

of using a differentiated multi-dimensional cognitive system for the perception of discrepancies and disparities in the surrounding school situation (*cognitive differentiation*, cf. Schroder, Driver and Steuffert, 1967 et al.). For rational processing of these informations the reactions of the innovative teacher in stress situations at school have to be free from anxiety and projective tendencies (*reactions in stress situations at school*, cf. Lazarus, 1966). The perceived information must be selected and accentuated by a progressive attitude based on a socio-political framework like that outlined above. Moreover the critical concepts of school system and teacher role thus generated must be contrasted to the conservative concepts and attitudes of other teachers, parents and school administrators (*role distance*, cf. Goffman, 1961 and others). The cognitive and emotional structures thus acquired (such as the awareness of the necessity for change of the school system) may be transformed into behaviour tendencies only if the teacher is motivated to take an active part in school affairs (*intrinsic professional motivation*) and if his need-structure is not focussed on goals outside school (*extrinsic professional motivation*, cf. Rosenberg, 1957; Weiss et al. 1964). A most important factor for eliciting innovative behaviour is the teacher's readiness to take the risk of sanctions against his innovative behaviour as well as the risk of failure and its social and legal consequences (*risk-taking*, cf. Kagan and Wallach, 1964).

One of the first steps in the development of a curriculum for the education of innovative teachers is to construct such a framework of psychodynamic dimensions and to relate them to the dimensions of innovative behaviour like those described above.

3. *Dimensions for the Description of an Institution for Teacher Education.* The most important part of our research project is the analysis of the relationship between aspects of the contemporary West German teacher education system and innovative behaviour of prospective teachers. The in-

vestigation into one or two variables isolated from the context of the system (certain lectures, specific contents etc.), many times done during the last decade of teacher education research, does not seem very promising because of the multi-dimensionality of the educational system and the complexity of the psychodynamics. These two most important clusters determine the behaviour of the student teacher. During the second phase of teacher education in the Federal Republic of Germany, taking place in "Studiensemianren", the prospective teacher receives theoretical as well as practical instruction in various forms. He has different instructors in the seminar and in the school. He teaches without supervision, serves as temporary teacher, etc. If one remembers that the second phase of teacher education differs in every *Land* of the Federal Republic, it may be assumed that specific constellations of these variables are more appropriate than others for the creation of certain aspects of innovative behaviour and for the modification of basic qualifications. Since innovative behaviour—within the context of our definition—is regarded as action-oriented and political, the interactional dimension of training conditions (such as network of communication, authority structure, norms and conceptions of instructors) may be of greater importance than specific abilities or specialized knowledge. Hence, the development of a system of dimensions for analyzing teacher education must basically depend on theoretical concepts and research findings from the fields of socialization theory and social psychology (for example the effects of inconsistent socialization, of leadership styles, the communication of attitudes etc.) as well as the results of research about learning processes (referring to feedback-mechanisms, reinforcement procedures etc.). Since there is not sufficient time for a detailed explanation of the dimensions, only a brief description will be given:

a) Clearness and Stability of Training Goals and Criteria for Evaluation of Student Teachers

This dimension is particularly important for certain aspects of innovative behaviour and personality. It includes the level of anxiety, role distance, and cognitive differentiation, and aims to describe differences between and contradictions in the educational concepts of instructors as well as the degree of explicitness of these concepts which is a precondition for clear goal perception by the student teachers.

b) Motivational Incentives

An attempt is made to analyse which motivational incentives (such as salary, social acceptance, tasks perceived as satisfying and meaningful) are offered by the training. The assumption seems reasonable, that they influence especially professional motivation and readiness to deal with educational problems.

c) Ratio of Theoretical to Practical Instruction

Here attention is called to various training situations for student teachers with respect to the quantitative aspect as well as to the distribution throughout the training period. The question arises, which arrangement between misuse as contemporary teacher on one side and, on the other, laboratory atmosphere with reality-shock following is most appropriate for producing innovative behaviour.

d) Extent and Frequency of Feedback

The development, for instance, of cognitive differentiation in the processing of information about educational situations requires a higher degree of reflection on the behaviour of student teachers, not only in the classroom but also as occupants of a social role in the educational system. This is to provide the teachers with as many cate-

gories as possible for the analysis of the educational problems.

e) Interaction Style

It may be assumed that a teacher will exhibit rather more innovative behaviour the more his training supports and favours self-initiated experience and independent thinking, even if it deviates from the conceptions of his supervisors.

f) Innovative Contents

This dimension implies those subject matters discussed in the seminars which suggest to the student teacher possibilities of teaching practice deviating from traditional conceptions. Here, one focus is made upon contents with the goal of eliciting political engagement.

g) Methods of Instruction

We will try to investigate whether in the seminar sessions those instructional methods are applied that are characteristic for the classroom activities of an innovative teacher especially those which are directed to elicit critical and change-oriented participation.

h) Attitudes of Instructors

Since an investigation of the educational process without any direct seminar and classroom observation may neglect important aspects, it is necessary to measure the attitudes of the instructors, concerning new methods and contents, political problems and school reform, which are assumed to affect their interaction with student teachers.

In addition to the information assessed within the framework of these dimensions some further factors must be taken into account (such as social data, attitudes of student teachers, university instruction, etc.) which cannot be described in detail. Yet, the study is centred on the relationship of the three major clusters of variables: in-

novative behaviour, psychodynamics of the innovative personality and training conditions.

Having finished the main phase of field research, we are now coding the questionnaires of 400 instructors and nearly 800 student teachers. As a first step of the statistical analysis we will test the internal consistence of the hypothetical dimensions of innovative behaviour and training situations, using factor and cluster analysis and grouping procedures as methodological devices. In the main step of this part of the study we will try to find interrelations between innovative behaviour and training situations, using regression and variance analysis and canonical correlations.

The research group is aware of the fact that the categories employed are perhaps not differentiated and numerous enough to assess all of the factors in the present educational system influencing innovative behaviour and the corresponding personality variables.

This study is intended to generate more sophisticated hypotheses and to give impetus for further research about the problems of educating innovative teachers. Follow-up-studies ought to be conceived in order to relate innovative teacher training to the behaviour of teachers having finished their training. It might be promising to compare the systems for teacher education in different countries based upon dimensions similar to those described above. Possibly the differences between the various countries might lead to more viable results than research under the restricted conditions in one country. The problems of these comparisons are known to all researchers in this field. But reform concepts on the base of research like this could be much more profound and elaborated.

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Attitude Innovatrice et la Formation des Enseignants

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Cet exposé examine le rapport de la théorie et des recherches américaines sur l'innovation avec la relation entre la formation des enseignants et leur attitude innovatrice. Il présente ensuite une conception de cette attitude innovatrice dans un contexte social et économique et décrit les recherches théoriques et empiriques, faites à l'Institut de Recherches en Education de Berlin, sur les rapports entre l'attitude innovatrice et la formation des enseignants. La Recherche sur l'innovation en Education aux Etats Unis semble avoir été influencée de façon décisive par la recherche psychologique sur le rôle de l'individu (a) comme agent de changement (Beavis) et (b) par des approches socio-économiques également fondées sur les individus et leur attitude innovatrice (Rogers, Miles, Carson).

Les trois principes issus de cette recherche qui sont importants pour la formation des enseignants sont les suivants :

1) les innovations peuvent être appliquées quand il n'y a pas de conflit entre elles et les normes importantes du système,

2) les enseignants jouent un rôle accessoire dans le processus d'innovation et

3) les membres les plus importants de la hiérarchie de l'administration des écoles sont également les plus importants pour la réalisation des innovations.

Ces données ont conduit à des recherches fondées sur les administrateurs plutôt que sur les enseignants et en conséquence les cours de formation en innovation sont destinés, à quelques rares exceptions près, aux

premiers plutôt qu'aux seconds.

Une compréhension plus complète des conséquences de l'attitude innovatrice serait possible en s'occupant, non de l'innovation mais de l'attitude innovatrice de l'enseignant et de la formation des enseignants capables d'utiliser des innovations de façon progressiste. Il faut définir une telle attitude innovatrice à l'école vue comme système servant la société (préparant des individus pour des rôles de production et de consommation). Tandis qu'elle exerce une fonction de stabilisateur là où se rencontrent des besoins socialisés et des sources de satisfaction, l'école peut aussi donner une impulsion au changement en rompant l'harmonie par la création de nouveaux types de motivations. Dans ce contexte l'attitude innovatrice des enseignants est une attitude politique active pour le changement de la structure de l'école.

Le dilemme de la recherche empirique sur la révision de la formation des enseignants, qu'elle soit expérimentale ou en situation, est qu'elle doit précisément se faire à l'intérieur des structures que l'on veut modifier. Une étude empirique de l'Institut de Recherches en Education de Berlin est en cours et porte sur les trois aspects suivants :

1) définition de l'attitude innovatrice, fondée sur une conception sociopolitique et sur les conditions présente de la formation des enseignants en République Fédérale Allemande et déterminée en fonction

a) de l'information reçue concernant l'ac-

tivité éducative et politique

- b) l'initiative dans l'adoption de nouveau matériel d'enseignement et de nouvelles méthodes
 - c) le degré d'activité politique
 - 2) définition de la dynamique d'une personne innovatrice, mesurée sur des échelles psychodynamiques en fonction de la différentiation des connaissances, de la réaction aux tensions dans des situations scolaires, des motivations professionnelles et de la quantité de risques pris.
 - 3) Analyse de différents aspects du système actuel de formation des enseignants en Allemagne de l'Ouest par rapport à l'attitude innovatrice de l'enseignant en liaison avec a) les buts de la formation et les critères d'évaluation b) les motivations sti-

mulantes c) le pourcentage de théorie et de pratique d) l'étendue et la fréquence du « feedback » e) le style d'interaction f) les contenus innovateurs g) les méthodes d'enseignement et h) les attitudes vis à vis de l'enseignement.

L'analyse des réponses au questionnaire dans ce domaine aura pour but de trouver les rapports entre l'attitude innovatrice et les situations de formation de façon à formuler des hypothèses plus élaborées. Des études complémentaires pourraient établir un rapport entre la formation des enseignants en matière d'innovation et l'attitude des enseignants qui ont terminé leur formation. Des études comparées internationales conduiront peut-être à des résultats plus sûrs.