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SOME CONSIDERATIONS ON CHANGE,
LEARNING AND DEVELOPMENT IN HIGHER
EDUCATION

Theoretical and methodological issues related
to the FORM-Project

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Forward to the second edition

I wrote this paper as part of the cross-national, longitudinal study of university students' socialization and personality development, the so-called FORM project. Some 5000 students were followed-up three to four times. The FORM-Project, in which five countries – Austria, Germany, the Netherlands, Poland and Yugoslavia (Slovenia) took part during the years 1972 to 1985, was conceived as a collaborative project. Note that, at that time, Poland and Yugoslavia were still part of the communist “Warsaw Pact” states, dominated by the Soviet Union. The German part was called *Projekt Hochschulsozialisation* and financed by the *Deutsche Forschungsgemeinschaft* through its *Sonderforschungsbereich* program, located at the University of Konstanz. Members of the research team were Hansgert Peisert (director), Tino Bargel, Barbara Dippelhofer-Stiem, Gerhild Framhein, Georg Lind, Johann-Ulrich Sandberger and Hans-Gerhard Walter. The German project also included a “Abiturienten follow-up”, studying the transition from high school (*Gymnasium*) into university, and a job-starter followup, studying the transition from university into employment.¹ Being part of such an unusual, ambitious research project, my colleagues and I were very much absorbed by the planning and coordination of meetings, data collection, data processing and reporting, so that little time was left for writing more than just short sketches on the ideas that founded and guided our research. One such sketchy note was *Change, Learning and Development*, which I originally wrote in 1978 as a conference presentation, and thereafter published as part of the series *Arbeitsunterlagen* of the German FORM-project. Unfortunately, these research reports were not easily accessible for the international audience. When, twenty years later, I came across the third volume on the “Sierra Project”, a highly interesting follow-up study of first semester students over a range of ten years, by John Whiteley, Ralph Mosher and their colleagues, I was thrilled by their research findings. They fully supported our ideas on the differentiation between change, learning and development, formulated but little publicized in the seventies:

¹For a more detailed description of the FORM-Project see: Framhein, G. & Langer, J., eds., (1985). *Student und Studium im internationalen Vergleich*. Klagenfurt: Kärntner Druck- u. Verlagsanstalt. Bargel, T., Markiewicz, W. & Peisert, H., (1982). *University Graduates: Study experience and social role - Empirical findings of a comparative study in five European countries*. In M. Niessen & J. Peschar, eds., *Comparative research on education*, pp. 55-78. Oxford: Pergamon.

“Students in the Sierra-Project were nearly unanimous in reporting that they would not be who they had become if it were not for the college experience, especially on dimensions of thinking about moral issues. They did make one important qualifier: They had not *changed* as much as they had *developed*. [. . .] It seemed to us that they were expressing that the core of who they were had remained the same. It was their stance in relation to those choices which had become more acute and sensitive, and this was considered by them to be development”²

This finding from qualitative interviews is also in line with the data from our quantitative, longitudinal study in the domain of moral thinking and development. We found that students do not *change* their moral principles or attitudes but rather retain them over the whole developmental span that we studied. However, most of them show great *development* of their ability to judge on the basis of their moral principles and act accordingly.³ I wish to thank Patricia Knoop for her help in editing this paper for re-publication.

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²Mosher, R., Connor, D., Kalliel, K.M., Day, J.M., Yokota, N. & Whiteley, J., eds. (1999). *Moral action in young adulthood*. Columbia, SC: South Carolina University Press., p. v. Emphasis added by me.

³Lind, G. (1985). Attitude change or cognitive-moral development? How to conceive of socialization at the university. G. Lind, H.A. Hartmann & R. Wakenhut, eds., *Moral development and the social environment*. Studies in the philosophy and psychology of moral judgment and education, pp. 173-192. Chicago: Precedent Publishing Inc. Lind, G. (1995). *The meaning and measurement of moral judgment competence revisited – A dual aspect theory*. Paper present at the AERA congress in San Francisco, 1995 ([http://www. Uni-konstanz.de/ag-moral/mjt-95.htm](http://www.Uni-konstanz.de/ag-moral/mjt-95.htm)).

Preface

This is a revised version of a paper presented at the Utrecht meeting of the FORM-Project (March 1978). It concerns the problems of assessing not only but also learning and personality development in university or in other institutions of higher education. It contains proposals for

1. how traditional views of socialization theory (including role theory) may be related to current conceptions of 'developmental research'
2. how one could conceptually interrelate the terms 'change', 'learning' and 'development' and
3. how developmental measures might be derived from a questionnaire survey

The paper is part of the project “Bildungsbiographien und Daseinsvorstellungen von Akademikern/Hochschulsozialisation” in the *Center for Educational Research* at the *University of Constance*. The project staff consists of Professor H. Peisert (director), T. Bargel, B. Dippelhofer-Stiem, G. Framhein, J.-U. Sandberger, H.G. Walter and the author. Under the name FORM the project is conducted in collaboration with educational researchers in Austria, Great-Britain, Netherlands, Poland, Sweden and Yugoslavia. In preparing this paper the critical comments by Margaret O’Brian, Keith Percy and John Sandberger have been of great help.

Introduction

Since for technical reasons questionnaires are inevitable for large scale investigations concerned with the nature and scope of learning and development (within a nation or across nations) and their generalizability over various life domains (self, university, study, job, politics, arts and humanities, engineering), the FORM-Project is in need of a 'marriage' of qualitative research and questionnaire methodology. One way to achieve this is the combination of questionnaire and interview research (for a treatment of latter see the discussion on 'small scale studies'). The other way which seems promising and will be pursued in this paper is that of deriving *qualitative (developmental) measures* from patterns of questionnaire responses. The two ways can be used to supplement one another. In line with this idea some models of change and development are surveyed and their methodological implications are discussed⁴. From a survey of the literature one can conclude that the theoretical and methodological problems connected to the measurement of development in higher education are still considerable especially with regard to concrete specifications and operationalizations. Either the models (cf. Baltes et.al.1977) are too diffuse or are too specific to serve our purpose. I propose therefore, to discuss the measurement of development not in general but rather within the particular context of the ongoing project.

In order to provide a frame for the discussion of student development I would like to refer to the view of Burton R. Clark on 'Sociology of Higher Education' (1973):

“In the study of college impact, we already have relatively massive but trivial literature (cf. Feldman and Newcomb’s review of 1.500 studies) [...] But the effort to sort out the determinants and outcomes, particularly to comprehend the interactions between student inputs and campus structure, is increasingly costly in time and money. Is it worth it?” (p. 9).

As John Meyer has put it, “whether or not the student has learned anything – and, we might add, become a little less religious or a little more liberal

⁴ Though being of great interest basic problems of measurement will be excluded from discussion here (cf. Suppes and Zinnes 1963; Dawes 1972; Orth 1974).

– his job prospects, income potential, access to political and civil service, positions, material prospects, and other opportunities, are greatly altered” (p. 9).

“The comparative work will entail a variety of analytical interests, for example, inequality in access, student life, institutional resilience and change, and governance management of national systems” (p. 10).

“If colleges and universities as well as schools are places, where society recreates (and develops) itself in the young, then their values, traditions and collective identities appropriately can be placed at the center of sociological attention” (p. 11).

It is beyond the scope of this paper to discuss all the points Clark has enunciated as programmatic aims of research into higher education in the seventies, however, this has already been covered partially in the paper of Lind, Bargel and Sandberger (1976). Nor shall the inconsistencies in Clark’s paper be discussed (see the first and the last statement cited). Instead, I like to add two further arguments to his criticism of the 'impact of college research' of which the second will serve as a starting point for some constructive proposals:

- Most research works reported in Feldman and Newcomb’s review are of the cross-sectional type. Thus individual changes during the college years could not be detected. In cross-sectional comparison of inputs and outputs individual changes may cancel each other.
- If longitudinal or not, research into the effects of higher education has almost exclusively been devoted to measurement of attitude change or of knowledge gain. 'Qualitative' development, changes in 'structure' of behavior and higher forms of learning have almost never been studied⁵. Amongst the few exceptions are Newcomb’s *Bennington Study* (there he made an attempt to measure the 'critical attitude' revealed by students’ response pattern) and Perry’s thorough study on the intellectual and ethical development of students (cf. Newcomb 1943; Perry 1970)⁶.

⁵ Obviously, it is rather that type of change which educators have in mind when expecting e.g. “development of personality”, “becoming critical and rational” or “acquiring a sense of responsibility” as outcomes of higher education (Peisert 1976, Sandberger & Lind, in press).

⁶ For an approach to measure 'critical rationalism' within the FORM-Project see Bargel & Framhein (1976) and Sandberger, Lind & Bargel (1977).

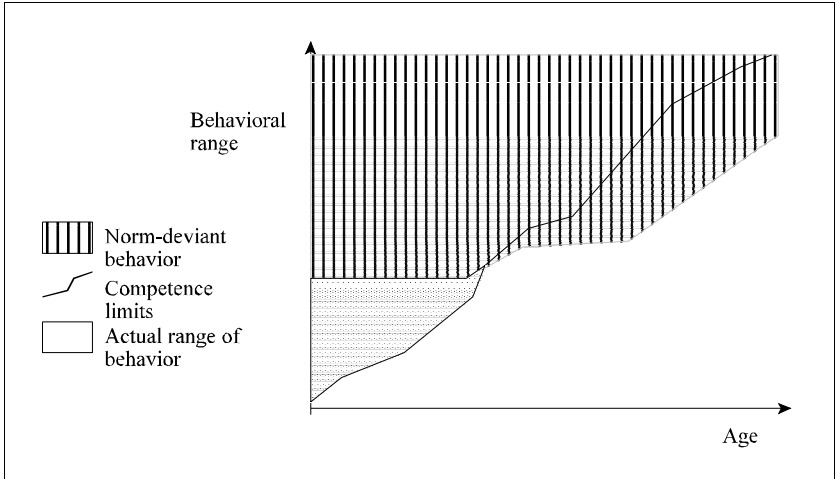
The major purpose of this paper is to investigate the possibilities of conceptualizing and measuring structural change, that is learning and development in higher education (university) and, eventually, to give some examples of how learning and development can be measured by a questionnaire as the one employed in the FORM-Project.

We should note however, that although within the context of empirical research, it is advisable to confine the discussion to precise and well developed theories and models only, it seems necessary to consider first general theoretical frameworks before turning to more concrete approaches. For this reason the first two paragraphs deal with mere theoretical issues, one with background theories of change and personality development, the other with the conceptual interrelation between the terms change, learning and development.

1. Background theories of change and development

Socialization

In his well-known definition Child (1959) describes socialization as that process by which an individual, born with the greatest behavioral possibilities, acquires those behaviors which conform to the narrow norms of his group or society (the ‘funnel-model’).



This model and its implications are widely adopted by social-psychologists. For many it implies a conforming effect. It is assumed that the range of attitudinal expressions narrow down as a function of age, institutional pressure for conformity, clearness of norms or role expectations, role taking skill, etc. Children (1959) was prudent enough not to speak of society funneling *actual behavior* but possibilities thus rendering the assumed logical implication an empirical question.

Very roughly speaking, norms and competencies can be conceived as partly independent ‘restrictors’ of behavior whose interplay determines the range of actual (verbal and non-verbal) behavior. The schematical graph of the socialization process takes into account that normative regulations may increase or decrease as a function of age, of intellectual and ethical development, etc. And it considers the very fact that there are also norms which require a widening of

behavioral possibilities (the norms of learning, that is of acquiring new competencies, or the norm of freedom). As opposed to normal people, university graduates may even be expected to challenge and perhaps modify existing norms (norms of second order or meta-norms).

However, in spite of their apparent vagueness, these aspects of socialization seem of heuristic value, if the 'shall' and 'can' are to be investigated empirically rather than just serving as non-tested assumptions. Another important objection against traditional socialization research refers to the dichotomy of nomothetic versus ideographic research (cf. Cronbach 1975; Ekkehamer 1974; Bowers 1973). Norms may put tight boundaries for behavior, or may not do so; competencies might or might not enlarge behavioral possibilities; but the question remains as to whether one has to anticipate patterns of development to individual students or, at least, to particular categories of students.

Role theory

Socialization is often defined in terms of role theory (cf. Merton, Nadel, Dahrendorf). Changes in role expectations, role taking, role enacting and other related concepts are employed to describe the socialization process. For instance, Parsons categorizes the development of role behavior in terms of his pattern variables. However, role theory has been accused of painting a too crude picture of men (Danziger 1971, p. 37ff.; Bannister & Fransella 1971, p. 48ff.), and the utility of these approaches in general has been seriously questioned by 'critical rationalists' who argue that building a categorical system is no substitute for a theory which can be tested empirically (cf. Opp 1972).

Recent approaches seem to overcome some of these shortcomings. Parsons' pattern variable universality-particularity has been operationalized by Stouffer and Toby (1963). Further to this, Kohlberg (1969; 1975) coming from the Piaget tradition of research, has developed a more differentiated scheme of the pattern variables universality/particularity and conformity/autonomy, resulting in six stages of moral reasoning (cf. Fend 1971). The latter categorization is closely linked to theory and empirical research, and it is still in progress conceptually as well as methodologically. (In this the FORM-Project takes active part, cf. Lind 1977). Role theory has also been transformed into a sophisticated theory

of 'Personal constructs' by George A. Kelly (1955; cf. Also Bannister & Fransella 1971). Connected to this tradition is Perry's work on development in the college years. The possibility of extending the concept of role to "those patterns of attitudes and behavior which the individual chooses for himself and elicits with or without approval of societal instances of control, or even to patterns which he attempts to enforce himself on others" is discussed by Hartman (1974, p. 149). The concept of socialization may then embrace also institutionalized aids for the self-actualization and individualization of the socializee. Again, the controversy between the two basic views (socialization as producing heteronomy or autonomy) should be thought of as an empirical question concerning the dominance of either one and how this relation changes during the university years. Here, Kohlberg's conception of three levels of normative orientation ('egocentric', 'heteronomous', 'contract') seems of great utility for developmental research not only because it has stimulated a great deal of empirical research already but also because it points at a critical problem. As it is used in most of the sociological literature, the word autonomy suffers some ambiguity of meaning ('egocentricity' or 'contractualism') so that the new ways of thinking (Kelly, Kohlberg etc.) with regard to role theory and socialization seem of great importance. However, they place before us a number of methodological problems which no one has yet a ready solution. We shall come back to this problem.

2. The meaning of change, learning, and development

One of the most common criticisms directed towards traditional impact of college research (as documented comprehensively in Sandford 1967, Feldman & Newcomb 1970; Nitsch 1973; Lenning et al. 1974; Cloetta 1975) is that this research is designed to detect only change.

The changes chosen for investigation are often insufficiently defined and poorly justified by the researcher in spite of the fact that there are many ways of defining change in terms of amount, of modes of comparison, of complexity of patterns, of velocity and other aspects. To reduce this arbitrariness in socialization research more theoretically oriented social scientists have introduced aims of change as a criterion (cf. for example Brim 1974; Hartman 1974, p. 130). This and other contentive specifications of socialization have already been mentioned. But what can we say with regard to the meaning and elaboration of formal models of change, learning and development?

All three terms have been used in different ways, sometimes as interchangeable synonyms⁷. Often these terms are used, or misused, for labeling different theoretical schools of sociology or psychology. In the course of introducing various models of development I shall try to keep the three terms for a differentiated conception of socialization process here by producing a clarification of methodological implications. This seems necessary as most promising new approaches in our field of research are regrettably introduced as alternatives instead of viewing them as supplementary or as more general concepts which comprise the traditional concepts attacked. For a discussion on the related problem of semantical differentiation between the terms socialization and learning see Bargel 1976, p. 75ff. New definitions of development by authors like Piaget, Werner, Kohlberg, Nagel, Zigler etc. demonstrate the lights and shades of such type of theoretical progress. We shall consider one of these definitions.

Development is defined as “changes in the form of organization of responses over time as contrasted with the change in the strength or accuracy of the response (...) Thus, the developmentalist focuses upon structural changes in a res-

⁷ “Man kan saledes betrakta varje inlärningssituation som en utveckling i miniatyr (Marton & Säljo 1976, p. 14).

ponse, changes which cannot be defined in terms of changes which occur within single trials or stimulus presentations” (Zigler 1963, p. 345).

Though this definition of Zigler is still rather precise, it is distinguished from many other definitions in that it contains a reference to research design. Other definitions don't even contain that minimal information about how to put the program into action. As a result from the study of several research works by those who investigate change, learning or development, I propose the following reconstruction of these terms and their interrelation:

Change

It is a deviation of the respondent from his usual course of action due to inner or outer stimulation (S-R-theory). The reaction may be a behavioral coping (if the stimulus represents a task or a hindrance before satisfaction of needs or alike), or a verbal statement. Change is necessary if either the state of the behavioral objective changes (e.g. no hunger/hunger) or if the circumstance changes while an aim is being pursued.

Learning

It is said to occur if not only behavior but the *connection* between stimulus (task, question etc.) and reaction (coping behavior, answer etc.) changes. New competencies and new evaluative reactions are learned in order to satisfy given needs in new situations.

Learning becomes necessary when changing behavior is not sufficient to cope with particular configuration of behavioral possibilities, aims and (hindering or promoting) circumstances. Example: If an individual is hungry (aim) he eats (behavior) a piece of bread (circumstance). If either hunger ceases, or the bread is eaten, eating behavior changes from active to stop. When the supportive circumstances are absent for a while the life of the organism is endangered. The individual has to develop new behavioral strategies to compensate for the missing circumstances, it has to learn, e.g. to care for stable circumstances. This conception seems compatible with behavioristic theories (Hill, Skinner) or even better with 'subjective behaviorism' (Miller, Galanter & Pribram 1960).

Development

Psychological, cognitive development is said to be structural. What does that mean, how does this term differ from learning? There is a vague notion that development comprises learning. But how? Some psychologists equate development with socialization in the sense of adapting to social values (e.g. Oerter 1967) or conceive of it as the additional result of learning maturation. These conceptions are not only leading researchers to ask meaningless questions (for a sophisticated critique of these positions see the works of, for example, Anastasi 1958, Hunt 1961, Nesselroad & Reese 1973). They also cause unfruitful discussions in public (Jensen, Eysenck) which prevent a more unified view of research results, educational systems and politics emerging by integrating developmental psychology, socialization theory and macro-sociological models of the role of education in society (cf. Meyer 1977). So a new understanding of development is needed. Relying once again on the central distinction of acquiring competencies ('can') and values or aims ('want') the term development in modern thinking seems to be closely related to the change of the latter (cf. Brim 1974, p. 26): While the individual's "life space" (Kurt Lewin 1963) widens

- a) the individual adopts new behavioral goals (normative orientations) beyond the basic needs for surviving physically
- b) he becomes aware of the needs of others and anticipates future needs
- c) he experiences conflicts between his needs and the needs of others (or between the means to satisfy these needs) if they happen to be mutually exclusive

The probability of such intra-psychical or interpersonal conflicts are assumed to increase as the awareness of the number of needs and the number of interactions with others grow. The whole development could, in line with these considerations, be conceived as the growing awareness of competencies and needs of oneself and of others (responsibility) and as the evolving competence of solving conflicts between various needs and behavioral means, later involving such properties as autonomy, critical ability and rationality (c.f. Sandberger, Lind & Bargel 1977). In opposition to the acquirement of competencies which we call learning, in development aims of behavior (awareness of needs) are not fixed, or given, but are themselves subject to change and reorganization. Thus one can assume that development in this narrow sense is necessary if neither mere *change* of behavior nor *learning* of new behavioral strategies guarantees

the adaption of the individual to a given ecological setting (including his own body and his natural and social environment). The terms change, learning and development thus are closely interrelated but distinctive concepts which differ from each other with regard to these features: Difference, direction and difference in direction of action. Although this way of differentiating between the three terms of great analytical usefulness this narrow definition suggested here is not commonly shared. Maybe it is because the acquisition and growth of descriptive and prescriptive knowledge are empirically so closely interrelated that in most literature the term development covers also complex hierarchical patterns of learning. These types of learning have been extensively outlined by Piaget with regard to students.

Behavior ...	is differing	is directed	differs in direction	Kohlberg's level of morality⁸
change	Yes	No	No	Intellectual conformity
learning	Yes	Yes	No	Value conformity
development	Yes	Yes	Yes	Principledness

Bannister and Fransella describe a case of development in terms of personal construct theory (Kelly) which pulls together and transcends the different approaches: "The child's construing of his mother's construct system is the jumping off ground for the development of the child's construing system. He starts out with this and uses it in his dealings with others. Soon he meets others like himself and finds that all the anticipations he makes do not always work out, so he develops new role constructs in relation to others of his age. So he goes on, gradually elaborating his role construing (...) Development can be seen as occurring largely when anticipations fail" (Bannister & Fransella 1971, p. 87) or when they imply conflicting alternatives of action (c.f. Eckensberger & Reinshagen 1977).

Kelly's as well as Kohlberg's conception of change of the cognitive functioning again proves that development cannot be conceived in terms of single behavior but of behavioral pattern (for this argument see also Fishbein & Ajzen 1975;

⁸ Kohlberg (1958), p. 131

Lind 1977a). We prefer to say a behavioral pattern of structure instead of cognitive structure because the term behavior (verbal or other behavior) provides a better base for research. Behavior, to us, means plainly something like overt signs of the individual's state of organism or thought. Thus, it actually is the only medium through which empirical knowledge can be gained. Cognitive structure can never be observed directly but can only be reconstructed by the analyses of patterns of behavioral reactions to patterns of known (measured or controlled) stimuli, that is the functional relationship between perceived environmental settings and the consequent course of action.

Formal models of change, learning and development

Another great controversy in developmental psychology concerns also formal models. Does an individual develop according to stages, phases, levels and so on, or does he develop gradually? (Pro stages: e.g. Piaget, Kohlberg, Ch. Bühler, Kroh, Hooper. Contra stages: e.g. Bruner, Oerter, Rest) It is puzzling to note that the grounds on which the pros and cons are defended are not very consistent and sometimes are even contradictory. Moreover, stage theories are mostly poorly grounded in empirical research. Attempts to prove them empirically are rare and have produced contradictory results (c.f. Hooper 1973; Green et al. 1971). Authors like Kroh defend the assumption of stages with the doubtful assumption of maturation. Yet this and other descriptions of stages (Bühler, Tumlitz) raise the suspicion that social institutions such as home, schooling, college, etc. provide the intersections which cause the impression of stages. Besides, innate and learned or social causes, thirdly an inner logic is made responsible for a stage by stage progress of thought and action (see e.g. Piaget 1971). This third view relates to the 'organismic' or 'interactional' model of development as opposed to the 'mechanistic' model. In this model one assumes in addition to material and effective causes (as in the mechanistic model) also formal and final causes which mark out the behavior of human beings (Reese & Overton 1970). Whether these distinctions imply different psychologies is discussed by Kuhn (1978).

On the other hand, objections against concepts like stage, level, phase etc. often depend on insufficient research designs or evaluations; some seem to be based on misunderstandings. For proper criticism of stage models some clarifications

seem necessary. First, stage-models may serve primarily as heuristic models, they cannot be disproved empirically and only help the researcher in thinking about his research object. In this case stage theories cannot be right or wrong but can only be useful or not. Second, the question of continuity or discontinuity (favorite terms of Kohlberg; see e.g. 1973) is only then of any value for distinguishing between change and development if discontinuity is defined either as an amount of change that is of *qualitative significance*, or as change of functional relationships between stimuli and behavior patterns, or as an emergence of new value configurations. The first definition is the most problematic one, of course. To detect discontinuities amongst gradual change “[. . .] would depend fundamentally on a question of scale; for a certain scale of measurement we obtain discontinuity when with a finer scale we should get continuity” (Piaget 1960, p. 121). Continuous change does, moreover, not falsify stage theory. If so, we neither could distinguish qualitatively between day and night because they change continuously. But we successfully do so. Alike, the conception of a sudden change as a criterion for the application of stage-models has to be substantiated before it is of any use. Consequently, as far as they imply empirical assumptions disapproval of stages can only be undertaken if the stage-model is sufficiently specified. This should be our aim. Defining developmental progression as standards of idealization (a sequence of ideal-type constructs against which to relate actual behavioral change, as Kaplan 1964, suggested) could possibly solve the problem when it is supplemented by endeavors to specify and investigate the particular stage-model. An example for this can be found in Kohlberg’s theorizing about stages of moral development. This notion of development as being always a stepwise stage by stage process can be briefly summarized as follows. A new stage is said to be reached when the value system of a person enlarges, becomes more organized (minor versus major aims of behavior) and more integrated (meta-norms for the management of intra-individual and of inter-individual value conflicts). Major qualitative changes within development are according to the organismic model called stages or levels. Such transformations might be observed,

- when the individual develops a sense for abstract rules of interaction with strange people (e.g. laws)
- when meta-rules are developed for the modification and adaption of laws to new social or natural realities
- when a person develops a sense for universal, basic principles of social behavior (moral and ethical standards, communicative competencies) which

cannot be subject to social contract, majority rule or state regulations, and cannot be enforced by outer measures, either, but must be interiorized by each individual ('autonomous morality')

These qualitative distinctions, employed in Kohlberg's cognitive developmental theory of moralization, are discussed by Habermas (1976), Loevinger (1966), Portele (1978), Tomlinson (1974), Haan, Krämer-Badoni & Wakenhut (1976) and other researchers with regard to post-adolescent moral development (for a critique discussion see Gibbs 1975).

I don't want to go deeper into a discussion of the mechanisms of learning and development (for this see e.g. Scandura 1971; Perry 1970; Marton 1976; Entwistle & Hounsell 1975; Kohlberg 1975), this must be left to another occasion as must the discussion of mere change effects.

In developmental research, we do regard simple changes of attitudes or self-reports of competencies as important, but in accordance to the approaches suggested above our interests go beyond that. Therefore now some methodological implications of the new approaches to socializational research will now be discussed. Especially, the possibility of deriving qualitative measures of development from the FORM-questionnaire shall be investigated with regard to some examples taken from this research instrument.

3. Proposals for measures of personality development of university students

Though opinions diverge considerably on this (see e.g. Clark 1973, p. 9), many authors contend that the “experience of leaving home and entering a college community with conflicting values in the context of moratorium, identity questioning, and need for commitment” (Kohlberg 1973, p. 195) as well as college education as a whole has a significant impact on student’s personality development (Webster et. Al. 1967; Feldman & Newcomb 1979; Rest 1975).

Phenomenologists, or other proponents of qualitative research usually say that standardized questionnaires as employed in the FORM-Project are not suitable for measuring structural change (change of behavioral patterns).⁹ This objection may be true with regard to particular aspects of development but not to all. We believe that using standardized questionnaires is no insurmountable obstacle to developmental measurement in general if one leaves the beaten paths of conventional test-construction and attitude scaling. It seems possible to improve the quality of assessment by taking into account developmental measures which employ techniques beyond item scale values or summated ratings.

What are developmental measures? After what has been said so far about development one could derive as a criterion for developmental (as opposed to mere change) measures that they are to be qualitative in nature, while the meaning of qualitative has to be further specified for measures of competencies in a way other than that of measures of behavioral goals (aims and values), in different ways also for different content areas (self, university, science, politics, profession, social regulations etc.). In some cases this will not be easily achieved, at least not without some arbitrariness. In other cases, however, the interruption of a phase of development may seem obvious, for example,

- when the individual’s attitude changes not only with regard to its strength but also with regard to its quality (e.g. becoming not only a little less liberal but conservative)
- when new values are added or subtracted from the individual’s pattern of values and thus the configuration of value is changed

⁹ Vgl. Kohlberg 1978; Nunner-Winkler 1978; Schubler 1978; Reinhagen 1978.

- when attitudes are increasingly based on familiarity with the object toward which the attitude is directed
- when the functional relationship between stimuli (questions) and reactions (answers) change, that is, when attitudes undergo a restructuring and when the reference system changes
- when growth of understanding and experience produce patterns of answers which are specific to certain developmental stages

For each of these developmental phenomena an example shall now be given with some more detailed information on technical procedures.

a) Qualitative, sample-free scale intersections¹⁰

Reviewing literature on the concept and the investigation of Intern versus External Cognition, (I-E-C), a construct introduced by Rotter and his colleagues (Rotter, Change & Phares 1972), one is confronted with a large number of results not consistent with theory or with one another. Some of these disappointing findings are possibly due to the lack of attention paid to qualitative intersections of the scale. There is no precise definition of which range of the scale represents internal and which external cognitions. Thus some samples presumably contain only subjects of one kind (western culture, upper classes: mostly internal control cognitions) and dividing the sample at the median, as usually done, is not justified. An improvement of measuring the I-E-C dimension might be achieved when we define qualitative ranges of the scale. In question IX/45 the first item asks for the student's judgement as to what degree he feels that he is in charge of his life, viz., how much he views his life controlled by other instances. The numbers assigned to the responses represent:

b) Configurational change

Since Meehl (1959) argued for configural scoring this branch of test evaluation never gained great popularity in spite of its great potentiality with regard to sophisticated theoretical considerations. A new attempt to promote the evaluation

¹⁰ Example: Question IX/4. The examples are taken from the FORM panel-questionnaire (systematic version).

0. extremely external (pathological?)		external control cognition (0.-2)
1. strongly external	>	
2. moderately		
3. mixed		Internal control cognition (4.-6.)
4. moderately internal	>	
5. strongly internal		
6. extremely internal (pathological?)		

of data configurations is found in Krauth and Lienert's book on *Konfigurationsanalyse*. A most interesting theoretical consideration which calls for a configurational view is presented in the 'two-value-model' of political ideology (1973). There, freedom and equality constitute the central components. The four possible configurations are related by Rokeach to political ideologies:

Configuration		political ideology
freedom	equality	
high	high	socialism
high	low	capitalism
low	high	communism
low	low	fascism

In the FORM-questionnaire we have taken up these investigations and ask the students explicitly which logical relations exist between these two 'terminal values.'

c) *Becoming familiar with the issue*¹¹

In their outstanding survey of *The American Voter*, Campbell et al. (1960) argued that a necessary cognitive prerequisite for competent judgement is the familiarity with the political issues at stake. It obviously is of qualitative diffe-

¹¹ Example: several questions in the FORM-questionnaire, especially those containing 'don't know' answers or alike response categories.

rence whether or not a political judgement is based on knowledge. Thus they delineated an 'index of issue familiarity' by counting the respondents' willingness to express an opinion on 16 issues propositions. Similarly, a measure of familiarity with political issues can be constructed from items of the FORM-questionnaire to measure political development. Another area of life with which the student has to become familiar is university as a new social environment. Being unfamiliar with the new environment the student first has probably no attitude toward it, at least no attitude which is based on primary experience, though maybe on hearsay. The first stage in developing a relation between himself and university may thus be named 'becoming familiar with university'. The same can be said about the development of political attitudes. If familiarity is established to a sufficient degree the student (now on the second stage) develops an attitude toward university or toward politics. This attitude toward university or toward politics may be positive or negative but first it will probably be rather undifferentiated: all answers to questions about attitudes toward university are in the same direction and have a similar magnitude of valuing. A third stage is reached when this section of the student's life-space becomes cognitively more differentiated. Newcomb (1943) would say the student has then developed a '*critical attitude*' toward university, respectively. Some aspects of the university environment and about politics are valued high, others low, some positive, others negative. This differentiation implies a lowering of traditional consistency measures after they have continually risen as a function of familiarity-growth. Obviously, developmental assumptions like these can easily be checked with regard to their empirical reality.

d) Change of functional relationship

Keasey (1975) contends that the evaluative reaction to moral opinions and argument is more influenced by whether the opinion agrees or doesn't agree with the respondent (the 'sign of the argument') than by the quality of that argument as defined by Kohlberg (e.g. 1969). He had corroborated this contention by an analyses of variance across responses of a sample of adolescent subjects. The design of this study, however, was not sensitive to inter-individual differences of the functional relationship between these two aspects of the moral argument and the evaluative reaction of the subject. This can only be tested by functional measurement using an intra-individual design as employed in designing the

‘Moralisches-Urteil-Test’. Thereby, the impact of sign and quality, respectively, on students’ evaluative reactions can be measured separately for each student. A shift from sign domination to quality domination may be viewed as a developmental progress, as a progress from dogmatic to relativistic thinking. This notion is supported by the results fo the *Abiturientenuntersuchung 1976* (cf. Lind 1977a). Technically spoken, the Moralisches- Urteil-Test is an experiment by questionnaire which provides ideographic measures of individual attitude structures (Kelly 1955; Klapprott 1975). With this experimental design the methodology of functional measurement can be utilized, and also the metric of the scales employed can be tested by means of conjoint measurement theory (cf. Orth 1974; Heymans 1977, for more general discussions on measurement problems see e.g. Böhme 1976; Messick 1975; Suppes & Zinnes 1963).

e) (Developmental) change of response patterns

On the level of measuring development the problem arises how one can infer the respondent’s own stage of moral reasoning. This obviously cannot be done by taking into account only ‘single stimulus settings’ (Zigler 1973, see above). One has to derive measures form the whole response pattern elicited by a carefully designed multiple setting of stimuli. This has been attempted when constructing and revising the ‘Entwicklungslogische Skaliervektoren’ (roughly translated: cognitive developmental scaling vectors, referring to ideal-type response patterns of each stage of moral development) as means of assessing the developmental stage of a person with regard to his verbal reactions to a particular type of moral conflict situation. For further details on this topic see Lind (1977a,b).

Concluding remarks

Clark's charge that impact of college research is producing 'trivial literature' (Clark 1973) calls for a new perspective for research into higher education. Socialization research has too long disregarded allocation, selection and anticipatory socialization as determining factors of educational outcome. Yet, one would exaggerate if one disregards learning and development at college and university (see also Meyer 1972; Brennan 1977). There is not only hope that this view is not right but there is also much counter-evidence (see Perry 1970; Entwistle & Hounsell 1975; and the research conducted by Marton and his associates at the University of Göteborg).

From the inspection of theories and models of development, in my opinion, two conclusions can be drawn with regard to the ongoing FORM-Project:

1. The distinction between quantitative and qualitative measurement (admittedly a very crude distinction) is not congruent with the distinction between questionnaire and interview methodology. Both research strategies seem to have their advantages and disadvantages while basically both seem useful for assessing learning and development. For which question of the two techniques is to be preferred cannot be decided a priori.
2. The appropriateness of its research and of its strategies for statistical evaluation with respect to developmental measurement depends largely on a specification of the claims connected to design and evaluation and on the harvest of further explorations of the possibilities of qualitative measurement by questionnaire methodology. Since this seems a promising field of research, it may pay to devote time and manpower to further progress in this direction. No doubt, large scale measurement of development is in many respects more expensive than large scale measurement of change.

Though this paper argues very strongly for the measurement of qualitative changes of the student's patterns of responses to the questionnaire it also acknowledges the necessity and meaningfulness of measuring simple change. Sometimes this even may mean the only way to pursue other important goals of research into higher education. If one argues for more specific effects of education (as e.g. for effects of particular cohorts of cultural bias, of content of study, of domains of life-space, of sex-role-stereotype etc.) or – as Clark (1973, p. 10) put it – “to entail a variety of analytical interests”, one is also forced to ba-

lance the research interests against each other. Within the FORM-Project the discussion of the right balance led to a research program that is hoped to be a good integration of *quantitative* and *qualitative* methodology in order to paint a differentiated picture of the proves and outcomes of higher education. By asking thousands of students in various countries in Europe to give an insight of their conception of study, of university, of profession, of politics and of themselves, we seek to ensure the external validity and representativity of what the individual student reveals about his views to the educational scientist. By searching for and inventing new methods of qualitative assessment and evaluation of questionnaire data (the only medium of communication which seems available for large scale research) we, however, want to ensure that not only those outcomes of higher education are revealed that are easily assessable.

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