that there is organ function; completion of the death certificate is forestalled. Yet the person, so to speak, gives absolutely no indication of his continued existence.

We may say a person is socially dead when those behaviors which we normally

expect to be directed toward a living person are absent. A person is socially dead when he is treated as if he were nonexistent (Kastenbaum, 1969). Decisions affecting him are made for him as if he were not present. His affairs are arranged by others without consulting him. This kind of death often occurs when the older person is admitted to a nursing home or long-term facility.

Most of the research about death and dying centers around two areas. The first is concerned with fear of death. Why are people afraid of dying? What kind of people have this fear? How does it develop? The other area has to do with the management of the dying patient (Glaser and Strauss, 1965). Characteristically, people are unwilling to talk openly about the process of dying. People are prone to avoid, certainly to delay, telling a patient that his end is near. This appears to be as true for nurses and physicians as for anyone else. But, is it really proper or ethical to deny a dying person the opportunity to make his peace? To deny him the opportunity to settle his affairs? To provide for the future of his family? Practical medical and nursing training should involve matters of how to approach the subject of dying, not only with the patient but with his wife, children, and parents.

These, then, are some of the behavioral aspects in the study of aging. There is deficit function, but we are not totally without some ability to help. We certainly have great ability to investigate; it is here, in this realm, where hope for the future lies.

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B. Richard Bugelski

Perhaps we have some brighter notes to strike than implied by Dr. Botwinick's view of the aging process. Dr. Josephine Flaherty is going to start striking in just a moment. She is going to talk about the varieties of intelligence, cultural and environmental effects on intelligence scores and something that I think of as a major significance and importance for us to consider which is more or less a new term - transferability. In fact, in one part of her paper she refers to, transferability ability, which might make a large mouthful, but I think it is a significant topic.

TOWARD THE ASSESSMENT OF ADULT LEARNING ABILITY

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The purpose of this paper is to look at the problem of assessing learning ability in adults, to review briefly some thinking on human learning and ability and to consider the implications of this for adult education.

Of critical importance to the average adult today is his capacity or ability to learn. Since new skills and techniques are being developed constantly, business, industry and the professions cannot rely simply on an affirmative response to the question, "Does X possess the necessary skills to do the job?" Rather, the concern is whether X can acquire the necessary skills - that is, can he learn new things, now and in the future.

It is a fact of life that estimates or indices of an individual's learning ability will determine to a great extent the opportunities which are available to him. If optimum use is to be made of human resources, estimates of human ability must be valid and accurate and the decisions based on them must be sound.

Judgements about human beings are made in a variety of ways; they may be based on data as fleeting as what an employer, a teacher or a co-worker "thinks of" a person, or as specific as a numerical score on a test or an "I.Q." rating. A common method of assessing learning capacity and hence of judging whether an individual should be admitted to a learning or educational programme is to use a measure of achievement at some previous educational level or the successful completion of a prerequisite learning programme as the criterion.

To the extent that current school curriculum is standardized throughout the province or country, the educational experience of school children can be considered to be homogeneous. To the extent that there is equality of educational opportunity for children throughout the country, and given the homogeneity of educational experience mentioned above, there can be expectation that school achievement will be reasonably consonant with learning ability. Hence, the use of previous school achievement as a criterion for admission to higher levels of education for children within the formal school system has some justification.

For adults seeking further or continuing education, however, the problem is more complex. In most adult groups, individuals differ considerably in age, duration and type of schooling, number of years since formal schooling took place and post-school employment and life experience. Educational opportunities are likely to have been determined by many important factors in addition to previous school achievement.

Most adults have been out of school for some time and there is no satisfactory method of comparing their previous educational experience with that of recent high school graduates. Furthermore, adults may have acquired skills and abilities and motives which have more relevance for successful learning than has recent school experience. This speculation is supported by the observation that "unqualified adults" (i.e. those who do not possess the usual educational requirements) have been admitted to and successful in educational programmes such as university degree courses.

Since past records are of somewhat questionable value, it has been assumed by some workers that the best method of assessing an adult's capacity for learning is to administer some sort of learning ability or intelligence test. In spite of the not uncommon statement that intelligence tests do <u>not</u> predict ability to learn, the evidence that they <u>do</u> continues to accumulate. Indeed, many such tests have been re-named and are now referred to as learning ability or academic aptitude tests.

In recent years, both the concept of intelligence and the use of the "I.Q." have been under serious attack (Liverant, 1960: Sorensen, 1963; Yourman, 1964).

Even those authors who have defended the use of intelligence tests in the schools (Hughson, 1964; Gilbert, 1966) concede that there are problems related to this use, particularly with culturally disadvantaged children. The issue is compounded by lack of unanimity about the meaning of the concept of intelligence, the constancy of the "I.Q.", the effect of cultural background on intelligence test performance and the function of non-intellective factors on so-called "intelligent behaviour."

Sorensen (1963) notes that "...most college professors, teachers, parents, pupils and indeed many school counsellors still regard intelligence tests as measures of some innate, constant and general, if illusive, intellectual capacities, the limits of which are determined by heredity." He goes on to suggest that such erroneous beliefs about the limitations of the human organism have led teachers to "give up trying" to teach certain pupils whose intelligence test scores indicate (to these teachers) that the pupils are incapable of learning. Thus pupils are deprived of a bonafide educational opportunity (Mustico, 1968).

The implications for adults are even more serious. Many adults cannot provide proof of successful past learning. That their failure to obtain high scores on so-called intelligence or learning capacity tests may exclude them entirely from educational programmes is particularly alarming in view of the fact that test scores do not reflect whether the person tested is incapable of acquiring the necessary skills to do well on the test or whether he simply has not had the opportunity to acquire such skills, Hence, it seems particularly important that the nature of human learning and human ability be explored and understood as fully as possible.

Contrary to some of the early beliefs, it has been established that adults can and do learn. The next questions relate to how they learn, under what circumstances learning takes place and what factors influence the amount and type of learning. Although much has been said and written about human learning and ability, relatively few theorists have attempted to bring together, within a single conceptual framework, the study of human learning and the study of human ability.

Most students of learning would agree that almost all human behaviour is learned and that learning results in a relatively permanent change of behaviour which is the result of practice or repetition. Bruner (1960) suggests that learning involves three almost simultaneous processes - first, the acquisition of new information which often runs counter to or is a replacement for what the person has already known implicitly. The second process involves the transformation or manipulation of the new information to make it fit new tasks. The final process is evaluation or checking on whether the manipulation of the knowledge has been appropriate. Hence, all but per-

haps the earliest learning takes place within the context of experience and the ease or rate of learning depends on the ease with which new information becomes integrated in an individual's experimental framework.

"Human ability" can be defined operationally by the performance of an individual in a specific situation. Thus L.L. Thurstone (1947) speaks of an ability as a "trait which is defined by what an individual can do" and states further that "there are as many abilities as there are enumerable things that individuals can do."

Ferguson (1954) brings learning and ability together when he refers to learning as "changes, with repetition, in ability to perform a specified task, the changes being regarded as functionally dependent on, or in part assignable to, repetition." He thinks of conventional learning curves as "descriptions of changes in ability with repetition." Since adult "abilities" are relatively stable, they may be thought of as levels of performance, attained with repetition, beyond which no further improvement is observed. This concept of abilities can be applied to all attributes in Thurstones' classification and to whatever is subsumed under the term intelligence. Hence, differences in human abilities represent individual differences in what has been learned. (Ferguson, 1954; Hebb, 1949).

McGeoch and Irion (1952) suggest that the solution of problems by reasoning and "insight" are, to a great extent, a function of transfer. They note also that the original and creative person possesses unusual sensitivity to the applicability of the already known to new problem situations. Ferguson (1954) postulates that in adult learning situations, the most important variables exerting transfer effects on subsequent learning are the abilities - "the prior acquisitions that have attained their limits of performance." The validation of tests against training criteria bears this out. What is not known, however, is which prior learned acquisitions or abilities transfer to which learning, and how and under what conditions. It is alarming, therefore, that so many of the important decisions about an individual's "capacity to learn" are made on the basis of apparently unwarranted assumptions that specific abilities are required before learning will take place.

If "abilities" represent performance at crude limits of learning, then the development of abilities depends upon the "biological propensities" (Ferguson, 1954) of the individual (which define the limits of his learning) as well as upon his environment or cultural background (which prescribes what shall be learned and at what age). It is obvious that individuals reared in different cultures will develop different patterns of ability. Since individuals with differing backgrounds have shown themselves capable of learning similar new tasks with equal facility, it follows that different ability patterns can transfer to the same learning tasks. This is further

evidence that assumptions about specific abilities being required for certain learning situations may be unsound. Hence, adult educators who are concerned with assessments of adult learning ability and who define admission criteria should exercise caution.

The theory of crystallized and fluid intelligence, proposed by Cattell (1963) and refined by Horn and Cattell (1966) has interesting implications for adult educators. This theory raises questions about the existence of a unitary structure called general intelligence and about the wisdom and practicability of "splintering" the intellectual domain into a large number of abilities.

Basically, Horn and Cattell postulate that the primary ability factors of Thurstone, Guilford and others, which are called intelligence, can be organized at a general level into two principal dimensions. These are: (a) Fluid intelligence which is the result of the influence of biological factors on intellectual development, that is, heredity, injury to the central nervous system or basic sensory structures, and so forth; and (b) Crystallized intelligence which is the result of experience, education and cultural background.

Each of these dimensions has a profound influence upon the development of an individual's "abilities". The fluid dimension appears to determine how well an individual will perform in novel situations to which he cannot react on the basis of previous experience in a highly similar situation. Hence, fluid intelligence determines the extent to which a person can "transfer" his past experience to new situations. Crystallized intelligence reflects the extent to which an individual has mastered the skills and knowledge of his culture, that is, his store of proven "aids" to problem-solving. These "aids" may be thought of as roughly comparable to Ferguson's "abilities" which have attained their limits of performance.

The theory suggests that an individual solves a problem (or learns) by one of two methods: either he uses his fluid intelligence for reasoning, concept formation, perception and education of relations, or he calls upon his store of "aids" to problem-solving (abilities) and applies these directly. It is highly unlikely that learning or problem-solving is accomplished by either of these methods alone; rather, an individual probably uses a combination of the two methods in order to arrive at a solution in the most economical (in terms of energy) way. Generally, one would tend to call upon his store of "abilities" or ready-made solution instruments, and when these fail, he would exercise his fluid intelligence. Thus, limits on learning or problem-solving are set by an individual's level of fluid and crystallized intelligence. The relative importance of the two factors in any learning situation will depend on the nature of the situation (i.e., how novel it is) and the learner's experiential background (in Ferguson's terms, his ability pattern).

Philip Vernon (1950), in describing his hierarchical group -- factor theory, identified, in addition to the general ability factor g, certain more specific types of ability. He observed that after the effects of g have been removed, tests tend to fall into two groups which he called the verbal - numberical - educational factor (referred to as v:ed) and the practical - spatial - physical factor (referred to as k:m). With sufficiently detailed analyses, these two factors in turn could be subdivided to yield minor group factors. This suggests a hierarchical property of mental structure.

Humphreys (1967) compared the Cattell fluid and crystallized factors with Vernon's k:m and v:ed factors and challenged Cattell's interpretation of his two factors as general. His conclusion that the Cattell fluid factor is analogous to the Vernon k:m and the Cattell crystallized factor to the Vernon v:ed is consistent with a subsequent investigation (Flaherty, 1968) which failed to provide evidence to distinguish the Cattell-Horn theory of fluid and crystallized intellectual factors from Vernon's hierarchical model of abilities.

Certainly the learning of any task is neither a simple nor a unitary process; the type of learning required in most situations is highly complex and involves many of the specific abilities described by theorists of the Thurstone-Guilford school of thought. Prediction of learning capacity in terms of specific ability factors thus becomes difficult and cumbersome.

Since broad factors of the type proposed by Cattell subsume the specific factors, they are likely to include a more adequate sampling of the abilities involved in complex learning situations than do the narrower, more specific ability factors. Hence, if broader factors can be identified, they may be potentially more useful predictors of learning capacity than are the narrower factors.

Mustico (1968) assumes that the major determinant of learning ability or rate of learning is the amount of previous achievement that is relevant to a new learning task. Thus, the more specific a test is to a learning situation, the more accurately the test will predict that learning situation. To the extent, however, that a test fails to measure relevant prior learning, the test scores will bear no consistent relationship to ability for future learning. This explains in part why traditional intelligence tests which have a high "educational loading" have been found more useful for academic prediction than for prediction of certain other types of learning.

Mustico suggests that the amount of "meaningfulness" which an individual attaches to new material to be learned is an index of relevant past achievement and hence should be predictive of ability to learn. "Meaningfulness"

seems to indicate the extent to which a person perceives his past experience to be "relevant" to the new situation and hence "transfers" it to the new situation.

Essentially, the theorists seem to agree that learning results in a relatively permanent change of behaviour, that it takes place within the context of experience and that ease or rate of learning depends on the ease with which new information is integrated by the learner.

If it can be agreed further that:

-differences in human abilitites represent individual differences in which has been learned;

-what is learned depends on both a person's "biological propensities" (which define the limits of his learning) and his environment and culture (which prescribe what shall be learned when);

-individuals with different backgrounds may be able to learn similar new tasks with equal facility;

-the solution of problems (learning) by reasoning and insight is, to a great extent, a function of transfer;

it seems reasonable to suggest that capacity to learn depends not only upon the nature of past experience, but also upon an individual's ability to perceive his experience as relevant to new problems and situations.

Such ability, which might be called "cognitive flexibility" or "transferability" (Sullivan, 1964), seems to be what distinguishes the bright from the dull, i.e., what distinguishes the person who is able to learn from the one who is less able to learn.

What are the practical implications of this for adult education? Adult educators are and will continue to be involved in the selection of candidates for learning programmes and with helping these selected candidates make the best use of their learning opportunities. It is thought that success in learning is the result of some combination of cognitive factors (such as those measured by traditional intelligence and scholastic aptitude tests) and non-cognitive factors (which include traits such as motivation, interests, attitudes, goals, values, and so forth). The latter group of traits are thought to stimulate an individual to make use of his cognitive abilities for the purpose of achieving something. An attempt has been made here to develop a theoretical rationale for understanding cognitive factors.

It is known that individuals reared in different environments develop different patterns of ability. It is suggested that different ability patterns may be transferred equally well to the same new situations, and hence that no specific pattern of abilities is necessarily required for learning to take place. In the absence of empirical evidence that specific prerequisites are essential for learning of specific tasks, there is danger in prescribing that candidates for learning programmes shall demonstrate that they possess specific abilities. Even measures of past achievements or ability patterns which have demonstrated relevance for future learning fail to identify whether the candidate (1) is not capable of mastering the abilities measured by the test; (2) has never had the opportunity to master the abilities measured by the test; or (3) possesses an alternate set of abilities which are equally effective in the facilitation of his future learning.

If an ability such as transferability can be identified and measured, it could form the basis for assessment of learning capacity which is less influenced than are traditional cognitive measures by the accidental inequalities of educational opportunity; such assessment would look forward to the potential performance of the learner rather than backward to past opportunities.

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B. Richard Bugelski

Dr. Monge is going to draw on his studies and talk about Age Differences in the Capabilities Adults Bring to the Classroom.

AGE DIFFERENCES IN THE CAPABILITIES ADULTS BRING TO THE CLASSROOM*

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A major aim of education, and particularly of education in the liberal arts and sciences, is to increase the number of options from which the student may make choices in pursuing his life's goals. It is particularly important in a rapidly changing world for an individual to have a wide variety of basic skills and knowledge than can be mobilized to meet new challenges. The fundamental skill of greatest adaptive value, of course, is the ability to acquire new knowledge, or knowing how to learn. Technically, this is referred to as the possession of appropriate "learning sets."

For many individuals the experiences of everyday living tend to become increasingly canalized. As Kuhlen (1964) noted, people tend to build comfortable niches in life, niches defined by the webs of mutual commitments with other people who occupy important roles vis-a-vis the individual. These mutual commitments serve to satisfy the individual's needs and to protect him from threat and anxiety but, as earlier noted, they also tend to canalize his energies, interests, and activities. Many of the skills and

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knowledge acquired in the course of formal schooling decay with disuse, while skills and knowledge pertinent to current activities increase and stabilize. The ability to adapt to new situations or to alterations in familiar situations of long standing tends to be reduced. It is clear that long-term planning is required if the individual is to maintain an optimal balance throughout life between the security provided by the niche and the flexibility required to meet and adapt to threats posed by sudden changes in the social and physical environment.

Education can help to prepare an individual for meeting many of the challenges posed by changes in life circumstances, both directly in the provision and maintenance of knowledge and skills specific to the meeting of crises, and indirectly through the building of a broad and sound foundation of general knowledge and adaptive capacities. Education in this context includes not only the formal, institutionalized education for the young, but also life-long continuing education. It is appropriate, therefore, to inquire into the status of people of different ages in areas of general knowledge, their specific skills in subject matter areas that could be designated tools of learning, and on personality variables that are pedagogically relevant.

Starting in 1966 the late Professor Raymond G. Kuhlen and the authors began at Syracuse University a five-and-one-half year project with the support of the U.S. Office of Education that involved the determination of adult age differences in a variety of abilities and personal characteristics of presumed importance to learning at different adult ages. In addition to the data reported here, the project also included a program of experimental studies, discussion of which is not included here.

Sample

Intact groups of adults in social, church, PTA, other local organizations and industrial establishments were obtained in central New York, with an added elderly sample from Dade County, Florida. These settings select from a wide sample of ages, and probably with minimal bias with respect to various age groups. The subjects were recruited by offering to pay the treasury of the organization a per capita fee for obtaining at least 80 per cent of their active membership as participants.

At least 100 males and 100 females in each of the age decades from the twenties through the seventies participated in this study.

Adult Age Differences in General Knowledge

Tests. -- A set of twenty-eight paper and pencil tests was devised aimed specifically at discerning differential age trends among adults. The

most promising of these were refined and used to collect the basic data reported here. The tests were all five-alternative, multiple-choice tests.

Results. -- One of the major factors in interpreting data related to age has been the fact that not only are there different cultural and environmental situations over any one life span but also the amount of education acquired by people of different ages varies systematically and drastically. Since education is such an important factor in dealing with data from the kinds of instruments used, raw scores adjusted for education by covariance are presented.

1) Form D-2 was a general vocabulary test. Little sex difference was noted on the mean education-adjusted scores. For males, performance increased from the 20's to a peak in the 60's and declined slightly in the 70's. Performance increased from the 20's to the 50's and remained stable through the 70's for the females.

2) Form TR-2 concerned modes of transportation used over the past 75 years or so. The curves for the two sexes were essentially parallel. Performance increased from the 20's to a peak in the 50's and declined slightly thereafter.

3) Form DD-2 contained items on death and disease. Females, on the average, scored considerably better at all ages than did males. Males increased from the 20's to the 70's, while females increased from the 20's to a peak in the 50's and declined thereafter.

4) Form SL-2 tested knowledge of slang used at various times over the past 70 years. Males increased from the 20's to the peak in the 60's, but the 70's scored quite a bit worse than the 20's. Females increased from the 20's to the 40's, with a consistent downward trend thereafter.

5) Form FI-2 concerned financial matters including investment, wills and estates, and installment buying. Adjusted means for both sexes were together and increased from the 20's to a plateau for the 30's and older.

Summary. -- If these five tests can be taken as samples of the domain of general knowledge, then it may be concluded that older adults have a greater fund of general knowledge than do younger adults, at least through the normal working years. These data support the notion of a cumulative model, with age increasing the fund of experience and knowledge upon which

the individual can draw. It is not clear why this model generally breaks down in the age decade of the 70's. Examination of the raw scores, which generally paralleled the scores adjusted for covariance with educational level, indicated that the declines noted in the 70's were not an artifact of the adjustment process.

Adult Age Differences in Educational Skills

As a means of assessing the "tools of learning" possessed by adults of different ages the try-out form (Form T-1) of the Adult Basic Learning Examination (ABLE), Level III,* was administered to the sample.

Results. -- The trend of mean scores adjusted for covariance with educational level with age are reported here, as in the previous section.

1) Spelling. Females were superior to males at every age. There was little variation among females as a function of age. Males dropped from the 20's to the 30's, increased to the 40's, 50's, and 60's, with a decline to the 70's.

2) Reading comprehension. Except in the decade of the 20's, males were superior to females in adjusted mean scores in every decade. Females declined continuously from the 20's to the 70's and, except for a rise from the 20's to the 30's, the males also declined across the age span.

3) Reading retention. This was a subpart of the reading test that involved reading of a simulated newspaper for a predetermined interval and then answering questions about what had been read without referring back to the material read. The sexes were about equal in the 20's and 30's, and then diverged. The males improved slightly to the 60's and declined slightly to the 70's. The females declined from the 20's to the 50's, and remained at about that level through the 70's.

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*See Bjorn Karlsen, Richard Madden, and Eric F. Gardner, Manual for Adult Basic Learning Examination (New York: Harcourt, Brace, and Jovanovich, 1967) for details about the development and characteristics of ABLE.

4) Arithmetic computation. Males were superior to females in every decade, with the difference decreasing with age to near equality in the 70's. There was a general and significant decline with age in performance in both sexes.

5) Arithmetic problem solving. Males scored higher than females in every decade, and both sexes declined significantly across the age range.

Summary. -- With the exception of the scores on the reading retention test, which changed little, and on the spelling test, which changed little for females and was irregular for males, the general picture is one of poorer performance in these basic educational skills on the part of the older persons. The disuse model would appear to be appropriate to describe this trend, i.e. the farther an individual is in time from his early formal schooling, the poorer his performance on school-learned skills in the absence of specific practice.

Adult Age Differences in Learning Orientation

The extent to which adults of different ages were positively oriented toward the seeking of new educational experiences (whether these be in a voluntarily selected course in continuing education or in retraining programs necessitated by change of work) or the degree to which they react negatively to such learning opportunities because of uncertainty or apprehension may, in a practical sense, be of even greater importance than the abilities or the backgrounds they bring to such tasks. They may, in fact, avoid such situations. But even when involved in a learning program, the level of an individual's performance will likely be determined to no small degree by the extent to which he is "achievement oriented" or threatened by the situation in which he finds himself.

It was necessary in this phase of the study to obtain information regarding four types of characteristics: 1) motivation for learning and achievement, 2) learning apprehension or anxiety, 3) personal rigidity, and 4) cognitive "style of life." A variety of tests was used.

Results. -- A 2 (Sexes) X 6 (Age Decades) unweighted means analysis of variance was conducted on each measure with the following results:

1) Demand for achievement. Only the age effect was significant. After a drop from the 20's to the 30's, there was a general increase in score across the remainder of the age range indicating that the older adults felt a greater need to achieve.

2) Learning apprehension or anxiety. There was a significant sex difference on three general anxiety measures, with females rating themselves higher than males on all scales at all ages. There was no straightforward relationship found between age and anxiety. A "situational anxiety" scale was also administered to see if anxiety generalized across situations with increasing age. In neither sex was it systematically related in a simple way to anxiety level. The sex difference was significant, with females showing less generalization of anxiety across situations than males.

3) Personal rigidity. There was a remarkable increase in scores with age on the short form of Rokeach's dogmatism scale (Troldahl and Powell, 1965). Females were lower than males at earlier ages (20's, 30's, and 40's), but were higher in dogmatism than males in the later years (50's, 60's, and 70's). The overall sex effect was not significant, but both the age effect and the interaction were significant.

4) Cognitive "style of life" was measured by calculating an "extent of educational participation" score, derived from Ann Litchfield's (1965) Leisure Activity Survey. The results suggested that men vary more from decade-to-decade in the degree to which they participate than women do, that participation for both sexes is higher among people in the 20's and in the 60's than in the other decades, and that better educated people participate more, and more consistently across the age span from 20-79, than do people with less education.

Summary

Examination of these analyses and of other analyses not detailed here leads to several suggestions. First, with respect to the various measures of anxiety, it does not appear that age is related in any simple way to either the level or the generality across situations of "anxiety" as measured by the several approaches used here. There is, on the other hand, ample evidence that the female participants rated themselves higher in every decade on every anxiety measure than did the males. These observations are strengthened by the data provided by a factor analysis, which indicated that the anxiety measures cluster together, that they are positively associated with being female, and that they are independent of age (as well as of education, dogmatism, and vocabulary measures).

Second, dogmatism (or closed-mindedness, rigidity, intolerance of ambiguity, etc.) is positively related to age and negatively of education. An additional analysis led to the conclusion that the lower educational level of the older individual does not appear to be the primary explanation of the positive relationship between age and dogmatism. It was also noted that dogmatism was separated in the factor analysis from the anxiety measures. The correlations of dogmatism with the several anxiety scales were calculated. The highest of these several correlations (+0.18) accounted for only 3.2 per cent of the common variance with the dogmatism score.

Thus, Kuhlen's (1964) explanation of the increasing trend with age in dogmatism or rigidity in terms of increasing anxiety seems not to have been supported by these data. And it cannot be too plausibly argued that dogmatism and axiety should not co-exist if the former is supposed to be a way of controlling the latter, since Rokeach (1960) finds highly significant correlations between dogmatism and anxiety in seven different samples. However, Kuhlen's hypothesis about the increasing generality of anxiety across situations with age fares somewhat better. There was in both sexes (but moreso in the females) a decline in the variance among the ten situations with age, though it was not significant. The downward trend was consistent and regular except for a slight elevation among males in the 50-59 age decade. This should encourage further examination of Kuhlen's hypothesis. One possible explanation for the increase with age in rigidity or dogmatism is that ready-made, stereotyped responses are energy-conserving. Little or no thought is required, and there is little wasted action. And, more often than not, such responses are adaptive. They have, after all, been learned through oft-repeated experience and in a variety of circumstances through a long life. Some of the older subjects in this study, for example, betrayed something of this in their arguments with the proctors over how to treat the situational anxiety test. Two of the situations were stated thus: "You've received a notice from your bank that an important check has bounced," and "The check-out clerk at the supermarket has just rung up a large bill for you, and you find you don't have enough money." Many of the older people assured us that they would never let such things occur, and how in the world could they imagine how they might feel in such a situation? This unwillingness to experience, even vicariously, might certainly be construed as rigid behavior --but it is also symptomatic of an unremitting caution in important matters that has been translated into an iron-clad routine to avoid both trouble and the expenditure of energy that would be required to put things right.

General Discussion

The need for viewing education as a life-long process aimed at the keeping open of options, or the maintaining of adaptive capacity, should be obvious. The data presented here, though limited in scope and from a limited sample,

tend to suggest three things, First, the fund of general knowledge held by adults tends to be greater for older people, indicating that a broader base exists for them upon which to build any educational program. Second, some of the basic educational skills (reading comprehension and arithmetic manipulations) possessed by older people are not as polished as those of younger adults, suggesting that some review and refurbishing of these skills may need to be done in educational programs. Finally, the personality data suggest that older people, especially women, may feel more pressure in the learning context, and that they have a considerably more dogmatic, less flexible outlook on life than younger people. Whether this implies that older people are significantly less open to new ideas or new approaches to problems cannot be stated with assurance; nevertheless, this information should be an important element in consideration of the design of educational programs.

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B. Richard Bugelski

Dr. Baltes is going to talk about the myth of intellectual decline, which is somewhat a challenge to the earlier remarks of Dr. Botwinick. He is going to tell us about an experimental effort to -- what should I say -- control, manipulate, or alter the behavior of older people.

INTELLECTUAL DECREMENT IN ADVANCED AGE: A MYTH?

Dr. Paul B. Baltes
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I am going to present to you a case history in a specific scientific area to illustrate to you that there is a widely heard negative view about the aging process. This is a primary reason why you are forced to listen to data that presents to you decrements as they occur presumably throughout life and old age. One primary reason is that you live in a culture which treats aging in a negative way; in turn, most of the research is oriented to comparing the aged population with criteria that has been developed primarily for populations that are much younger.

Very simply, we are comparing apples and bananas, and I am trying to present this case history to you simply to work on modifying the stereotype that people have about aging. My own scientific position is a much more cautious one.

Let me tell you a story first to illustrate the problem that I see, not only for society, but also for the scientist who faces the problem in his studies. The story is told by Jim Peterson, a clinical psychologist in the Gerontological Center at the University of Southern California. Some of you may know him. As a consultant for a community of retired persons he often was called in when there were minor crisis situations with which to deal.

One day he was called into session at the common request of the community

because of a minor crisis. The crisis was created by a 74 year old woman who was still very active -- her neighbors noting that she had frequent visitors of a male type! (It is probably necessary in a fairly deprived environment where most families live, that you need quite a few rumors to keep up the level of stimulation, and so very soon there were quite a few rumors floating around about what was happening.) (Laughter)

Indeed, a keen observer, one evening, saw a male person half-naked, leave that house and run away.

That was the situation which Jim Peterson faced. He began consulting with people in the community about the problem. After some thinking, he came up with a solution which I personally liked. He suggested that this elderly woman should buy a bicycle, and he presented that solution to the community and referred to a number of very intriguing theories which related to the reduction of energy into other activities. Naturally, everybody assumed that this was a very perfect solution.

Indeed, she started bicycling about the community, and after some time most people were happy. However, some very keen observers later witnessed the elderly woman bicycling about the community, spending quite a bit of time parking her bicycle in front of a number of apartments. (Laughter)

Now, obviously, this is a situation where our society has a very deep preconception about the aging process -- a number of things are very undesirable for the aging person to engage in, and sexuality apparently is one of them!

Now what is the relevance of this to my own topic, the development of intelligence? I believe that for the most part cognitive functioning is a highly undesirable feature for the aged person in some societies, including this one. Moreover we -- even as behavioral scientists -- have not spent enough time investigating the potentials of the aged person.

The last years have witnessed a rapidly growing concern for advancing our knowledge about behavior changes in adulthood and old age and a number of articles on gerontological psychology (sometimes also labelled as psychogerontology or geropsychology) have recently appeared in Psychology Today. The proportion of elderly people is continuously increasing in our population and this group is now demanding a voice in the cultural and political forum of our society. Behavioral scientists consequently are beginning to recognize that gerontological psychology offers a rich field for theoretical discourse and the development of knowledge which may find ready application.

In the spring of 1973 an APA-sponsored volume appeared on The Psychology

of Adult Development and Aging. This volume, edited by Carl Eisdorfer of the University of Washington and M. Powell Lawton of the Philadelphia Geriatric Center, contains numerous review chapters on the state of knowledge in geropsychology prepared by members of an APA Task Force. The recommendations to the 1971 White House Conference on Aging, which are summarized in the introductory chapter to that volume, point not only to the rising significance of gerontological issues, but especially to the need for correcting widely held stereotypes about certain negative and detrimental features of the aging process.

Intellectual performance is perhaps the classic case to illustrate both theoretical advances in psychogerontology and the discrepancy between scientific evidence and misconceptions about the aging process shared by both the general public and most peer scientists. By and large, it is believed that intelligence during advanced adulthood and old age shows a continuous decline. This belief appears to be based upon numerous cross-sectional studies and everyday experience as support for this "immediate" insight into the deficiency of the elderly.

Over the last ten years, the authors, together with present or former immediate colleagues (e.g., Gisela V. Labouvie, University of Wisconsin; William F. Hoyer, Syracuse University; John R. Nesselroade, Pennsylvania State University) and other gerontologists (e.g., Klaus and Ruth Riegel from the University of Michigan) have worked on gaining a better understanding of intelligence in adulthood and old age. Using both long-term longitudinal and short-term experimental designs, we believe that we have gathered information challenging the stereotyped view that intelligence declines in old age and hope to provide for a more optimistic and flexible view of intelligence in old age.

Dr. Knowles, I think, in his presentation this afternoon, made the point that one of the major deficiencies of cross-sectional studies in which one compares 20, 30, 40 year olds at the same point in time, perhaps in 1970, heeds that the people come from different generations. The 50 years olds were born in 1920, the 40 year olds in 1930, the 30 year olds in 1940 and etcetera. Therefore, if these age groups are compared you arrive at age difference, but not at age changes. In other words the differences between these two, or between the various groups, may be due to the fact that they were exposed to a different cultural context --- that differences may not be due to age solely.

As longitudinal data (where one observes the same subjects over time) and better intelligence batteries become available, serious doubts are being raised about the generality of cross-sectional age decrements. First the early longitudinal data by Bayley and Owens, for example, suggested that intelligence during maturity and old age may not decline as early as initially shown by cross-

sectional data. Those early longitudinal studies, however, exhibited many design deficiencies. Second, even in cross-sectional studies evidence accumulated (particularly when Cattell and Horn's fluid and crystallized intelligence dimensions were contrasted, see earlier PT issue) showing that various intellectual measures show differential amounts of decline. Vocabulary measures or indicators of crystallized intelligence (largely reflecting educational input), for example, appeared to maintain their level of adult functioning into the sixth and perhaps even seventh decade of life.

Obviously this thinking becomes very contrary to our common stereotype. Personally, I think, there are many interpretations of the outcome. One interpretation, at least, which can be advanced, is that the basic data we are familiar with in the area of cognitive functioning so far may have confounded cultural change with ontogenetic change. The major variance in the decrement functions which you typically see are due to the fact that the older generation has been exposed in an earlier time to a worse educational context and, therefore, started out at a lower level to begin with.

It was in the fifties when Warner Schaie launched a significant, major longitudinal study that was aimed at clarifying these questions. Later methodological advances (i.e., the formulation of sequential strategies which consist of series of longitudinal and cross-sectional designs) assisted in the continued design refinement of this project.

I have been involved in a number of operant training studies, using operant reinforcement principles, wherein we focused upon the dependent variable, which for the most part have been associated with biological decrement, slowing its cause response speed. In the aging world response speed is associated with some idea about neurophysiological decrement in the artery. There are some exceptions to this, but in spite of those exceptions it very clearly says that. Therefore, we focused on response speed and we began training elderly people to increase their response speed, driving speed, cancellation speed marking speed - all those performance components which are typically important when you take an intelligence test.

After two one-hour training sessions, we were able to reduce or if you want to say increase response speed in the elderly (these women were of age sixty five to eighty) by approximately thirty per cent. Additionally, we completed a study in which we had five and eight training sessions; the improvement in response speed, presumably a largely biologically monitored behavior, was substantial. We have given these people intelligence tests, using appropriate control groups. We found a very regular improvement in intellectual performance, subsequent to such relatively brief periods of training.

Now, I don't want to be interpreted as overgeneralizing data that I have helped

develop, and I caution you to be very careful when you listen to me in that regard. However, one thing which clearly striking to me, is the fact that there is hard-nosed experimental data, just recently accumulated in the area of psychometric intelligence which point to the possibility that there is an increase in performance in the elderly.

This conclusion is indeed a refreshing one, especially since it runs counter the prevalent societal and scientific trend in the field that is dominated by an unfortunate and rigid belief in biological decrement notions of the aging process. As a corrollary, we believe that such "positive" data about geropsychology are apt to generate a new look at the potential of elderly people.

Although not directly correlated with research conducted by us, there are a number of other questions worked on during the same time period that contributed to a reassessment of gerontological intelligence. Two of them are particularly pertinent in the present context.

Klaus and Ruth Riegel from the University of Michigan, based on and correlated with earlier proposals by the late Robert Kleemeier and others such as Lissy Jarvik, the current President of APA's Division 20 on Adult Development and Aging, in a 1972 article entitled "Development, Drop, and Death" advanced the notion of a terminal drop theory. This proposition states that adult psychological functions may well maintain their level until a few years before natural death, when differential and rapid performance drop occurs. Such a view, then, delegates whatever intellectual decline may occur to a relatively short period before death.

Furthermore, in line with a tradition stimulated by Sidney L. Pressey (the first President of APA's Division 20, who now lives as an octogenarian in a home for the elderly and continues to make occasional but insightful contributions to the field), it became increasingly recognized that the domain of intelligence and its associated measurement instruments was primarily defined in youth and early adulthood criteria. In fact, pilot studies by Rolf Monge and others at Syracuse University suggest that the potential wisdom of the aged may not be properly reflected in conventional intelligence tests which, therefore, put the older person at a disadvantage. Unfortunately, such developments have not yet resulted in the type of data that would allow for definite conclusions. However, a recently published study by Carol A. Furry and Paul B. Baltes, which was aimed at distinguishing between ability-extraneous performance variables and ability-specific components, was rather successful in showing that the general testing context in which intelligence tests are given is indeed of particular disadvantage to the older person. This work also proved that intellectual performance of the elderly is tremendously variable depending upon performance conditions (e.g., fatigue) which in the

young are rather insignificant.

In any case, however, the renewed concern with the lack of validity of intelligence tests for people of advanced age and the insight provided by the terminal drop theory were significant in redirecting the nature of inquiry from one that was rigidly fixed to decrement views.

Now, going back, since I guess I have to comment on some of the other decrement data that have been recorded, let me pick out one or two, to illustrate where I think research has gone wrong. Jack Botwinick, in his paper, mentioned to you data on auditory sensitivity. It is very clear, in the United States, for the most part - if you look at auditory sensitivity - that will you find a systematic decrement with regard to high frequency.

However, data from other cultural contexts indicate that is not the case at all. A famous study by Klaus in the United States, in which he compared people who were exposed to high and low noise environments, found that people who were exposed to lower noise environments showed such decrements much, much later. Additionally there is cross-cultural research involving African tribes in which this decrement, presumably in seventy year olds, was not found at all, because they were exposed throughout their lives to a very low noise environment.

What this points out to us is that whatever aging function we are presently familiar with is contaminated by the fact that we have very strong stereotypes about its appearance. It is contaminated by the fact that we are living in a society that brandmarks the aging population to be of a particular type, to show decrements, to not develop behavior patterns that have potentially high significance in terms of the adjustment of the elderly.

Imagine if we would turn the educational system around and focus as much on the second period of life as our society focuses on the first period of life. I have no doubt in my mind whatsoever, that for the most part, we would find increments in performance. All one must do is expose children to a worsening educational situation, and then subsequently to a progressively better one, and he finds an increment. What we have is clearly due to what we have programmed.

Now some cynics may say, "Well, our education gets worse and worse anyhow.." Well, I would predict then that in the future, if you design sound continuing education programs, you may be surprised by the tremendous increases that you find. Because in this case, it may be the new cohorts, the new generation, which shows a fairly low amount of initial performance to begin with.

My point here is that we should be very careful to talk about what aging

is really like. My scientific credo, in terms of adult development in aging, is that it can be anything, as long as you make it that way.

In our view the data summarized, especially our research on the import of generational differences and the effectiveness of operant treatments, are apt to shake the often rigidly held stereotypes about the negative changes in intellectual functions that accompany aging. In short, the view that gerontological intelligence is a declining phenomenon and that what goes up must come down is a myth. In general, at present the conclusion must be that the potential of gerontological intelligence is largely unexplored.

In the interest of rectifying the potential social injustices that typically result from brandmarking another segment of our population as deficient, we believe it imperative to continue, with vigor and optimism, the research avenues opened over the last few years. Similar to historical trends in such areas as the educational psychology of the disadvantaged, however, we will have to make sure that our research endeavors are guided by our belief in the potential of gerontological intelligence. In that case, there is all reason to assert that the aged indeed have a future.

We think that there are some lessons to be learned from this brief history of gerontological intelligence. For one, this history can be interpreted as offering support for the kind of cultural-historical view of gero-psychology offered, for example, by anthropologists such as Margaret Mead and by social psychologists such as Bernice Neugarten of the University of Chicago.

Contrary to a biological decrement view, such an approach states that the nature of the aging process should vary widely among different cultures and segments of society and that it is monitored by the structure of a given social ecology. This means that the socialization goals and mechanisms which shape the sequence of life epochs in a given society must be most powerful ingredients in designing what happens to people not only during childhood and adolescence, but surely also during adulthood and old age.

One of us (Schaie) has recently speculated on the assumptions one would have to make to create a society in which the deleterious aspects of aging would be removed. It turns out that these assumptions are fairly simple: They include the propositions that there is no significant psychological age decrement and that society's role functions and resources be assigned regardless of age. The data presented here on adult intelligence lend strong empirical support to the importance of such a sociological anthropological posture, though we do not intend to explain away the significance of gerontological biology or geriatrics. If we take cognizance of the vast spectrum of negative conditions, attributes, and expectations assigned by most Western societies to the aged person we cannot but acclaim the impressive

robustness that our elderly population exhibits in face of such adversity. At the same time, we can only be hopeful that societal change and gero-psychology find the directions soon that are apt to make life for future elderly cohorts a more enjoyable and effective one. Acknowledging the fact that gerontological intelligence is typically underestimated and that the stereotype of decline, largely a myth, is hopefully one small step in the right direction.

We were asked to comment on some of the implications for the higher education of adults. I am very naive in that regard, so those of you who are experts, please forgive me. I have two comments. One is an administrative one; the second one is substantive. At Pennsylvania State University we are very much concerned about the Continuing Education administrative structure residing outside the regular academic structure.

I really think it is important to reorganize Continuing Education in such a manner that it becomes an intrinsic part of the departments. I personally would very much like to see more funds being channeled into the academic departments so that it might become possible for a specific department to take an intervention viewpoint especially with regard to the second part of the life span.

However, the tendency among faculty has been to look at Continuing Education as an outsider; I see that as being a great disadvantage to the development of scholarship in Continuing Education. In my division we have recently made a strong attempt to maintain open discussion groups. Each faculty member is trying to explore how Continuing Education might become a part of his or her regular teaching commitment and research.

The notion is, that in the long run we are going to have better scholarship, and research, and a better relationship between knowledge generation and knowledge application.

Continuing Education, or the function of it, is being delegated more and more to the departments.

The second comment is in terms of substance. Most of my co-panelists have already said that one of the major disadvantages of the typical Continuing education program may be that it focuses too much on cognitive, dependent variables. Continuing Education is too much youth-oriented in terms of trying to compensate for those deficiencies that are apparent when one is comparing an elderly person with a young person.

I think that what we need in gerontology, the field of aging, is another Jean Piaget, if you will, who, indeed, goes out and tries to study the

naturalistic functioning of the elderly in order to come up with models that would respect more optimistically what the substance of the adult development and the aging process can be as opposed to what we find right now. We continuously compare the elderly with what we are used to studying when we look at children, adolescents, and youth.

So my comment goes in the direction of trying to argue that the substance of Continuing Education programs, for the most part, should be oriented more towards such things as interpersonal skills, adjustment, happiness, and whatever type criteria you would like to use. As a behavioral scientist, my view is that we have to increase the external validity of Continuing Education activities and that only by increasing the external validity of our basic research are we going to be able to bridge the gap between basic and applied research in that particular area.

I apologize for my last remarks, in a way, because I am sure they are superficial to many of you, but that happens when you ask a basic scientist to generalize. He forgets his canons of law, and he either freezes, or he does not, -- and he even feels good about it! (Laughter)

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FINAL DISCUSSIONS

B. Richard Bugelski

I want to have a chance to make a few observations of my own but I'm still reacting to Dr. Baltes' strong positive, almost over-confident promise, which is a rather complete negation of the paper that Dr. Botwinick gave us this afternoon, so we have arisen from the depths of depression to some sort of fountain of hope!

One of the problems that bothered me as I heard all of the speakers this afternoon was their tendency to think in terms of something that they have identified apparently, as adults, or as the aging, or as the old. While they deny or are fearful of being accused of talking about some stereotype, still they are talking in class terms of the old versus the young, the 20 versus the 70 year old. To me that smacks of the same kind of thinking that we indulge in when we talk about race problems or about sex problems, women's lib, or men and women, and that sort of thing. My own predilection is to worry about individuals.

Some people I think are old at about 4, and other people don't ever get old until they're long dead, and still have a kind of spirit living behind them, so that I would have hoped that we would think more in terms of individualizing programs, individualizing education, and not trying to be all things to all men, or to try to have some sort of group attack, which I think will never work, just as it hasn't worked with race or sex problems. I think that individuals are the people that we have to work with and that setting up some kinds of programs for adults versus children or something of that sort just doesn't make sense.

You'll remember Dr. Knowles mentioned that he was ready for fractions when his brother taught him several years before the educational system was ready for it. I think that's the kind of reality with which must deal -- that different people come to us with different problems and needs and abilities, and as Dr. Flaherty pointed out, different backgrounds and experiences which may or may not be applicable to what they want. Each case has to be treated in its own right. But beyond this I noticed a kind of lack of concern with what I regard as more important problems, namely the education of the young so that they can grow old and become adults and continue learning as they are adults.

I think that we are misdirecting or at least losing some points of attack if we concentrate on the adult learner, when our own speakers have pointed out that the deficits we find in the old appear to be cultural or generational, or we look at things longitudinally.

That's all very well and good but we're always going to have generations -- there's always going to be a new one -- there's always going to be a cultural gap, there's always going to be an innovation to prepare for, and we'll always be stuck with a bunch of oldies for that particular time, who are going to be very hard to rescue, no matter how many green stamps we give them for speeding up their reaction time in some simple exercises. That's a little bigotry there. (Laughter)

What I would like to leave you with as a general point perhaps is something that I never am able to say to anyone, but I keep trying -- it is the suggestion of Dr. Gallup, the pollster. Some of you may not know that at one time he was bold enough to publish a book called The Miracle Ahead, in which he looked at the educational system and thought that it needed revamping in terms of curriculum structure. He thought that what should be taught to people is a series of intellectual skills, not academic skills particularly, such as reading, writing, and arithmetic. Somebody had the impression those would just fall into your pocket as you grew a little older - a common view among people who already know how - but his notion was that children might very well benefit in terms of a long trend, a long life trend, by being educated to think.

Dr. Gallup would give them exercises in such things as let's say, weighing evidence; suppose the teacher had a little courtroom trial in the classroom where somebody is accused of felony. One little child acts as a prosecutor, somebody else as a defense attorney and so on. The jury is trained to bring in a verdict on the evidence - to evaluate and to judge.

Suppose additionally a time was given in the first and second grade to programs on how to evaluate facts. It might raise hell with families because parents are the most notorious liars -- they never tell the truth to children! But if we did teach our children to respect and evaluate facts this might be a skill that they would find useful for as long as they live.

If we taught them to perceive, to look about them to report on detail, this is something that I find myself very lacking in most people. Most people don't even know what crabgrass looks like! Can you imagine anybody going through life without knowing what crabgrass looks like? It disturbs me when somebody refers to, let's say, a floribunda, as "Oh, look at that flower." It's a rose of a particular kind and breed and variety, with a family of its own.

There is a lore that should be learned about many, many kinds of things in our lives which people just ignore because they haven't been taught to listen, to smell, to taste, to feel and touch, to exercise their senses. Perhaps a decline in auditory acuity, or visual acuity could be somehow either prevented,

slowed down, or altered if people learned to look.

Gallup went on to develop a catalog of skills. I won't try to list them all for you but they were non-academic skills that represent what has to go into the academic activity. How do you solve an arithmetical problem? by knowing addition and multiplication? No, you have to understand the problem, and to see its elements and their relationships, and this is the kind of thing that Gallup had urged.

My notion would be that we would look for some kind of curriculum that had aging in mind. We'll all get older, even I might some day, I suppose, and we should be ready to continue to meet our new environments as they change almost daily around us.

We can take no consolation from the fact that longitudinal studies will show that we don't decline really so much if we are actually 20 or 30 years behind the times in terms of the reality that we were prepared to learn for.

I think that the emphasis has to be a continuous one, an emphasis on individuals, not an emphasis on some kind of groups with some sort of class or caste thinking. We must do something for the old or the adults -- we must do something for people, as they are and as they come -- those would be my comments as descriptive of my reaction to the remarks of the speakers this afternoon.

But now, I know the audience has questions and comments to make. May I ask you to merely stand and raise your questions informally?

AUDIENCE QUESTIONS

QUESTION: In terms of setting up an academic program at the institution which I represent, a constant question comes to my mind and to the minds of others. When forming classrooms for people, who are generally described as adults, aged 25 on to 60, is the presence of any specific composition and number of persons in the classroom critical to adult achievement? I am anxious to know about studies related to that. I will appreciate it if you will comment from personal experience and refer to data which you think is relevant.

B. Richard Bugelski

I think that's a very fine question because in the very near future colleges are anticipating a decline in the youthful group, and an increase, hopefully, from the adult population. There have been sporadic attempts using prodigies and others, to put younger people in the college classroom, and the question of the impact of a various kinds of age types in a classroom, and what happens to the classroom under those conditions, might be a vital one. I have no real answer -- I know that I have had old students who did very well, and young students who did very poorly, in the same classroom, but the panel here has a broader experience, and would be able to answer that -- perhaps you, Dr. Monge?

Rolf Monge

It's my impression based on my talks with people in our Continuing Education Division at Syracuse University - that is to say the faculty who teach there - that, the inclusion of the adolescent with adults is a good idea. You will not find any data; I looked for it too, and I did not find it. I even tried to generate some data on that point once by putting a young experimental confederate between two adults. I placed two adults in booths at either side of a youngster who was in a booth and fed the youngster a script to repeat as problems were presented. He said things like, "Gee, these are easy," or "Hey, there's a system for solving these problems." I found no age difference in this kind of social stress. Generally, I think that it is a good idea to have young people mixed in.

May I respond, just in passing, to the criticisms that I myself have shown no interest in individualization versus class terms like adult - that I have a lack of concern in making the young into lifelong learners. In my work that is probably true, but I think I've got a neat cop-out for that. People do have different concerns.

I was reading - some people would say wasting my time, but I don't think so - a science fiction magazine the other night, and I came across a story about an engineer, a physicist, and a mathematician, who were all staying in a hotel. The hotel caught on fire, so the engineer ran out immediately, grabbed the fire extinguisher and doused the fire thoroughly by a safety factor of 10. He doused the whole room with all the furnishings, and then somewhat comfortably went tack to bed, knowing that the fire was out. The physicist made some rapid mental calculations, aimed the fire extinguisher very carefully at the base of the fire, gave it a measured blast, and lay down on a dry bed to watch the fire, to see if it would break out again. The mathematician took out pen and paper, calculated for several minutes, ran to the bathroom, turned on the water, felt, and said, "Aha, a solution exists," and went back to his bed in the middle of the raging fire. (Laughter)

Now -- find me a psychologist who doesn't show a great deal of interest in individualization or who has a lack of concern with the young - but maybe I'm sleeping in the middle of a raging fire!

Paul Baltes

I wish to comment on the same issue. I'm also all for an individualized process to educational intervention, but for a very different reason, I think. It has something to do with what Jack Botwinick mentioned when he opened his paper. On a descriptive level there is no doubt that with increasing age individual differences become bigger and bigger. Now in the educational technology literature one concept which is very persuasive does not utilize generic statements about what one should do. Instead it substitutes a developmental diagnosis in terms of the traits a particular person shows versus the aptitude that he possesses as related to the task at hand. A treatment then is designed which maximizes his effectiveness.

I believe that whether a generic approach is useful enough is a function of how similar the developmental process is that led to the outcome. For example, in the case of the elderly I happen to believe that a high degree of generality may lie behind the phenonemon that we see, and therefore, very often a generic approach may be useful. At other times it may indeed by absolutely necessary to make a trait, aptitude, task diagnosis.

Jack Botwinick

I think the answer to the question is that nobody really knows. It's going to be a trial and error problem. I have two bits of information which might interest you. One relates to an experience that I had based on a one to one statement. A middle aged student of mine who was mixed into a classroom of

adolescent aged students came to me and said that she was having trouble because of all the statistics I was teaching. I was surprised because I hadn't been teaching any statistics. I asked her to come to my office to find out what was bothering her. It turns out that I had drawn some graphs on the board, and she couldn't follow these graphs, since she had little exposure to graphs in high school. Today, my daughter in junior high school is an old hand at graphs.

So I think that when you mix up age groups - from a pedagogical point of view you're going to have some kind of special problems to cope with. Sometimes perhaps it becomes more complicated than the mere teaching of graphs implies.

I'm less sure of this next point than the sociological literature suggests. But, within limits, people tend to be more comfortable with people of their own age. If I guessed, however, I would assume older people like to be with people a little bit younger, but not a devil of a lot younger. In general, I think that the answer to your question is unknown.

Josephine Flaherty

I wish to comment on that same issue from two points of view. In my own teaching I have taught mainly graduate students for the last six or seven years. They have ranged in age from about 25 to 65, in nearly every seminar. I find that there seems to be a greater amount of flexibility on the part of all the students involved when they are admixed.

For example, when I taught the psychology of adult education, I found that if I had a relatively homogeneous group in terms of age - that is adults who were over 40 - that I couldn't get them to talk about aging except in terms of very, very old people. They couldn't see aging as a process which begins at conception and goes on. On the other hand the young people in the groups were quite willing to talk about this. Yet, they didn't want to talk about adolescence and young adulthood; there was no way you could get them to look at that. I found that the most successful seminars I had with these groups of people occurred when they were mixed up because one of the groups was always willing to talk about any topic. They could get the others going.

My other observation comes in terms of professional education. As many of you know, in the field of nursing education, for many years it was felt that a strong back, good feet, and youth were the only prerequisites for nursing. Intellectual capacity and those other things didn't seem to matter.

A few years ago in Ontario, a special school was started which was designed for people over the age of 30 who wanted to enter nursing. The idea was to demonstrate that people over that age group could succeed in a nursing educa-

tion program, and in practice in the field. This was demonstrated. We found that the graduates of that program were quite successful. This gradually led to greater flexibility on the part of traditional schools of nursing in their acceptance of older students.

We have the situation in Ontario now where most every school of nursing - and we have about 60 some in the Province - there are students ranging in age from approximately 16 or 17 up to and including at least age 50. While we don't have hard data to back up our generalizations, our observation is that these students have done very well. When they have had problems, they have generally been related to the somewhat bureaucratic systems for which schools of nursing have always been famous.

We're becoming more flexible, and finding the older groups fit in. But the most important observation is, once again, that the graduates of these programs where there is a mixture tend to be much more flexible in their attitudes. The younger ones develop a greater understanding of the larger age span, and certainly the older ones seem to have a greater tolerance for ambiguity and differences.

B. Richard Bugelski

I wonder if the answer to your question is not in some way subject to the problem of ability differentials? We tend to ask the question in terms of age, but if all the people in the classroom are of reasonably homogeneous abilities and skills it doesn't make much difference; age might not even be noticed.

But if age is accompanied by something else like more experience or faulty preparation, age becomes an obvious fact and calls attention to it. I would tend to suggest that it's a question of who the students are, rather than what their ages are, and whether they are all about ready for the same next step.

QUESTION: Dr. Monge reported some interesting age and sex differences from his studies. How much were Dr. Monge's results affected by his allowance for co-variance in education? Were artifacts produced in his results? It is possible to make males look better than females and vice versa with this method of co-variance adjustment.

Rolf Monge

I don't have the raw data with me, so I'm going to do this by memory. My recollection is that the co-variance adjustment tended for the most part to level the age difference. There was not a significant difference in educational level as between men and women, and I don't think the adjustment produced anything there that wasn't already in the raw data. I'll be

happy to send you a copy of the original report. I don't believe that we introduced any artifact by means of them. Dr. Gardiner is the one who did that; he is an expert in that procedure, and I trust his work.

QUESTION: Dr. Baltes raised a dimension that should have repercussions through infinity. He seemed to suggest the dissolution of the Con Ed division within colleges and universities. Does the panel share this view?

B. Richard Bugelski

I don't think the panel understands your question. What does Con Ed mean? Con Ed means to me some light company in New York City. (Laughter). I don't understand your jargon or lingo. Let's have the question again. Maybe that will do it.

QUESTION: Should Continuing Education be an integral part of a college or university, or should the divisions become stronger, per se, and the individual needs for the adults be reached through the divisions?

B. Richard Bugelski

I think they understand the question.

Jack Botwinick

I have a very strong opinion based on very little experience. Ideally I would share Dr. Baltes' position, but functionally it is very difficult to accomplish, given the traditions.

Josephine Flaherty

I have been in a similar position, having worked in several situations where I have tried to con my colleagues in universities into believing that it is possible to have all kinds of students in the same positions, and have even presented some pretty good-looking empirical evidence to support this.

University people are a law unto themselves, and until we get a new generation brought up in this new system of education that we're all dreaming about, I think that we really need to keep our divisions, although in a deeper philosophical sense. I don't agree with what I am saying.

Paul Baltes

I think we have an excellent example of a controversy involving contemporary

models of education. I think Continuing Education has a very hard time making it, when it lacks its own theory and method, which I believe it should have. It's a question of replication.

I know that the report at Penn State which was written by a faculty committee has a very strong position on this question. The report suggests incorporating certain types of Continuing Education activities into the regular academic program. I also tend to believe that the time is ripe to do that because the general educational context - on a much larger scale than has been true so far - is one that points in the direction of external degree programs, of non-resident programs, of associate degree programs, of certificate programs, of distributive educational experience, as opposed to mass educational experience.

So I cannot help but disagree with the political stance taken. I agree with the academic stance taken, and I always believe that if you have a good argument, and a good rationale, then you're going to win out in the long run. Politics is only going to hurt you, as we have witnessed with similar issues.

Rolf Monge

I really don't know what the arrangements are at different universities, but Syracuse is the case of University College having no faculty of its own or a very minimal faculty, maybe two or three people. The faculty are drawn from the academic departments to do the teaching, to that extent we do have what Dr. Baltes wants. We do not have a responsibility as such for Continuing Education in the departments at this point, but there's a way of getting it there. Most of the academic departments are in trouble -- monetary trouble which is one of the glories of being in a private university - and the public sector is going to feel it too.

What we find is that there has been a shift from teaching in University College as overload, to teaching there as part of loads, which implies that the Dean of University College is now controlling an important source of sound relief to the departments, and by doing that is having a significant impact on the departments' awareness of, and devotion to Continuing Education. Now he can pick and choose; he doesn't have to take just those who are willing to come down and work -- he's got them as part of load, and I think that works.

Paul Baltes

I really should make one comment. I am the department head, so it is fairly obvious why I am taking that position.

QUESTION: Would it be out of order to ask Dr. Knowles to react to the panel?

B. Richard Bugelski

I am sure Dr. Knowles would be happy to come up to use this microphone and give his remarks.

Malcolm Knowles

What kind of reaction do you want? (Laughter)

B. Richard Bugelski

Dr. Knowles, why don't you come up here?

Malcolm Knowles

Oh, I'm from Montana, I used to call hogs. (Laughter) It seems to me that the panel has been examining a whole range of issues in educational thought and research - currently into a major revolution - and I have been just sitting here absorbing the discussion and not really been thinking critically. I am going home to Boston tonight very much richer than when I came and with a challenge to get busy on some things I haven't been busy on.

B. Richard Bugelski

I didn't think the division had that much money, Dr. Knowles. (Laughter) Certainly I would want to say that you served as a very powerful catalyst on the thinking of everybody here -- we're all in quite a quandary as to how to even attack, much less resolve these issues, but the issues at least have come alive. There's a question back there.

QUESTION: This may be a statement of attack, but in the context of the panel, I wonder about their response prototype - that is, the panel keeps saying "We don't know." I am wondering why we have to borrow experts from another field to say only that they don't know! (Laughter)

B. Richard Bugelski

I'm just a moderator so I'll let the others answer. (Laughter)

Jack Botwinick

We don't know! (Laughter)

B. Richard Bugelski

Since he used the editorial pronoun, I think that will have to serve as an answer. Next question, please.

QUESTION: I would like to know from the panel what their reaction is to the idea of removing the stigma of the adult learner as he will be compared to the adolescent in the future. I'm thinking in terms of the future use of the extension universities in studies involving non-degree or degree oriented programs full-time or during the day rather than just in the evening. In other works I'm thinking of meshing the two areas together in the university.

B. Richard Bugelski

I think that's a significant question. There is apparently, I certainly notice this myself, a stigma attached to the adult education participants as if there's something out of order and wrong, and perhaps we could make some suggestions here that would counteract that. Dr. Baltes indicates he might have some answers.

Paul Baltes

Yes, I think this is a beautiful example of what I have experienced. Certainly the moment that our division made the decision to become very active in Continuing Education a number of things happened. The department appointed a professor in charge of non-residence programs developing programs that are of a continuous nature outside the university unit. Now we find it a very important step in the transformation of what Continuing Education activities should be.

However, it is also paralleled by a number of developments that apply to Early Childhood Education. For example, we have a very strong Early Childhood Education unit in our own department, and they are now designing an ecology oriented Early Childhood Higher Education program. Educational activities will occur on the streets, in the playgrounds rather than in a classroom setting.

So I see, an emerging approach in the direction of naturalistic research, naturalistic education, and this will become a very natural consequence of what people do anyhow. In the interest of increasing flexibility and differences among institutions, I would very much like to see some institutions from the top down, and from the bottom up, try to establish a different type of model in Continuing Education that indeed will do that right from the beginning and I think create a very different atmosphere about the whole enterprise.

Jack Botwinick

In an off the cuff thought I had in regard to the question of prestige, it's my impression that prestige is socially granted. So that there is prestige in a Bachelors's Degree, in a Master's Degree, and a Ph.D. Degree, and that this implies, or had in the past implied that to get this degree you had standards, you had criteria, examinations, you had all the rest.

I predict that as universities carry their weight for better or for worse, there will be less and less prestige to these degrees, and then there will not be a difference between that tradition and Continuing Education. Conversely, if the standards, criterion, etc. change and increase then there will be.

Now I'm not suggesting what ought to be and which direction to go, but I think it's clear that even now there are many people - and I count myself among them - who feel quite negative about some of the things that have been happening in higher education, and will worry that we're putting out people that are less well educated, and that we demand less of them. And I think the prestige picture will change if we continue.

Josephine Flaherty

I don't know whether that's an omen that I really shouldn't say anything at this point or not, but I'd just like to pick up and go on from there. I think that one of the things that is happening, at least in our country in the universities, is a less potent emphasis perhaps on the prestige of the Ivory Tower, being within a certain place and having what someone called "academic freedom". It's probably the least "free" kind of freedom that any of us has ever experienced.

In terms of academic freedom it is connoted by some people that it means doing whatever you want, even if that means nothing. There seems to be a marked change now because academic freedom is being shown to carry with it responsibility, and the responsibility involves not just doing what you feel like doing, but what needs to be done.

We're finding, in our Province, for example, what with the rise of community colleges, which we don't call community colleges, because of some connotations that has - and I can't think of any good reason that we don't call them that, because basically that's what they are - but the rise of our colleges of applied arts and technology - a relatively new phenomenon in Canada, seems to increase the sense of responsibility through the community.

I think the other thing which hasn't really happened yet, but we're hoping will happen quite soon, is the business of external teaching, from external

campuses and odd hours, that is not 9-5 kind of hours, as being part of load, rather than extra load. It tended when it was extra load, to be the people who needed the money, or maybe those who weren't publishing or doing other things, so they seemed to feel they had to take on extra responsibilities. Doing external teaching was not something that was considered academically respectable, and may people didn't even mention it on their curriculum vitae.

We find now, that we are just barely getting to the point where there is consideration being given to this as being part of load rather than extra load. One of the major holdups of course has been the fact that the Basic Income Units which come in our public universities from Government, only come from full-time students, and it was only recently in the Province of Ontario - and I mean within weeks - that we have even cracked the surface in terms of getting basic income from part-time students. I'm looking forward to a great change in this area, and I think when some of these other factors get into shape, then we'll get into the real matters.

B. Richard Bugelski

I think that Dr. Baltes, who declined comment at the moment, had some references in his formal paper that bear on this issue, and perhaps he would excuse me if I remind him of them, or speak for him. I think that I mentioned a little earlier that there is a declining college population, and there is going to be some sort of need on the part of the administrators of academic institutions to go out and look for more bodies of some sort to maintain their own existing operations, and this might be performed perhaps through government or other organizations arranging for new ways of operating in industry and business, even on farms and factories.

This is a kind of sabbatical operation that we enjoy in academic circles which might have broader applications in other areas. There may be people who have a serious reason for developing additional credentials, or knowledge, or whatever, who will come to these college classes which might be quite similar in their nature and style to those we now enjoy, with the regular academic staff operating, instead of graduate student assistants teaching at night.

I'm implying that ways and means will undoubtedly be found to allow for increasing not only the operations effectiveness in the college, but for its prestige to rise correspondingly. I can't be too sure of that but I don't think that we ought to try to do it in terms of propaganda or some sort of selling operation. It has to be worth its name -- it's going to earn its name, it's not going to buy one. Are there other questions?

QUESTION: I've had an experience in several different situations where students in my own classes have said to me, "This has been a

learning experience rather than an academic one." It seems to me that when I deal with a normal class in a regular undergraduate situation, I am not sure, given the fact that maybe one per cent of these people are going to be professional academics, where my professional training to be a professional academic, a scholar, is relevant to these people and their future. And I think this would be much more true in a Continuing Education situation. How many of these people are going to be able to use the things that I am being trained to teach them? I try to design my courses and my classroom approach much more with the people in mind who are going to be, say, businessmen or housewives, so that they have something they can use for their lives, and not something that they've got to pass a test on and that's it. It seems to me that the problem is partly models, as it's been laid out here, but also purposes. We have, even in my generation, still in graduate school, a training and an orientation toward professional scholarship which isn't going to solve the kinds of problems which were raised here, and not just on the Continuing Education level, but even in the degree-granting programs aimed at adolescents and young adults. What I would like are some ideas from the panel and Dr. Knowles about how we can redefine the educational endeavor so that it really takes account of this, because it is less and less possible to consider even undergraduates of the adolescent years a captive audience who in turn are going to learn what we give them because that's the only thing they know how to do.

Malcolm Knowles

It seems to me that the main direction higher education might go in is toward competency-based education, in which it is not the degree but the demonstration of competencies which are looked at.

In fact recent books by Houle and others show that degrees will be going out of currency in education and that descriptions of competencies achieved will come in their place. I think the Continuing Education Unit is going in that direction.

Paul Baltes

I'm not sure whether that feeling is as much a response to the question as my feeling is that there's a much more basic issue here....the issue of how can we construct an institution of higher education that is responsive to society's needs, that is response to the quest for external-validity, that

indeed what we learn is relevant to later life experience.

I believe that the only way to alter the substance of our knowledge space is by introducing conversions between instructional and scholarship activities. The only way to do it is to correlate research and teaching in the areas of Continuing Education. Now whatever mechanism we are able to use to do that is fine with me. I happen to believe that if we are able, we should translate it through departmental structure. For example, the regular workload of a faculty member is defined by research, teaching and by related activities-therefore, it includes from the beginning an orientation toward real life, if you will.

Now if we are not able to succeed in producing this convergence on a very basic level between scholarship and activities that are largely regulated by outside influences, I would predict we're not going to succeed. To give you one example, we have just tried at Penn State to introduce the interpersonal skill area in the academic context, so in our own division we have now about seven or eight courses at the undergraduate and graduate levels that deal with teaching interpersonal skills. Here you have one case where clearly the academic community for a long time did not concern itself with these personal skills; it was not considered to be an academically sound subject matter. My belief is anything is academically sound if you apply the canons of science.

Therefore, in this particular case, we now have a very rich instructional program dealing with interpersonal skills. Faculty members in the division who teach and do research in the area, in a very natural manner are very happy to go out into the community to do the type of interpersonal skill activity that are both research and teaching in a true sense of Continuing Education. So my plea is for any administrative structure that allows regard to all these areas we are concerned about.

Rolf Monge

I think the problems we face in this area are massive. If you take a look at the life experiences and the educational history of the typical college professor. He started out as an undergraduate, and because he showed some interest in what his professor was doing, modeled himself after that professor, and grew up to be like that professor. He's then interested in generating more people like himself. I think that it is very difficult for this kind of institution to reform itself in this regard -- outside pressures have got to be brought to bear on it, and one can only hope that there are a few people open-minded and willing to take risks inside of the power structure to respond to these outside influences. Of course, if you've got control of outside money that's going to go a long way; you still must have outside evaluation of the response made by the institution to that outside pressure.

Josephine Flaherty

It seems to me one of the ways that we have got off the track is that we seem to think that what has taken us years to accumulate is identifiable, and should be transmitted intact to new people, when what we really should be about is helping those people learn to accumulate things, such as the kind of things that we have accumulated; in other words, we really shouldn't be trying to turn out students who are experts in our subject field -- we're experts in it, so why don't we help them to develop expertise in something else? I agree that anything can be academically respectable, if it is treated in an academically respectable manner. It seems to be that our big thing should be teaching critical thinking and assessment evaluation; some of the things that were mentioned earlier, I think the main place where we get off the track, is that we're teaching what we've learned instead of teaching people ways of accumulating similar or different kinds of knowledge.

B. Richard Bugelski

It seems we're just about right back on schedule, which calls for thanking the audience for sitting here so patiently for so long, listening to experts or not, as the case judgments might vary, and I invite you all now to ask the individual panelists whatever you like over some cocktails, which I understand are being served in the courtyard. Thank you very much.

INTRODUCTORY COMMENTS AND EVENING ADDRESS

Robert F. Berner

Dr. Somit, Dr. White, other distinguished guests at the head table -- members of the faculty, staff, students, and friends of the Division of Continuing Education.

This is indeed a very happy occasion for those of us who are associated with the Division, and I'm sure for many others of the University family who over the years have assisted us in attempting to improve the growth of our Division, now which I recognize as a fourth dimension in education, Adult Higher Education.

Certainly we are very pleased that you all came to help us celebrate. From the reports I heard after this afternoon's session, I am sure that your help has not been one which has been burdensome or boring, but rather it has been interesting and enjoyable. To me this afternoon's sessions were very stimulating and challenging, and I for one, look forward to a very important "capstone" address this evening.

At this time I'd like to introduce to you the members at the head table, some of whom were important and instrumental in shaping our past, and others who are engaged in working with us in shaping our future.

First, on my immediate left is Mrs. Kay Beane, wife of my former boss, a man who taught me a great deal about administrative practices, particularly of evening session operation, Mr. John Beane, who is now deceased. John wore many hats when he was serving the University with great dedication and great skill. He was professor of Engineering, he was head of the Department of Drawing Mechanics and Design, Dean of Millard Fillmore College, and Director of the Division of General and Technical Studies, which was a new operation -- one which he had initiated, which was designed for freshman and sophomore students first entering the University. Kay worked with him very diligently, attending a number of functions. I remember attending many Student Association functions with both John and Kay. Kay, in her own right, has been very active in the whole field of Adult Education, being a coordinator of Adult Education programs at the Amherst Adult School, Amherst Central High School. I introduce to you, Kay Beane.

Next to Kay I introduce to you Mrs. Leyla Somit. She's -- well first of all she's wife of our Executive Vice President, and I will be introducing him very shortly, but she also has been active in University affairs, and in community affairs, and we're very pleased to have Leyla with us this evening -- Leyla Somit.

Dr. Bernard Gelbaum came to Buffalo in 1971 as the University's Vice President for Academic Affairs, and as Professor of Mathematics. Formerly he was Acting Dean and Associate Dean of the School of Physical Sciences and Mathematics, and Director of the Program of Mathematics at the University of California at Ervin. Bernie has evidenced great courage and effectiveness in the Vice President's role, a role which often is condusive to earning more enemies than friends because of the planning budget function which places priorities on a whole range of activities in the educational system. We know him as a friend of Continuing Education, and I take pleasure in introducing him -- Bernard Gelbaum.

Next is Mrs. Bernard Gelbaum, Beatrice, a very warm and charming person. I remember one occasion when I was meeting with Bernie in the office, when he got a sort of desperate call, at which time he learned that Mrs. Gelbaum was having a problem with a squirrel which somehow or other had gotten into her attic. It was causing a great deal of destruction and Beatrice, naturally, was most distressed. Tonight, fortunately, she is free of such distractions.

Now turning to my far right, my wife, Ruth Berner. Ruth has been a very helpful person in my life, one who is very well organized. She has really given me a great deal of encouragement, particularly in times when administration by persuasion, which is the lot of a Dean of Continuing Education, becomes somewhat burdensome and difficult. I present to you my wife, Ruth Berner.

Now to my immediate right, Dr. Albert Somit, who is Executive Vice President of the University, and Professor of Political Science. Al has been associated at the University since 1966, when he was appointed as Professor and Chairman of the Department of Political Science, which was then a newly created department, a department which was separated from our Department of History. He came to us from New York University, where he was on the Faculty of the Graduate School of Arts and Sciences, and on the Faculty of the School of Law. Too, he served as Director of Doctoral Programs in the Graduate School of Public Administration. I call on Al at this time to bring us official welcome, and also to introduce our guest speaker -- Al Somit.

Dr. Albert Somit
Executive Vice President
State University of New York at Buffalo

Thank you Dr. Berner. Before I proceed with my official assignment we had a sort of an unplanned event, and spontaneously to conduct this unplanned event, I would like to introduce Mr. Charlie Fogel.

Mr. Charles M. Fogel
Assistant Executive Vice President
State University of New York at Buffalo

I hope my wife, or rather my mother didn't think I was unplanned, but it's a great pleasure to be here, Bob and guests. You know I've been challenged by one of my colleagues that Millard Fillmore had been one of my students at the University. I think that maybe some of you can help deny that for me, but you know when I was here in the beginning years, I always had associated Millard Fillmore College with Lewis A. Froman. He had been the Dean for so many years. And then John Beane, our good friend, became the Dean and did a ter ific job. I remember talking to him about a young man that he was going to have take his place, and I always thought of Bob Berner as that "young man", which he is, and when I was asked whether I would just make a comment or two tonight, I looked, and my God, I was astounded -- Bob Berner has been Dean for 21 years -- as long as Lew Froman and John Beane together, plus five. And, somehow those years just crept by, and you don't realize all that's been done.

Now in his own quiet way Bob Berner has gone about the very important task of developing, expanding, and enriching educational opportunities for the adults of the Niagara Frontier, bringing to them new levels of satisfaction. At the same time he has given national leadership to the instruction in the evening colleges throughout the United States. In all of this he has been to me, and I think to everybody who has known him, the epitomy of clarity and sincerity of purpose, doggedness of effort, and leadership with heart,

and I'm very proud to congratulate him on the tremendous job he's done for you, for us, and the community.

Albert Somit

Thank you very much, Charlie. I think you've said many of the things which would be said by people who have known Bob Berner for these many years.

Now let me turn to my less spontaneous, more formal duties, by welcoming you on behalf of the University, and then of introducing our guest speaker.

When it became known that an official welcome on behalf of the University would be in order quite a few weeks ago, I talked to President Ketter. As matters stood then, one of us would have to take a trip to the Far East for two weeks, and the other one would handle this introduction. We talked about it, and finally he said, "Well, let's toss a coin, Al, and that's how we'll go." We tossed a coin, I won, looked at him and said, "Sorry, Bob, you'll have to go to the Far East." (Laughter)

That accounts for my presence here. As a good loser, the President went and asked me to express in his behalf, as well as that of the University, our official welcome. I'm delighted to see you here, and as I often do on occasions of this sort, I say that I hope that when you come back, perhaps two or three years from now, four years from now, ten years from now, we'll welcome you in our <u>own</u> facility, on our <u>own</u> campus.

I have observed with considerable interest the way in which the people who say, you know, "Would you come do this or that," subtly suggest how they would like it done. The initial invitation whether by phone or by letter is, "Would you say a few words?" Then about a week before the occasion there's a phone call, and somebody says, "Don't forget, we're looking to you for a brief introduction." Now the da before comes the phone call and brief is now, "A very brief introduction, must keep that in mind!"

However, I must say I ran into a more diplomatic device this evening, I was handed a schedule; nobody suggested anything about a brief introduction; the schedule simply said I would start talking at 7:40, and Dr. White would start talking at 7:45, and I had all the time in between to myself. I had to mention to Dr. White that we were regretably running behind schedule. He patted me on the shoulder, and said, "Don't worry, I've got till 11:00 A.M. tomorrow morning, and I'm prepared to use all of it."

Now I had prepared a set of scintillating introductory remarks in which I would survey, first, all of the development of Higher Education, from the

Medieval times to the present; then I would turn to the development of American Higher Education from Colonial times to the present; and with that background out of the way, I would deal specifically with the development of Adult Education from the Civil War to 1970 or 1971. On reviewing my remarks I found it difficult to compress them into five minutes and will, therefore, set that speech aside for subsequent more relaxed occasions. With that done, I can now turn immediately to the business at hand.

I think you all probably know as much or more about the speaker of the evening in terms of his formal background and credentials than I do. I think you're aware that he holds the position of Vice President for the kind of program with which we're all concerned here; I think you're all aware of the numerous, I was about to say, endless, but I'll settle for numerous, Federal, State Commissions on which he has served, and the numerous citations he has received. So, since you knew that as well as I did, I thought I would talk again very briefly about some other aspects.

When you introduce anyone you look immediately for things that you have in common; my heart, of course, went out to him immediately; he's a Vice President, and it's been a bad season for Vice Presidents; he also took his Doctorate at Chicago where I did, though I noticed with some regret that he didn't have good judgment to take his other two degrees there. He's been a Professor, Dean, Vice President; I'm not sure whether he's moving up the ladder, or down, but that, again, is a matter of personal judgement.

He apparently spends as much time as possible playing golf, a behavior I don't understand, especially, if there are tennis courts in Oklahoma. He takes some pride, I understand, in having a 16 year old lawnmower; I have a lawnmower that's 25 years old, untouched, and I intend it shall so remain. One point, however, I have to yield to him; I understand he has a two year old grandchild, and there he's done much better than I. It's my very real pleasure to introduce Dr. Thurman White.

CONTEMPORARY ADULT EDUCATION:
IMPLICATIONS FOR HIGHER EDUCATION

Dr. Thurman White
Vice President for Continuing Education
and Public Service
University of Oklahoma

It's been a bad season for Vice Presidents, and I'll tell you we have one by the name of John Dean, and if you haven't been to Washington with somebody by the name of John Dean in the last two years, you haven't lived. He even has to pay cash when he registers at the hotel. (Laughter)

I had so much fun over this Pedagogy, Andragogy business this afternoon, that I thought I'd like to get in on it.

Malcolm, you're getting a little bit of a contest from some other quarters now, who have coined another phrase. You explained to us that pedagogy meant the teaching of the children, and that andragogy meant the teaching of the male adult, and so you can guess from what other quarters this one has come. It's Popagogy, and it's supposed to come from the Latin, meaning people teacher, population, people, and all this kind of thing.

Somebody pointed out that that isn't quite the way it goes -- because it should be populagogy, not popagogy. But I don't care what you do with it, but stay with the Latin root, don't get over into the Greek, because then you get demogogy, you see, instead of popagogy, and that'll spoil the whole party right there. (Laughter)

Personally I like to think of myself as an evocator. I really think that that's what adult educators do; they evoke money on the part of other people -- so I don't use it very often.

Well, I did something that Malcolm said he did not, but I didn't do what he said he did when he wrote his first book. He got the pictures of some people and he put them up, and he wrote the book for those people with the pictures right over his desk. The next time I do a talk like this I'm going to ask for your picture, so that I can put them up over my desk and I can write a speech to you. But I did do something that Malcolm did. He said that he looked at 55 books -- I didn't do quite that good, I only looked at 33, but you know, 60% in Oklahoma isn't bad. (Laughter)

In the academic holy of holies, professors always approach the shrine with a recitation -- preferably spaced at ten reference intervals -- of the literature on the subject. In obeisance I have looked at thirty-three books and a dozen or more articles in my preparation for this utterance. My bibliography is available. From this respactable though admittedly inadequate beginning, one is led to a mild suspicion that Dean Berner and his consorting programmers not only know the literature, they have also anticipated what the rest of us will find out in honest scholarship. So, in the spirit of honesty, nay, in the letter of honesty, let me assure you that neither he nor anyone else sent me any references; nor did he or anyone suggest any references. It was left to me to find my own intellectual way through the morass of relevant typesetting. In the process, I read two articles which found a

home in my mind. They are so close to the topic of Contemporary Adult Education: Implications for Higher Education, that in spite of my protestation, you may still believe that Dean Berner and consorts are guilty of pointing my remarks. So once more, may I repeat my hope that as a matter of charity you will let your colleagues off the hook and saddle me with the rest of the ride through the exercise.

My first authoritative reference is from the "green sheets." All scholars who avidly pursue fugitive materials know my reference to "green sheets" and need no citation. But since Billy Jean King, I can no longer assume that older men are equal to younger people and so to insure that everyone here is equally informed, I will simply report that "green sheets" refers to the Circular Letter of the National Association of the State Universities and Land Grant Colleges: My first quotation then is from Ralph Huitt in the April 23, 1973 issue.

> "There is no law that a commentary cannot begin with some facts. These are offered by Dr. Allan M. Cartter in a Southern Regional Education Board book of essays, Higher Education: Myths, Realities, and Possibilities (Page 140):
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> '....The mid-1960's saw a quantum jump in the size of the college-age group, an unparalleled 50 percent increase during the decade. Over the next six years the size of this age cohort will rise another 10 percent to nearly 17 million, and then we shall face a decade of decline -- a drop nearly as rapid as the increase of the mid-1960's.
>
> By 1988 the 18 to 21 year old group will be a million and a quarter smaller than it is this year. I should remind you that these are children already born, so this is not a matter of speculation.'
>
> "But a static or declining enrollment is not inevitable. For one thing, even if academe insists on business as usual, a higher percentage of the 18-22 year-old population will go to college, helping to take up the slack. But the opportunity for life-preserving expansion need not stop with that generation. The "market" for higher education is infinitely larger if we want to serve it.
>
> "There are people to be taught everywhere. Some in ways that will lead to degrees, some not. Some who will come to campuses for the rich variety of stimuli in the academic community; some who will have to be reached where they are and taught in ways and at times that are not traditional, to say the least.
>
> "This is a message which, I suspect, no resident faculty on a major

university campus is ready to hear -- yet. They still are able to live in a world in which they teach and counsel mostly young people (and do both more often and better, I believe, than their detractors will admit) and do committee work, but always with an eye toward the hours that can be spent in research.

"But there is an old truth and a new truth which we must acknowledge. The old truth is that the large departments of specialists which make high-level research possible in the public university all rest on a large base of undergraduate courses. The new truth is that the supply of undergraduates is diminishing. So the base must be expanded to include new kinds of students. Somebody is going to have to teach at nights and on weekends and offer hard cram courses for ambitious mid-career people. And not just patronized citizens in something called extension. Not unless those same citizens are to inherit the academic turf."

My second authoritative reference is from the magazine, Signature. There is no way I can justify the quotation I have selected from this magazine to this audience. Not because of the magazine necessarily -- it is a club membership fringe benefit to all people who happen to be in a particular sector of the capitalistic system -- but because the gentleman quoted is much better known to you for his convictions than he is to me. So it is in the spirit of "I know he is one too" that I remind you of what Ernest Boyer says SUNY is shedding like a cicada in transformation.

"When Boyer took over the burgeoning institution in 1970, SUNY was sharing the spotlight with the University of California as models of what the public university of the future should become. But SUNY was also assuming massive proportions and had commensurate headaches. Boyer, with a track record of educational reforms, leapt astride this educational dinosaur and let it have its head by giving it more range and room in which to galumph. In the process, he trampled on some treasured academic shibboleths:

- Students should be in the 17-24 age group.
- Education is best conducted in a classroom on a campus.
- A baccalaureate degree requires four years of study.
- Colleges must retain their separate identities.
- Education occurs in a rigid curriculum time block.

"One of Boyer's first moves on taking over was to throw SUNY open to people who had been previously denied access, or were unable to work and attend school at the same time. Thus, the middle-aged, the elderly, the underpriviledge, and those who have busted one

career and are seeking a second chance were given opportunities -- through a dazzling series of educational innovations: Classes were scheduled at all hours of the day; the red tape was taken out of transfers to other campuses; students could work towards degrees off campus, at home, or even abroad; some degrees could be achieved in three years rather than four. Empire State College, a totally innovative, unstructured college (without a campus) allowed students to schedule "contracts" with faculty advisors and continue pursuing them on their own time, at their own place, and their own pace."

The article I have cited is titled "Man on the Move." The subtitle is "Dean of the Diploma Conglomerate." And I vibrate in harmony with all he is supposed to have said in this authoritative reference, i.e., Signature, Vol. 8, Issue 9, Sept. 1973, Diner's Club. Except for one thing. When he says it is a shibboleth for a college to retain its own identity, I somehow get a tug at my academic heartstrings. My honored professors led me to degrees from institutions in the first half of my life; the collegial experience with my professors and fellow students - in residence and community - seems even more valuable now in a fragmenting environment. Nonetheless, Boyer is probably correct; the nostalgic and historical institutional identification enjoyed by past learners may now be appropriately modified for many, many people.

The single most important lesson to be learned from both Huitt and Boyer is the fact of an adult student body. People over thirty are intellectually alive and responding well to collegiate offerings; but on any measure of practice against potential, people over thirty are not well served, as of now, by institutions of higher education. And in order to serve the populations of adult learners, our institutions are called upon to make some adjustments. In the remarks which follow, I will comment on these adjustments. Much of what I have to say simply expands on the statements by Huitt and Boyer; all of what I have to say is intended to reinforce the positive attitude they express toward a new higher education commitment to adult learners.

To me there are three compelling characteristics of adult learners which have implications for the future of higher education. These characteristics are:

1. Adult learners want to move ahead in areas which have meaning for them.
2. Adult learners want to move ahead from what they already know.
3. Adult learners want to move ahead at times and in places which are convenient for them.

Now let us examine the implications of each of these characteristics for the future of higher education.

The first characteristic is that adult learners want to move ahead in areas which have meaning for them. Adults are troubled; they are frustrated; they are concerned; interested; curious; and busy coping with change. They have goals, aspirations, and their own perceptions of a better life. All of these lead to learning and in them we find the essential ingredients for a meaningful curriculum. From this we derive the first and most important implication for the future of higher education; the curriculum for the adult learner is reality centered. It relates to the need for professional development and for changing careers; it relates to the need for more effective public and community participation; it relates to the need for happy homes and families; it relates to the need for more precise behaviors in energizing, moving, sensing, emoting, and thinking; and it relates to the need for a better understanding and appreciation of the good, the true, and the beautiful. "Give me knowledge that I can make a part of my life" is the summit demand of the adult learner. And from this we derive the second most important implication for the future of higher education: the curriculum for the adult learner is organized around the behaviors of adulthood. It is problem-centered: it uses game-playing techniques; simulation exercises, hands-on learning experiences; apprentice-master relationships, and case studies. It pauses frequently for the individual to internalize and make applications of his new learnings; to make them a part of his life.

The second characteristic is that adult learners want to move ahead from what they already know. All of us are keenly aware of the traditional use of academic transcripts for information about the previous learnings of students. And all of us are keenly aware that transcripts of academic work done a decade earlier are terribly incomplete and imprecise reflections of what an adult now knows. Every year of adulthood adds to the individual's fund of useable knowledge and behaviors. Consequently, the lock step of the traditional degree program has the no-forward motion of a squirrel cage for most of the adult population - especially those over thirty. The first and most important implication of this characteristic for the future of higher education is a fundamental change in the area of professor-learner relationships. For adult learners, to the traditional role of knowledge transmission by the professor we now add the role of learning management and program planning for individual learners. My model for the new role is the successful Ph.D. advisor because the new role has many of the same requirements: an intimate familiarity with the mind of the student; a broad understanding of the resources which the student may tap to get what he needs to know; a knack for helping students plan a program of study designed to efficiently exploit the available learning resources; a helpful monitoring stance throughout the student's pursuit of his program; and a keen interest in finding the right professor for the student's next program of study. Before you drown in anxiety over the high cost of Ph.D advisement and the impracticality of finding funds to give the same expensive attention to the clamoring multitudes, let me quickly admit that the model is

not that close a fit. At the risk of oversimplification let me illustrate. In the first place, my professor - turned learning manager - has available to him a great many standard assessment procedures and instruments available from ETS, ACTB, and other sources - hence intimate familiarity with the mind of the student can be achieved in a surprisingly workable way within a couple of thirty minute conferences; the availability of games, simulations, short courses, syllabi, books, and literally hundreds of tappable resources provides the professor with the elements for a planned program and a one hour conference could likely see that done; the accumulation of evidence that the program has been completed is the responsibility of the student and can be presented inside of an hour's conference. What is left in the process of learning management is the monitoring - and only experience will tell the extent of this demand. In any event, the extra role does not strike me as a road to ruin and bankruptcy. Indeed, the time saved in the elimination of repetitious teaching and student effort may effect an overall economy for all concerned.

The third characteristic is that adult learners want to move ahead at time and in places which are convenient to them. The responsibilities of adulthood make it necessarily so. As you and I, most adults are earners while they learn and their job commitment come first. They cannot - any more than we - forego the money of this month in order to spend from earnings later even though the learning may very well result in increased earnings. Similarly, the commitment to family and community service puts the adult learner in a time and place trap to which the professor must accomodate or the whole deal is off. The only way higher education can help adults in their battle against ignorance during the fifty or more years of adulthood is to swing with the rythym of reality and get with adults when they can get with us. As one reflect on this point, it should take you no longer than a split second to remember that this is precisely what higher adult educators have been doing for more than a century. They have done it in short-courses, extension classes, evening classes, correspondence study, and more recently by radio and television. This very hour in this country they are filling more than a hundred residential facilities called "centers for Continuing Education" with adults who learn in specially designed programs. In short, higher education has an honorable track record in providing education for adults at times and places which are convenient to them. The only trouble is that this has been the responsibility of a relatively minor part of the establishment. Now, as we turn our attention to the collegiate minds of all ages, it becomes perforce the responsibility of the total institution. On this magnificent horizon we now begin to see the most important administrative implication for the future of higher education: a melding into a unified whole of the total teaching function of the university. To join the professors and the Continuing Education professionals is surely becoming a top priority on the administrative agenda. At least where the one-faculty, one student body concept is held

as a guiding principle, the move to meld the traditional academic departments and the traditional Continuing Education units makes all kinds of administrative sense. So far as I know, the prototype for doing this does not exist. It is a no man's land. And so I gleefully now jump into it.

I begin with the proposition that in the future, higher education will offer two basic learning opportunities - one in the disciplines and one in life-centered programs. People of all ages will participate in both; and a single individual may and likely will participate in both. In order for this to happen a couple of adjustments are indicated: (1) the offerings in the disciplines will sometimes be reorganized around topics or modules so that adults will only spend time on what they don't know, and the teaching will sometimes be done on weekends, in one-week blocks, by directed reading, or in some other non-traditional pattern; (2) the offerings in the life-centered program will be reorganized into academic groups of degree, diploma, and certificate proportions. Since both adjustments require the input of professors and Continuing Education professionals, we come inevitably to the question of administrative reorganization.

The question is open to all interested parties and answerable in a variety of ways. The options are many and clearly untestable outside an institutional or statewide system context. But to illustrate the possibilities and perhaps start the gray matter churning, here is one model for melding.

In the illustration the administrative implications begin with the professor-learning manager and I believe they should. It assumes the professor-learning manager to be academically qualified for whatever responsibility he negotiates with the three program chairmen; for much of the work in life-centered programs the Ph.D. is dispensable. The professor-learning manager is appointed to a college; and to programs; but not to a department. His former appointment may have been either in an academic department or in a Continuing Education unit. The administrators for the discipline degrees probably emerge from the professorial ranks; the administrators for the life-centered programs probably emerge from the Continuing Education ranks. All of the institutional income, including that from self-supporting programs, flows to the President for reallocation as appropriate through the Provost. The professor-learning manager gets his share based on the minimum salary for his rank, plus increases for longevity, plus merit increases for "quality", plus extra pay from time to time for episodic extra effort.

One further reflection on my model for melding seems in order. If it appears to be unduly convoluted, one may consider other administrative options for the enhancement of educational opportunities for people over thirty. Here are four:

1. The Regents may create a new college with degree granting authority

e.g., College of Lifelong Learning, Empire State College, College of General Studies, Peoples' College.

2. The President may allocate a budget to a responsible administrator (e.g. Vice President for Continuing Education) for reallocation to deans and professor-learning managers who will provide learning opportunities for adults, with an emphasis on life-centered programs.

3. The President may provide a fund to the Provost for incentive pay to professor-learning managers who give extraordinary attention and effort to the special needs of adult students.

4. The President may move opportunistically in the selection of new deans and professors who are committed to serving the characteristics requirements of adult learners.

Each of the alternatives has its own set of advantages and I am solely tempted to recite them to you. However, I am willing to take the chance that if I discuss one of them briefly you will be so stirred up that you will spend the rest of the night thinking about the rest of them. Let us then consider the idea of a special college for the adult part-time students. Compared to the melding model just presented, a special college has all of the charm of administrative simplicity. And it can go a long way toward total teaching unification by serving as a home for most of the Continuing Education units, by appointing practically everybody in the university to its faculty, and by providing access to practically all of the classes offered on and off campus to the adult part-time students. It can offer degrees, diplomas, certificates, and Continuing Education units. It can be innovative, experimental, and creative. It can do some things simply because they are there for the doing. The deans and faculties of some professional schools like the idea very much, because while they understand and appreciate the need for higher education to serve the adult part-time student, they are driven up the academic walls by the absurd demands adults make for specially designed programs to be offered at awkward times in impossible places. They quite candidly worry that if their traditional stream of activity is polluted by all this nonsense they will lose their professional accreditation. And everyone knows that deans feel it is easier to move a cemetery than it is to change an accreditation standard. And easier than either is to put all those kooky adult types in a college of their own. Admittedly it is not as tight a unification of the total teaching effort as the earlier model for melding but is eminently more practical if you compare the two models logistically as well as logically. The other alternatives are probably more practical too but I leave that discovery to you in your own period of independent study.

I move now to the final implication of contemporary adult education for higher education. People who know me even slightly would find it passing strange if I did not say a kind word for our worthy competitors. Because in the American laisse-faire system of adult education, anybody and everybody can play the game. The public higher education establishment which sponsors this conference certainly has no monopoly on higher education, even as part of a statewide system or regional consortium. We have very strong competitors. Here are four examples:

1. Private corporations have been authorized to grant graduate degrees for programs they conduct at a profit.

2. Proprietary schools can promise students who are otherwise qualified that they are eligible for GI benefits, federally guaranteed student loans, and manpower training subsidies.

3. Each year, several hundred thousand federal employees are provided in-house programs of education.

4. Each year, several hundred thousand employees in private business and industry are provided in-house programs of education.

So who needs the higher education establishment? Obviously nobody who can be better served elsewhere. And convers ly everybody who can be better served by us. In case you took a cat-na during the 60's, let me announce that all of our competitors are at least artially financed directly or indirectly out of the tax dollar - even programs in private industry. It is strangely paradoxical that public institutions today must compete for the public dollar. The name of the game is "do it better or get out of the way." That is why I do not worry at all about the diploma mills. No piece of paper can give a person the smarts; and it is no contest at all to pit the person with the piece of mill paper against the person with the smarts achieved in a well-planned, well managed, long-term learning program. No, the diploma mills are not our competition. Our competition is the quality program put on by private industry, proprietary schools, and government agencies. When they succeed we applaud - perhaps grudgingly - because all of us are trying to give people a chance to learn something. But our applause is not that of a good loser or a competitor about to leave the field. Not at all. With the educational facilities, faculties, and wisdom of the ages as resources, the higher educational establishment has the inside track - the winning edge - on the development of long-term programs of learning. Our professor-learning managers can serve society better than anyone else in maintaining a lifetime relationship with adult part-time students. Consequently, it seems reasonable to me that society should expect us to do what we can do better than anyone else; and

that all who want to learn should expect to find that the establishment cares enought to do its very best. I do not know and cannot predict what you will do in Buffalo, but I can promise you that in Oklahoma we are equipping ourselves to be the educational home for the person who wants to spend a part of his life all of his life in study and learning. Every year we add a few more programs which relate to the needs of our people, build on what adult students know, and go to them at times and places convenient to them. We keep tinkering with our administrative alignments and I hope we always will or that we will at least until the time we have our life-centered programs more firmly imbedded in the total concern for teaching. We keenly appreciate the colleagueships of all who are similarly dedicated and I must say that in coming to this Conference, I do not feel that I ever left home.

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CONCLUDING REMARKS:

Robert F. Berner

Thurman, thank you very much. I have just a couple of observations. First of all, I want to thank Charlie Fogel for the accolades, but I want also to have all of you understand that this is a testimonial, not to an individual, but to an entire Division for fifty years of effort in serving the Community, and also to all the members of the staff who worked tirelessly in planning and implementing educational programs for persons with adult responsibilities.

The second observation that I have is that, yes, Thurman, we have a lot of ground to cover, new ground to cover, new ideas to explore, the past is but prologue to a great deal more effort on our part in the future. I am kind of reminded of a story about new ground to cover. The story is about a farmer who had a sick cat. He called the Vet and said to him, "Doc, you know, I've got an awfully sick cat here." The Doc had just awakened from a brief nap, and thought the farmer had said that he had a sick calf; and so he said, "Well, look, it's quite easy to do, just give it a half pint of castor oil, and it'll be alright in the morning." The next day the Vet happened to be driving by the farm and saw the farmer in the field and said, "Hi, Joe, how's that sick calf of yours?" The farmer said, "Doc, I didn't say sick calf -- I said cat". . ."Well, said the Vet, "how's the cat?" The farmer said, "Busy, but he's got a lot of feline help; one's digging, one's covering up, one's hunting new ground." (Laughter)

We in Continuing Education have some new ground to hunt. We need to forge ahead in developing and evaluating programs which meet the individualized needs of adults. We need to experiment with new modes for learning which provide greater flexibility in format while assuring a quality educational experience. We need to test models like that proposed by Thurman this evening; a model which encourages the development of learning managers within the faculty.

I want to thank all of you for attending. It's been a real pleasure having you here to help us celebrate our 50th Anniversary. Thank you very much.