

# **How to Become More Effective in Discussions?**

**Four Studies**

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### **Abstract**

Based on literature and research on discussion and on educational techniques to improve discussion moderators behaviors, a training program was developed for pre- and in-service teacher educators, business and industry executives and university professors (23 to 28 hours, three and a half days). This program was tested for its effectiveness with both low inference as well as high inference observation tools in four studies. Results from these studies show that this minimal training achieved significant improvements on low inference measures of effective discussion and general communicative competence, leading to the identification and validation of effective discussion techniques for teacher training and other settings. Evaluation of the training program in the four and in additional 22 studies was very favorable.

### **Introduction**

Discussion in classrooms and other settings is widely recommended as a form of communication valuable in its own right. Thus, an attempt was made to develop an attractive and powerful learning environment in the form of a program for the improvement of social competence in general, and specifically for the improvement of behaviors related to important functions of discussion moderation, which can be used in pre-service as well as in in-service education.

### **Purpose of Studies**

Based on literature and research on discussion and methods for helping teachers and other professionals involving intensive human communication to become more effective, a training program was developed, for student and beginning teachers, business and

industry executives, and university professors. This program was tested for its effectiveness in terms of low inference as well as high inference observation (Borich & Klinzing, 1989) in four studies. Furthermore, the program was evaluated in additional 22 studies with university professors, university students, and executives in business and industry.

## Rationale

Research strongly suggests that the use of discussion is appropriate and effective for several different kinds of objectives. Research reviews impressively demonstrate that the discussion method is effective for subject matter mastery, particularly for improving retention of information, higher level thinking, problem solving, attitude change, and moral development, (Bridges, 1987; Wilen, 2003;. Costin, 1972; Gage & Berliner, 1984; Gall, 1987; Gall & Gall, 1976; Kulik & Kulik, 1979; McKeachie, 1986; Walberg, 1986). Bligh (2000) using a vote-counting approach, integrated about 168 experimental comparisons with other methods (mostly presentations, lectures) with following results:

**Figure 1: Summary of Selected Findings from Bligh’s Review of Experimental Comparisons of Discussion With Other Methods**

<b>Criterion</b>	<b>Discussion <i>Total</i> more effective</b>	<b>No significant difference</b>	<b>Other methods more effective</b>
<i>Development of</i>			
<b>Thinking</b>	<b>37 42</b>	<b>2</b>	<b>3</b>
<b>Attitudes, Values and Motivation</b>	<b>20 35</b>	<b>11</b>	<b>4</b>
<b>Interest in the Subject Information</b>	<b>7 12</b>	<b>4</b>	<b>1</b>

Tutored	<b>37</b>	<b>2</b>	<b>3</b>
Groups	<b>42</b>		
Tutorless	<b>15</b>	<b>16</b>	<b>6</b>
Groups	<b>37</b>		
<b>Total</b>	<b>116</b>	<b>35</b>	<b>17</b>
	<b>168</b>		

Adapted from Bligh (2000, 2 - 20)

The findings from Bligh's (2000) comprehensive review, as summarized in *Figure 1*, supported by explanations from psychological research, and consistent with the conclusions of earlier reviews (see above), impressively demonstrate the effectiveness of the discussion method for four desired outcomes. Even for the acquisition and retention of information, at least in groups where the teacher participated as a moderator, discussion is as effective, and when measured by a delayed test, slightly more effective, than the lecture-method (see also Walberg, 1986; for the context of higher education, see Dubin & Taveggia, 1968). However, discussion might not be cost-effective to teach information because group-sizes in discussion are smaller while for lectures they are almost unlimited.

Furthermore, open discussions are seen as relevant to achieving social aims (Parker, 2001; Parker and Hess, 2001). As a valuable content goal research suggests that the use of the discussion method is effective for the acquisition of communication skills that are appropriate and effective for a "reasoning together" as a prerequisite of a healthy and vibrant democracy (Bridges, 1987; Barber, 1989; Parker, 1996; Borich, 2007; Wilen, 2007), - especially when supported by other methods, like cooperative learning, t-groups, microteaching (Gall, 1987; 1990; Bligh, 2000). For example, the use of discussions positively influences engagement in political activities (Turney-Purta, Lehmann, Oswald and Schulz, 2001) and students' involvement in civic activities (Andolina, Jenkins, Zukin, & Keeter, 2003; Wilen, 2007).

As outlined above evidence the major advantage of discussion that it is effective for a

variety of valuable objectives *at the same time*. And as the review of Bligh (2000) shows, discussions can be combined effectively with other methods to achieve objectives which are presently the focus of a given curriculum the point of main effort (like to teach information). Other methods almost cry for combinations with discussions to be more effective.

Although the use of the discussion method is desirably, in practice surprisingly, however, genuine class discussions are rarely used in classroom practice. Research indicates that in the US about eight percent of the time (Dillon, 1984), in Germany about two to five percent by time in class was spent in classroom discussions (Hage, Bischoff, Dichanz, Eubel, Oelschlaeger, & Schwittmann., 1985; Hunneshagen, Leutert, Schulz, 1988; see also Gall, 1987; Wilen, 2003). However, there might be big differences in the definitions of classroom discussions often comprising teacher guided discussions through questioning (Fragend-entwickelnder-Unterricht), forms of recitation etc and not just genuine discussion therefore biasing the findings. Furthermore, different kinds of discussions may be used in different contexts and subject matters areas at different frequency. For example in religious knowledge lessons discussion seems to be predominantly chosen (Lachmann, 2002).

The scarcity of instructional discussion in teaching might be explained by the difficulty in using this method successfully. Some teachers and students feel uncomfortable or even threatened in class discussions (Gall & Gall, 1976; Gall, 1987; Klinzing & Floden, 1990). In comparison to other teaching methods, discussion is characterized by a high degree of complexity, variability, openness, unpredictability, and uncertainty. Reliance that can be placed on planning is limited (among others, because they are often used as recommended for low consensus fields, Gage & Berliner, 1984). Therefore, effective discussions places high demands on the discussion moderator. They require the teacher or the moderator to have competencies that include high degree intellectual versatility based on solid subject matter and educational-psychology knowledge, self-control, patience, readiness for mutual understanding, and willingness to give up authority and control over the discussion process. Above all, skills related to moderating discussions are needed, i.e., to engage in an extensive analysis of, and

feedback about one's own performance as discussion leader (Wilén, 2007), and skill in moderating discussions - indicated as promising to experiment with in research.

### ***The Selection of the Content for the Program***

For discussion it is important for moderators to fulfill a variety of functions, pay attention to essential features/dimensions, and a variety of effective behaviors related to these features. A range of functions, features and behaviors are described by Gall & Gall (1976), Sternberg (1973), Bligh (2000) and in the publications, edited by Dillon (1988) and Wilén (1990). Also the literature in the humanities (e.g., Bridges, 1987) and the process-product and process-process research in the fields of education, communication, business and management (e.g., Argyle, 1972; Brophy & Good, 1986; Dunkin & Biddle, 1974; Flanders, 1970; Rosenshine, 1971; Tannenbaum & Yukl, 1992; Wiemann, 1977) provides help to select decisive aspects of the discussion method for the development of a program that helps discussion moderators be more effective. Furthermore, research in educational psychology (Gage & Berliner, 1984; Tausch & Tausch, 1978) and already existing programs for the improvement of discussions (e.g., Böttcher & Zielinski, 1974) may serve as a base for determining the content of the training program.

The contents of the program to be developed was designed to teach two prominent functions of discussion moderators (Gall & Gall, 1976):

- 1 **task-leadership**, the *management of developing the subject* under discussion, and the
  
- 1 **social-emotional leadership**, the *interpersonal management*,

Important features/dimensions of these functions - *initiation/guidance, structure, and support* for the *developing of the subject* - were identified. For the *social-emotional leadership* (interpersonal management) the regulation of interaction and affiliation were determined as important aspects for training. To support an effective acquisition, these global features were then described in terms of their low inference constituents, skills and the skill clusters involved in, following the analytical approach/technical skills approach

(Gage, 1972). About four dozen of such technical skills were offered in the program, from which the trainees could select and combine into integrated patterns, to be clearer, more interesting, more appropriate in initiating/guiding, structuring, and supporting and to have a more supportive social-emotional climate while moderating a discussion. Trainees were also encouraged to develop and validate their own technical skills following this approach, using the general framework given in the presentations of background knowledge.

As mentioned above, to learn a communication mode or instructional method with such inherent difficulties the preparation of personnel must be especially potent. Thus, after the identification of processes contributing to effective communication in discussions, the literature and research on effective training approaches that had been developed and studied to help to acquire these abilities were carefully reviewed.

### ***Methods for Acquiring Knowledge and Abilities for Discussion Moderation***

Since the 1960s, in the fields of psychology and education, programs related to the improvement of important aspect of social and teaching competence have been developed and studied for their effectiveness. In their research reviews, Peck & Tucker (1973), Turney, Clift, Dunkin, & Traill (1973), Butcher, (1981); Copeland, (1982), Klinzing, Klinzing-Eurich, 1988; Klinzing, Klinzing-Eurich, & Floden (1989), Cruickshank & Metcalfe (1990), Klinzing & Floden (1990), Klinzing & Tisher (1993), and Klinzing, (2002b) programs using a laboratory approach, like microteaching, turned out to be most successful for improving verbal and nonverbal decoding and encoding abilities.

Training methods using an experimental laboratory setting were developed as on-campus/off-job activities in addition to the traditional mainstays of the education for professions requiring intensive human interaction: lecture and coursework, and the traditional methods of introduction into practice (like on-the-job training, apprenticeship). They aim at providing a set of experiences “to bridge the gap between principles and practices” (Copeland, 1982, 1008). Originally they were designed to improve general competence and/or technical skill of personnel after their academic studies and before

they take responsibility for teaching and other tasks (e.g., Allen & Ryan, 1969). So they were intended to improve/facilitate the transition from academic study to practice. Later they were also used widely in connection with academic courses (e.g., general methods courses or courses in educational psychology) to enlighten theory (e.g., Davis & Smoot, 1969), and also in inservice programs (Klinzing, 1998; 1982; 2002b).

The concept of laboratory training for teacher education –and the education for other professions involving intensive human interaction- has been derived from different sources and has taken different forms. Many programs involving training laboratories have their roots in group dynamics, as developed at the National Training Laboratories (USA) in the late 1940s (e.g., Bradford, Gibb, & Benne, 1964). Other educational techniques developed for teaching/interaction laboratory experiences are also widely used and evaluated: These are model demonstrations, protocol materials, discrimination training, cases, critical incidents, simulation, and reflective teaching laboratories (for a review see Copeland, 1982; Cruickshank & Metcalf, 1990; Klinzing & Floden, 1990; Klinzing & Tisher, 1993). Most influential and most widely used in teacher education and the education for other professions were the developments at Stanford University (e.g., Allen & Ryan, 1969), at the Far West Laboratory for Educational Research and Development (Borg, Kelley, Langer, & Gall, 1970), and for Europe, at the University of Tuebingen (Germany, e.g., Zifreund, 1966; Klinzing, 1976). The kinds of teaching/interaction laboratories became well known as “microteaching” (Allen & Ryan, 1969), “minicourses” (Borg et al., 1970), “teaching laboratories” (Davies & Smoot, 1969) or Training des Lehrverhaltens in Kleingruppen-Seminaren (Training of technical skills in small group settings, Zifreund, 1966).

More than 250 studies on training programs using laboratory experiences could be located, and more than about 80% turned out to be successful, demonstrating impressively their effectiveness (Peck & Tucker, 1973; Turney, Clift, Dunkin, & Traill, 1973; Butcher, 1981; Cruickshank & Metcalfe, 1990; Klinzing & Tisher, 1993). Klinzing (2002b) concluded from his review of about 240 studies:

*“The effectiveness of micro-teaching and related procedures is judged differently in*

*articles on educational research and in textbooks. A review of more than 200 studies on these procedures via vote counting however, reveals that only a very small number of the studies inspected really support the pessimistic point of view regarding the effectiveness of such training approaches, despite the fact that this view is propagated quite often. By far the majority of the research results however, support the assumption that the employment of these procedures in both, pre- and inservice education will lead to positive and long-term effects in the acquisition of verbal and non-verbal behavioral patterns, in the integration of what has been learnt during training into the individual behavioral repertoire, and in the transfer into professional practice. This applies for “classic” microteaching (practical exercises in small student groups) as well as for the by far less expensive variant, training in small groups formed by fellow students or fellow teachers (peerteaching).” (Klinzing, 2002b, 214).*

These laboratory techniques mostly claim a strong interrelationship of research and the development of programs not only for the methods used but also for their contents (Baker, 1973).

Different functions have been attributed to different kinds of laboratory experiences (for a review, see., e.g., Cruickshank & Metcalf, 1990; Klinzing & Floden, 1990; Klinzing & Tisher, 1993).

The different approaches to laboratory experiences were analyzed for their primary intents, functions and effectiveness (regarding these primary intents and functions), and matched to the abilities suggested by the framework of “interacting as experimentation. *Figure 2* summarizes the educational techniques appropriate for laboratory experiences to improve knowledge and abilities suggested by this framework.

***Figure 2: Educational Techniques to Improve Knowledge and Abilities***

All of these functions, or processes are well established in the literature. Each process can make an important contribution to the education of teachers and of other professions, within the area to which it is addressed. Previous discussions of these processes consider the contributions each makes to important aspects of communication and teaching. But the literature has not included discussions and efforts of how these potentially complementary contributions might be integrated. Such an integrated approach may strengthen the effectiveness and value of training programs.

.....As already mentioned, to integrate these processes into a program to improve discussion the framework of “*Teaching/Interacting as Experimentation*” was used. This is well described by Strasser (1967, 180):

*“In making a diagnosis, the teacher generates a hypothesis about the relationship between his potential behaviour and its effect upon students. In effect he is saying, ‘I..., then the learner will...’. Following the formulation of such a hypothesis, the teacher experiments: he behaves and observes the responses largely as a consequence of his behavior. These observations are then interpreted in terms of the purposes that motivated his behaviour in the first place. Viewed this way, instruction is experimental in nature.”*

.....Not only has teaching/communication often been conceptualized as experimentation (Coladarci, 1959; Shavelson, 1976), but experimentation has also been used as a framework for training teachers (Bishop, 1970; Klinzing, 1982; Semmel & Englert, 1978; Zifreund, 1966).

*“The perspective of teaching as experimentation assumes that improvement of practice and understanding of the nature, function, and worth of practices will occur simultaneously as a mutual inspiring, interactive process. In other words, this paper reflects the belief that improvement of theoretical understanding, practical knowledge, and performance happens as an interaction between, on the one hand, extensive acquisition of knowledge, skills, and techniques and, on the other hand, focused, reflected experience.”* (Klinzing & Floden, 1990).

What knowledge and abilities are required from the perspective of *Teaching/Interaction as Experimentation*? A discussion of knowledge and abilities is

provided by Klinzing & Floden (1990). According to this framework, those educational techniques listed in *Figure 2* were selected as components for the development of a training program to improve discussion moderation. Also considered were the fitting of these components to prevailing conditions (time, rooms, sets of equipment and personnel available, number of participant etc.). In *Figure 3* the educational techniques to improve knowledge and abilities for discussion moderation suggested by teaching/interacting as experimentation are summarized.

**Figure 3: Training Components Selected for the Training Program on Improving of Discussion Moderator Behavior**

<i>Abilities to be Improved for Improvement Effective Discussion Moderation</i>	<i>Effective Training Approaches for the of these Abilities</i>
<ul style="list-style-type: none"> <li>Theoretical background knowledge the</li> </ul>	Model of Generative Learning combined with Direct Instruction Model;
<ul style="list-style-type: none"> <li>The ability to use conceptual structures</li> <li>to analyze interactions and guide action</li> </ul>	Symbolic Modeling combined with the Protocol Materials- approach; Identification Exercises during the feedback session;
<ul style="list-style-type: none"> <li>The ability to generate hypotheses for action for the ongoing situation session);</li> </ul>	Simulated skill training, Structured Simulations, Development of Alternatives (during feedback
<ul style="list-style-type: none"> <li>The ability to carry out the behaviors discussion in suggested by the hypotheses Group- effectively and appropriately</li> </ul>	1 - 2Microtraining session (10- minute small groups) with Feedback via video-recording, Discussion, and Coaching);
<ul style="list-style-type: none"> <li>The ability to reflect on the execution of the behaviors and their consequences as well as the ability to learn from such experimentation</li> </ul>	Analytical/Reflective Group Discussions (during feedback sessions);

The first two abilities and the last are primarily cognitive; the third combines cognitive processes with action. The capacity for generating hypotheses bridges thought and action. Hypotheses come primarily from knowledge and analysis of the situation, and can then be brought and tested in action (Klinzing & Floden, 1990).

These training components, then, were integrated into a training program (two to three days, nine to 10 hours a days, differing in intensity and time according its context). The *contents* to be mastered were divided into components to be learned stepwise, practiced and gradually integrated. It was expected that the simultaneous enhancement of the –interrelated and overlapping- processes assumed by developers and researchers as crucial to effective communication and teaching (and therefore worth improving in the teaching/interaction laboratories individually), and integrated by the framework of interacting as experimentation, will have large constructive effects and can help to prepare skillful and reflective practitioners (see below).

### **Studies Carried Out to Test and to Evaluate the Program**

A training program was developed, to integrate training components to improve functions of discussion moderators' behaviors (as described above). The program was tested for its effectiveness in terms of low inference as well as high inference observation in four studies. Furthermore, the program was evaluated in additional studies with university professors, additional university students, and middle and high level executives in business and industry.

### ***Research Questions***

The questions to be addressed in the four studies were:

1.1 whether the training program had a significant effect on crucial aspects of discussion moderators' - behavior in his/her *task leadership* role (clarity and interest of introduction);

1.2 whether the training had effects on desired specific practices related to task

leadership in its functions of initiating/guiding, structuring, and supporting;

1. whether the training program had a significant effect on crucial aspects of discussion moderators' – behavior - in his/her *interpersonal management leadership*;;
2. whether the training of specific behaviors had significant effects on global ratings of Social Competence (3.1 Self-rated and 3.2 alter-rated: rating competence (ratings of the of the training group), for Expressiveness, Other Orientation, and 3.3 Accuracy in De-/Encoding);
3. whether the participants evaluated the training program as being effective in enhancing their discussion-skill level;
4. whether the training program without practice in a laboratory setting (one micro-lesson) and a shortened training program will have positive effects.

### ***The Treatment/Program***

At the beginning of all the courses all participants were introduced to the objectives, contents, methods, and organization of the training-course.

The training itself started with a formal lecture about communication, its forms (monologue and dialogic forms, e.g., Bollnow, 1966), and the essentials of face-to-face (dialogic) forms of communication in groups.

In *Study 2* and *4* (pre-tests), as well as for the control groups in *Study 1* and *3* (post-tests, see below), then, the laboratory performance tests were conducted and evaluated by the training groups. (Because of time-constraints the effects of the courses I – XXII were not assessed.

The performance tests were followed by a presentation and/or group work on categories of dialogic communication and their features (e.g., conference, debate, negotiation, conversation, recitation, and forms of discussions: moderator/teacher teacher guided discussion, problem solving discussions, open discussion.etc.) and their common grounds and differences related to their different goals and their constituent components. Focus was on two types of discussions: issue-oriented and subject mastery (Klinzing 2002a). As it is suggested in the literature it is important to fulfil a variety of moderator-functions to make discussions fruitful (Gall & Gall 1976; Gall, Weathersby, Lai, & Elder, 1973; Wiemann, 1977; Dillon, 1987; Wilen, 1990; 2003).

These introductions were followed by training in the individual skills, consisting of two parts, distributed over two days (about 15 -18 hours, including breaks). The first part dealt with the task leadership: *management of subject development*, the second with the social-emotional leadership: *interpersonal management*.

A third part of the training was devoted to the self evaluation by the participants and the evaluation of the training course (except in *courses I – XXII*).

**Part 1:** *Task leadership:* management of subject development, started with a short lecture on the importance of the features or dimensions in question (initiating/guiding, structuring, support for improvement) and research evidence on those features/dimensions and their sub-dimensions. Then, the participants were to acquire the low inference constituents of the dimensions, skills and the skill clusters described above, by listening to lectures, conducting an exercise to structure a disordered text for clarity and interest, discrimination exercises (questioning behaviors and responses), an exercise on developing (written) reactions to contributions in fictitious discussions, and a role-play with prescribed categories of contributions of discussion (from Stanford & Stanford, 1969). (The participants also were encouraged to develop their own skills on the base of the given framework and examples). In *Study 2 – 4*, and in the 22 other studies (I – XXII) the training/experimental groups conducted a discussion in randomly assigned groups in an experimental laboratory setting, with feedback. The first part of the program ended with a review and discussion on the training approach.

**Part 2:** *Social-emotional leadership:* The interpersonal management, its functions in a discussion and its important features/dimensions (group management and control, affiliation) was introduced in a lecture. The related skills were acquired by descriptions of behaviors with examples (symbolic modeling). This was followed by role-playing exercises (described above).

In *Study 2 – 4* and in the 22 additional studies (I – XXII) this part of the training ended again with the conduction of a micro-training session (moderating a discussion in a small group of randomly assigned peers with feedback).

In *Study 1* (on the third day) the experimental group conducted a discussion in an experimental laboratory setting, with feedback. At the same time, the control group received their introductory lectures and also prepared and conducted a “Diagnostic Lesson” in a similar setting (as a post-test O2 for the control group without having had training yet), comparable to the laboratory/micro-training experience of the experimental group. While the experimental group had 1 ½ days off, the control group received a similar but shortened training. On the fifth day, both groups performed another discussion in a micro-training/laboratory format (with feedback). This served as post-test (O3) for the experimental group.

Except for *Study IX* all studies were presented with information regarding the theoretical base of the program development (Bandura, 1977), the methods used, and the experimental study, carried out in the course in a final session of the course. Also, recommendations for subsequent training on-the-job were given. Then, the end-course questionnaire was administered to the participants which also gave their opinion on the

program and its elements in oral statements.

### *Experimental Design*

..... The effects of the training program were investigated using a post-test-only-control-group-design with random assignment of the participants to the experimental conditions in *Study 1* and *3*. For *Study 2* and *4* only a pre-experimental design (pretest-posttest design in one group) was possible.

These designs can be described as follows (Campbell & Stanley, 1963):

**Figure 4: Experimental Design for Study 1 and 3**

<b>Experimental Group</b>	<b>Control Group</b>
<b>X1</b>	--
<b>O1</b>	<b>O2</b>
	<b>X2</b>
	<b>O3</b>

where

**R:** represents random assignment of the participants to treatment and control conditions;

--: represents no training;

**X1:** represents the complete training program consisting of the components: Presentation of theoretical background knowledge, symbolic modeling and discrimination training, simulation, critical incidents, role playing, and the development of alternatives, and one practice session in an experimental laboratory setting (microtraining) with feedback (laboratory performance test).

(The practice session (microtraining) in *Study 1* was used to assess the effects of a shortened training without the opportunity to practice what was learned before cognitively. Duration of this shortened training was: 675 minutes).

While in *Study 1* only one practice session, in *Study 2-4 (and Study I – XXII)* for each part of the training practice sessions a practice session, altogether two, could be provided;

**X2:** in *Study 1* represents a shortened version of treatment X1; the treatment consisted of the identical components as for treatment X1, but was reduced/shortened by the exercises to foster hypothesis generation/decision-making: role-play, game-like role playing exercises from Stanford & Stanford (1969), the Simulated Social Skill Training (Flanders, 1970), and the microtraining practice session in an experimental setting with feedback. This training, however, was preceded by a “diagnostic lesson” (O2 = laboratory

performance-posttest for the control group with no training at this time of the study).

In *Study 3* **X2** represents a training conducted by the beginning teachers and their supervisors for the other beginning teachers, not involved yet in the project; the effects of this training were not assessed.

**O1:** represents the post-laboratory performance test for determining the effects of the complete training program **X1** (in *Study 1* after 1 ½ days off);

**O2:** represents the laboratory performance posttest for the control group without treatment at this time of the study. As mentioned above the control group of *Study 1* received a shortened version of the program (**X2**). (**O1** served as a diagnostic lesson for the treatment of this group).

**Figure 5: Experimental Design for Study 2 and 4:**



where:

**X1:** represents the full training program on the moderation of discussions;

**O1** represents pretests used to control for initial levels of performance on the dependent variables;

**O2** represents the posttests for determining the effects of the treatment.

**Subjects**

As mentioned above, the *Studies 1, 2 and 4* were integrated into a regular, two credit-hour course for the preparation of secondary school teachers. They were conducted at a large Southern German University after the end of the term in five days, eight to 10 hours daily. The courses were announced as “*Interacting as Experimenting*” without any further information about content and objectives of the course.

In *Studies 1, 2 and 4*, 22, 13, and 22 university students, respectively, who were studying to become secondary school teachers in various subject matter areas or studied education for other professions, signed up to participate in the courses. They selected this course (out of a number of courses offered by the Departments of Education) because the hours fulfilled credit requirements. The participants of *Study 1* were stratified by gender, then randomly assigned within stratum to the experimental and control group.

In *Study 3*, 44 beginning teachers of a cohort group from a teacher training college (Secondary School Teacher as Civil Service Probationers; Studienreferendare) were randomly assigned to the experimental conditions.

The course was later also conducted with other university students and as an in-service training for university teachers, managers in business and industry, in companies

or as seminars announced from chambers of industry and commerce or the university. Altogether, 226 signed up to participate in these courses (*Study I – XXII*) which were only evaluated by them on an standardized end-course questionnaire. *Figure 6* gives a profile of the participants of both studies based on age, gender, and majors studied at the university for *Study 1 – 4*.

**Figure 6: Age, Gender, and Subjects of the Participants of Study 1 - 4**

<b>Study 1: University Students</b>							
<b>Experimental Group: 22 University Students</b>							
<i>Gender</i>	<i>Age (M)</i>	<i>Subjects studied</i>					
female	5 25.8	Mathematic/	Human-	Math./	Sport/	Sport/	
		Science.	ities	Science	Human-	Science.	
		Arts/					
male:	6			+Human-	ities		+
Hu-				ities			
		manities					
		<b>2</b>	<b>7</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>
-----							
<b>Control Group</b>							
male:	4 25.1	<b>4</b>	<b>4</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>
female	7						
-----							
<b>Study 2: 13 University Students</b>							
<i>Gender</i>	<i>Age (M)</i>	<i>Subjects Studied</i>					
female	10 25.8	Mathematic/	Human-	Math./	Sport/	Sport/	
		Science.	ities	Science	Humani.	Science	,
				tion			
				+Human-	ities		
				(M.A.			
male	3			ities			-.
	Dipl.)						
		<b>2</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>7</b>

**Study 3: 23 University Students**

<i>Gender</i>	<i>Age (M)</i>	<i>Subjects Studied</i>					
female	17 27.6 Educa-	Mathematic/	Human-	Math./	Sport/	Sport/	
		Science.	ities	Science	Human.	Science.	
male	6 (5)	+Human-		ities	ities		
				(M.A.,			
				Dipl.)			
		<b>4</b>	<b>7</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>6</b>

For one participant the data for the pretest were not available

Figure 6 (cont.)

**Study 4: 45 Beginning Teachers (Secondary School Teacher as Civil Service Probationers (Studienreferendare))**

**Experimental Group**

<i>Gender</i>	<i>Age (M/s)</i>	<i>Subjects</i>					
female	17 27.59 Music,	Mathematic/	Human-	Math./	Sport/	Sport/	
		Science.	ities	Science	Human.	Science.	
male	4 28.25 +Hu-			+Human-	ities		
				ities			
No information:	1	<b>3</b>	<b>7</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
		No information: 8					

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<b>Control Group</b>								
female	17	27.0	<b>5</b>	<b>8</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>2</b>
male	5	28.0						
participant			No information: 3; Because of an indisposition one female					
			could not complete the course.					

### *Data Collection*

**Data Source.** Seven criterion measures were employed. These measures were derived from three principle sources, the first being, a laboratory performance test which provided high and low inference observations (from the videotapes of these tests), estimates of discussion moderators behavior by self-rating of the moderator and ratings of discussion participants regarding their general social competence (as the second source) and the third being end-course questionnaire for the evaluation of the program by the participants.

**Laboratory Performance Test.** All participants in the four studies were asked to conduct a eight-to 12-minute performance test to determine if they were able to apply the behaviors taught. It consisted of a three-to-four-minute introductory lecture and a six-to-eight-minute moderation of a discussion on topics trainees were to select from one of their subject matter areas which had to be, however, sufficiently general so as to not interact with the trainees' area of study. The participants were given 45 minutes to prepare the lectures/discussions to be conducted in (randomly assigned) groups of four to seven peers. The laboratory performances were videotaped for feedback purposes and for further analysis

All videotapes of the performance tests were independently rated by two carefully trained observers (one male, one female) The videotapes were presented in a random order to avoid sequence effects. The observers were not informed as to the experimental conditions the subjects were in, or the experimental hypotheses.

#### **1. High Inference Ratings Related to Task Leadership:**

*1.1 Clarity and Interest of the Introductory Lecture of the Discussions.* For the assessment of *clarity of the introduction*, a nine-item, seven-point bipolar adjective scale was used (Klinzing & Borich, 1983). A factor analysis on data from previous studies indicates that the instrument is measuring clarity on a single dimension (Klinzing, Leuteritz, Schiefer, & Steiger, 1986; Schiefer, 1987). Results from previous studies also indicate treatment validity of this instrument (Klinzing, et al., 1986). Two observers, who were carefully trained in the use of these scales, independently rated all introductions of the discussions on videotapes using seven-point scales. Inter-rater reliability computed at the beginning and end of the observations ranged from .87 to .99. For the assessment of *interest of the introduction* of the discussion a ten-item, seven-point bipolar adjective

scale was used (Klinzing & Borich, 1983). A factor analysis on data from previous studies show that this instrument is measuring interest of presentation on a single dimension (Klinzing et al., 1986; Schiefer, 1987). Results from previous studies also indicate treatment validity of this instrument (Klinzing et al., 1986). Two observers, who were carefully trained in the use of these scales, independently rated all introductions of the discussions videotapes, using seven-point scales. Inter-rater reliability computed at the beginning and end of the observations ranged from 0.90 to 0.95. (*Study 1*)

*1.2 Low-Inference Observation of Discussion Moderators' and Participants' Behavior Related to Task Leadership.* 17 behaviors of the discussion moderator and 11 behaviors of the discussion participants of a sign system, related to the dimensions of initiation/guidance, structuring, and support (see above) were observed. Coders coded the interactions into one of the 28 categories in three-second intervals; when more than one category occurred within a three-second interval all such categories were coded. Based on an observer manual, observers were carefully trained for this coding system. Observer agreement was .86, estimated by the Scott coefficient, modified by Flanders (1967). (*Study 1*).

*2. High Inference Ratings Related to Interpersonal Management.* For the assessment of the interpersonal management during discussion, a four-item, seven-point bipolar scale for Dominance, Formalism, Coldness, and psychological Distance was developed. Two observers, who were trained in the use of these scales for two hours, independently rated all videotapes on seven-point scales. Inter-rater reliability computed at the beginning and the end of the observations ranged from 0.87 to 1.00. (*Study 1*)

*3. Ratings of General Communicative Competence.* All lecturers/discussion moderators rated themselves and were rated by the discussion participants directly after each performance test using:

**3.1:** the *Self-Rated-Competence* (SRC: 27 items, with five point-scales) and the

**3.2** *Rating of Alter Competence* (RAC: 27 items with five-point scales),

both instruments developed and tested by Cupach & Spitzberg (1981).

Both instruments represent global ratings of verbal and nonverbal behavior. Factor-analyses revealed that these instruments measure “*Expressiveness*” and “*Other Orientation*”. Reliabilities of these instruments range from 0.90 to 0.94 (Spitzberg, 1988). Also strong indications for validity of these instruments are reported (Spitzberg, 1988; Spitzberg & Cupach, 1983; 1985). Indications for treatment validity (Popham, 1975) can be derived from the studies of Klinzing et al. (2002a; 2002b), and Klinzing & Gerada Aloisio (2004; 2007) (*Study 1-4*).

**3.3** Self-Realism/Accuracy of De-/Encoding was determined by computing the differences between the Self-Rated-Competence and the Rating-of-Alter-Competence (*Study 1 – 4*).

**4. Participant Evaluation of the Training Program.** Evaluation was administered in *Studies 1 – 4* and in additional 22 courses with university teachers, university students,

and executives in business and industry (N=226) at the end of the entire training, using the *Course/Instructor Evaluation Questionnaire (CIEQ)*. In *Study 1* the CIEQ was administered again two months after the end of the training. This instrument, developed and redeveloped by Aleamoni and coworkers (Aleamoni & Stephens, 1986; Aleamoni, 2007) consists of five subscales composed of 21 individual items (four point scales).

The subscales are:

- general course attitude (four items);
- method of instruction (four items);
- course content (four items);
- interest and attention (four items), and
- instructor (five items).

Information regarding reliabilities, aspects of validity, and norms are given by Aleamoni & Stephens (1986). Studies on the German version of this instrument confirm the findings of Aleamoni and coworkers (Klinzing et al., 2002).

### ***Data Analysis***

The data for research questions 1 to 4 were analyzed using t-tests. It was hypothesized that all comparisons would be at the  $p < 0.10$  level of confidence. Also Effect Sizes (MEG – MCG/ SCG or Pretest – posttest/spretest) were calculated.

### ***Results***

***1. Results for Crucial Functions of Discussion Moderators' Behavior:*** Management of Developing of the Subject under Discussion (*Research question 1.1: Task Leadership*) and Interpersonal Management (*Research question 2: Social-Emotional Leadership*), ***and important features related to these Functions: Clarity and Interest of the introduction, Specific Practices Related to the Functions of Initiating/Guiding, Structuring, Supporting (Research question 1.2), and Dominance-Submission, Formalism-Laissez-faire, Coldness-Warmth, Distance-Closeness. (Research Question 2).***

T-tests for independent samples were performed on all variables. Only the main results for the comparison of posttest O1 (experimental group, having received the complete training) to the posttest of the control group (O2) (not having received a training at that point of time) are reported here.

***Results for Function 1: Task Leadership: Management of Developing of the Subject. (Research question 1.1).*** The results for **Clarity and Interest** of introductory

presentations are summarized in *Table 1.1*.

**Table 1.1: Study 1 Results for Global Ratings of Clarity and Interest of the Introduction of Discussion.. Means and, T-tests (p- values).**

Variable EG/CG	Experimental Group(EG)		Comparison		Group(CG)
	Posttest O1		Posttest O2		
	$\bar{M}$ ES	(s)	M	(s)	
<b>Clarity of Introduction (a)</b>	2.40 0.46	(0.66)	2.84	(0.96)	0.11
<b>Interest of Introduction (a)</b>	2.95 0.47	(0.73)	3.17	(0.48)	0.208

\*One-tail test

As the results summarized in *Table 1.1* show, no significant improvements for both sets of high inference ratings variables could be obtained for important functions of task leadership. Only a slight (non-significant) trend for clarity could be observed. For training of these complex variables a special training program must be provided (see Klinzing, 1998).

The main results for important features related to *Function 1* for moderating discussions and specific practices related to the functions of initiating/guiding, structuring, supporting, (*Research question 1.2*) are summarized in *Table 1.2.1*.

**Table 1.2.1: Main Results for Important Features of the Function Management for Developing Subject (Task Leadership) (Ratios). Means (M), Standard deviations (s), and t-tests (p-values) for the Experimental (EG) and the Control Group (CG).**

Variable	EG Posttest O1  M (s)	CG) Posttest O2  M (s)	EG/CG  p*	ES
<b>Initiation/Guidance</b>				
<u>Directions +Questions+Calling-On+Information</u>				
Initiating/Guiding+Structuring+Supporting				
time spent	0.40 (0.18) <b>1.46</b>	0.69 (0.20)	<b>0.001</b>	
frequency	0.59 (0.15) <b>1.59</b>	0.76 (0.11)	<b>0.003</b>	
<u>Information</u>				
Directions+Questions+Calling-on+Information				
time spent	0.29 (0.24) <b>1.53</b>	0.73 (0.29)	<b>0.000</b>	
frequency	0.20 (0.16) <b>1.19</b>	0.53 (0.28)	<b>0.002</b>	
<b>Structuring: Pre-Structuring and Re-Structuring</b>				
<u>Re-structuring Behaviors + Pre-structuring Behaviors (without introduction)</u>				
Re-structuring Behaviors + Pre-structuring Behaviors + Initiating/Guidance +Supporting				
time spent	0.55 (0.17)	0.31 (0.20)	<b>0.003</b>	

	<b>1.23</b>		
frequency	0.37 (0.15)	0.24 (0.11)	<b>0.016</b>
	<b>1.18</b>		
<u>Pre-structuring Behaviors</u>			
Pre-structuring Behaviors + Re-structuring Behaviors			
time spent	0.07 (0.10)	0.37 (0.43)	<b>0.023</b>
	<b>0.68</b>		
frequency	0.12 (0.14)	0.48 (0.39)	<b>0.006</b>
	<b>0.95</b>		
<u>Re-structuring Behaviors</u>			
Re-structuring Behaviors + Pre-structuring Behaviors			
time spent	0.93 (0.10)	0.63 (0.43)	<b>0.025</b>
	<b>0.68</b>		
frequency	0.88 (0.14)	0.52 (0.39)	<b>0.006</b>
	<b>0.93</b>		
<b>Support</b>			
<u>Acknowledgement + Summarizing + Clarifying + Probing + Further Development.</u>			
Supporting Behaviors + Initiating/Guiding + Structuring			
time spent	0.39 (0.36)	0.18 (0.26)	<b>0.066</b>
	<b>0.80</b>		
frequency	0.57 (0.47)	0.32 (0.33)	<b>0.084</b>
	<b>0.75</b>		

\*one-tailed t- tests;

As the findings in *Table 1.2.1* for the features of Function 1: *Initiating/Guiding*, *Structuring*, and *Supporting* (based on low-inference measures) show, significant results due to training could be achieved in all measures. Even a short training program can bring about positive changes in the frequency of use of low inference target behaviors. The trainees achieved improvements in the target features on one, or the other way, by using different behaviors at a different frequency.

*Table 1.2.2* show selected results for particular behaviors, related to the features.

**Table 1.2.2: Results for Low Inference Measures. Specific Behaviors Related to Features of Function 1 of Moderating a Discussion. Means and T-tests (p-values)**

Variable	EG	CG)	EG/CG
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	Posttest O1	Posttest O2	
	M (s)	M (s)	p* ES
-----			
<b>Initiation/Guidance</b>			
<b>Giving Directions</b>			
% time spent	0.00 (0)	0.00 (0)	
% frequency	0.00 (0)	0.00 (0)	
<b>Giving Information</b>			
% time spent	3.12 (3.71)	14.76 (6.12)	<b>0.000</b>
	<b>1.90</b>		
% frequency	1.45 (1.37)	3.64 (2.20)	<b>0.007</b>
	<b>0.99</b>		
<b>Narrow Questions</b>			
% time spent	1.78 (2.77)	0.70 (1.24)	<b>0.256</b>
	<b>0.87</b>		
% frequency	1.00 (0.89)	0.36 (0.51)	<b>0.057</b>
	<b>1.26</b>		
<b>Broad/Higher Order Questions</b>			
% time spent	3.24 (3.84)	3.39 (4.14)	<b>0.465</b>
	<b>0.04</b>		
% frequency	2.27 (1.56)	2.64 (2.54)	<b>0.35</b>
	<b>0.14</b>		
<b>Calling-on Participants</b>			
% time spent	1.60 (1.21)	0.41 (0.79)	<b>0.007</b>
	<b>1.50</b>		
% frequency	1.82 (1.33)	0.36 (0.67)	<b>0.003</b>
	<b>2.16</b>		
-----			
<b>Structuring</b>			
<b><i>Pre-structuring</i></b>			
% time spent	0.75 (1.03)	2.00 (2.28)	<b>0.059</b>
	<b>0.55</b>		
% frequency	0.64 (0.92)	1.00 (0.78)	<b>0.165</b>
	<b>1.00</b>		
<b><i>Re-structuring</i></b>			
<b>Summarizing a Section of Discussion</b>			
% time spent	5.30 (4.19)	5.62 (4.73)	<b>0.43</b>
	<b>0.07</b>		

% frequency	2.27 (2.65) <b>1.95</b>	0.90 (0.70)	<b>0.063</b>
<b>Table 1.2.2 (continued)</b>			
Making the Discussion- Process Transparent			
% time spent	5.59 (5.08) <b>7.21</b>	0.23 (0.74)	<b>0.003</b>
% frequency	1.00 (0.63) <b>3.01</b>	0.09 (0.30)	<b>0.001</b>
Keeping the Discussion Focused			
% time spent	0.26 (0.65)	0.00 (0.00)	<b>0.106</b>
% frequency	0.27 (0.65)	0.00 (0.00)	<b>0.096</b>
-----			
-----			
<b>Providing Support for Improving Contributions and the Discussion as a Whole</b>			
Agreement with Giving Reasons			
% time spent	1.41 (3.91)	0.00 (0.00)	0.26
% frequency	0.45 (0.82)	0.00 (0.00)	<b>0.048</b>
Disagreement with Giving Reasons			
% time spent	0.43 (1.44)	0.00 (0.00)	0.34
% frequency	0.09 (0.30)	0.00 (0.00)	<b>0.17</b>
Integration of Contributions			
% time spent	0.09 (0.31) 0.20	0.17 (0.39)	0.61
% frequency	0.09 (0.20) 0.22	0.18 (0.30)	<b>0.28</b>
Acknowledgement			
% time spent	1.95 (1.33) 0.37	1.25 (1.88)	0.33
% frequency	2.09 (1.38) <b>0.50</b>	1.18 (1.83')	<b>0.10</b>
Summarizing Contributions			
% time spent	1.80 (2.56) 0.50	0.90 (1.83)	<b>0.18</b>
% frequency	0.72 (0.91) 0.72	0.36 (0.51)	<b>0.13</b>
Clarifying Contributions			
% time spent	1.79 (2.00) <b>0.87</b>	0.74 (1.20)	<b>0.077</b>

% frequency	1.27 (1.35) <b>1.18</b>	0.45 (0.69)	<b>0.047</b>
Probing			
% time spent	0.68 (1.02) <b>1.00</b>	0.21 (0.48)	<b>0.09</b>
% frequency	0.73 ((1.00) <b>1.34</b>	0.18 (0.41)	<b>0.06</b>
Further Development of Contributions and the Discussion Process			
% time spent	0.77 (1.70) 0.14	0.91 (2.02)	<b>0.43</b>
% frequency	0.36 (0.51) 0.14	0.27 (0.65)	<b>0.36</b>

one-tailed t-test;

As the findings in *Table 1.2.2* reveal, the success in the three features was achieved by different increase or decrease of particular behaviors. Improvement in the Initiating/Guidance feature was achieved by decreasing the ‘giving information’ behavior and increasing the use of narrow questions, and of calling on discussion participants. Trainees in the experimental group structured their discussion by reducing the amount of pre-structuring in favor of restructuring behaviors (significant increases in short summaries of sections of the discussion, making the process of discussion transparent, and keeping the discussion focused). Discussion moderators, having received the complete training program, tried to improve participants’ contributions by giving reasons for agreement, using simple acknowledgements and clarifying contributions and probing (significant increases). Certain skills were not used, or no significant differences could be obtained in skills like the use of higher order questions (broad questions), stating consequences if a discussion point is discussed in a deviating way or is too detailed, summarizing contributions, and in behaviors related to further development of ideas. Probably these behaviors are either too complex (higher order questions, further development of ideas) and/or unknown, strange, and rarely used in everyday discussions (pointing to consequences of deviating from the line of discussion, or integrating contributions into the flow of the discussion process). They need more frequent and intensive training (see Klinzing & Floden, 1990; Klinzing & Tisher, 1993; Klinzing & Klinzing-Eurich, 1988; Klinzing, Klinzing-Eurich & Floden, 1989).

**Results for Function 2 of Moderating Discussions: Social-Emotional Leadership/ Interpersonal Management. (Research question 2)** The results for the features of this function are summarized in *Table 2*.

**Table 2.: Results for Global Ratings of Features of Interpersonal Management. Means and, T-tests (p- values).**

Variable	Experimental Group(EG) Posttest O1	Control Group(CG) Posttest O2	EG/CG (t-tests)
	M (s) ES	M (s)	p
<b>Dominance</b>	3.95 (0.47) 0.20	3.77 (0.93)	0.29
<b>Formalism</b>	3.36 (0.64) 0.31	3.09 (0.89)	0.21
<b>Coldness</b>	3.50 (0.92) 0.50	3.18 (0.64)	0.18
<b>Distance</b>	3.23 (0.65) 0.13	3.13 (0.71)	0.38

One-tail test; (a): lower values = higher clarity, interest etc.

As the results summarized in *Table 2* show, the findings for *Function 2* of moderating a discussion and related features are disappointing. No significant differences between the experimental group having received the complete training program and the control group with no training at the time of the performance test, could be found for all features. Again, for these highly complex variables, intensive training is necessary in order to achieve significant gains, measured with global ratings as used in this study.

**3. Results for Training Effects on General Social Competences (Research Question 3).** The third research question dealt with the problem of whether a training program for the improvement of moderating a discussion will have effects on general social competences, on self-rated and alter rated expressiveness, and orientation to the

participants. The results are summarized in *Table 3.1-3.3*.

**Table 3.1: Results for Global Social Competencies for the Moderation of Discussions: Self-Ratings of Competencies (SRC). Means (M), Standard Deviations (s), t-Tests, and Effect Sizes (ES) for Study 1 - 4.**

	Study 1 Study 4 (University Students) (University Students) EG: N=11; CG: CG: N= 22	Study Study 3 (University (Beginning Teachers) N = 13	2 Students) N N=11
= 22	EG: N= 22; CG: CG: N= 22		
	M (s) t (p*) ES M (s) t (p*) ES	M (s) t (p*) ES M (s) t (p*) ES	ES
<b>Expressiveness</b>	EG: 3.39 Pre : 3.24 (0.35)	Pre: 3.28 EG: 3.78	.
(0.504)	(0.36)		(0.52)
	1.87	2.45	
	8.28	2.62	
(p=0.00) 1.67	(p=0.04) 0.71 (p=0.006) 0.68	(p=0.015)	0.89
	CG: 3.06 Post: 4.08 (0.47)	Post: CG: 3.42	3.74 (0.39)
(0.41)	(0.53)		
<b>Participant Orientation</b>	EG: 3.93 Pre: 3.98 (0.47)	Pre: EG: 4.03	3.78 (0.55)
(0.446)	(0.37)		
	1.68	2.08	
	2.18	0.00	
(p=0.0215) 0.39	(p=0.055) 0.83 (p=1) 0.0	(p=0.025)	0.62
	CG: 3.63 Post: 4.156 (0.36)	Post: CG: 4.03	4.12 (0.16)
(0.29)	(0.35)		

\*one-tailed t-test; EG: Experimental Group; CG: Control Group; higher values = higher social competence.

**Table 3.2: Results for Global Competencies for the Moderation of Discussions. Rating of Alter Competence (Group Rating). Means (M), (RAC). Standard Deviations (s), t-Tests, and Effect Sizes (ES) for Study 1 - 4.**

	Study 1 Study 4 (University Students) (University Students) EG: N=11; CG: CG: N= 22			Study 2 Study 3 (University Students) (Beginning Teachers) N = 13 N=11		
	M (s)	t (p*)	ES	M (s)	t (p*)	ES
<b>Expressiveness</b>	EG: 4.21 Pre : 4.052 (0.22)			Pre: 3.89 EG: 4.30		
(0.23)		(0.30)				(0.37)
		3.60			3.03	
	8.28	(p=0.001)	1.51	1.91	(p=0.005)	0.92
(p=0.00)	1.67		(p=0.03)	0.59		
	CG: 3.87 Post: 4.36 (0.23)			Post: CG: 4.13		
(0.15)		(0.29)				(0.32)
<b>Participant Orientation</b>	EG: 4.29 Pre: 3.903			Pre: EG: 4.10		
(0.17)		(0.33) (0.38)				(0.28)
		1.68			2.27	
8.57		1.59				
(p=0.00)	1.82	(p=0.055)	0.83		(p=0.021)	0.89
		(p=0.059)	0.52			

	<b>CG: 3.99</b>	<b>Post:</b>	4.27
	<b>Post: 4.21</b>	<b>CG: 3.93</b>	
	(0.26)		(0.33)
(0.19)			
	(0.33)		

\*one tailed t-tests; EG: Experimental Group; CG: Control/Comparison Group; higher values = higher social competence.

**Table 3.3: Results for General Social Competencies: Accuracy in De-/Encoding (Self-Realism). Means (M), Standard Deviations (s) t-Tests, and Effect Sizes (ES) for the SRC und RAC for Experimental and Control Groups (Study 1 and 4) or Pretests(Pre)and Posttests (Post) (Study 2 and 3)**

	<b>Study 1 Study 3 (University Students)</b>	<b>Study 2 (University Students Teachers)</b>	<b>Study 4 (University Beginning)</b>
	<b>EG: N = 11; CG: N = 11 EG: N = 22 CG: N = 22</b>	<b>Pre-/Posttest: N = 13</b>	<b>Pre-</b>
<b>/Posttest: N = 22</b>			
<b>(p)* ES</b>	<b>M(s) t (p)* ES M(s) t (p) ES</b>	<b>M (s) t (p)* ES</b>	<b>M (s) t</b>
<b>Expressiveness</b>	<b>EG: 0.82 EG: 0.54 (0.26) (0.37)</b>	<b>Pre: 0.74 (0.56)</b>	<b>Pre : 0.79 (0.363)</b>
<b>(p=0.00012) 1.00</b>	<b>4.42 (p=0.43) -0.05 (p=0.075) 0.38</b>	<b>0.17 0.71 1.46 (p=0.25) 0.25</b>	
<b>(0.50)</b>	<b>CG: 0.79 CG: 0.73 (0.58)</b>	<b>Post: 0.60 (0.42)</b>	<b>Post: 0.4291 (0.305)</b>

<b>Participant</b>	<b>EG: 0.43</b>	<b>Pre: 0.49</b>	<b>Pre: 0.426</b>
<b>Orientation</b> (0.21)	<b>EG: 0.25</b> (0.31)	(0.49)	(0.262)
	0.92	1.28	
	3.23	1.43	
	(p=0.18) 0.39	<b>(p=0.11)</b>	0.43
<b>(p=0.000198)</b> 0.69		<b>(p=0.08)</b> 0.37	
	<b>CG: 0.55</b>	<b>Post: 0.28</b>	<b>Post: 0.246</b>
	<b>CG: 0.35</b> (0.31)	(0.27)	(0.177)
(0.27)			

One-tailed t-tests; EG: Experimental Group; CG: Control/Comparison Group;; Lower values=higher accuracy in de-/encoding ability (Self-Realism).

The results, summarized in *Table 3.1* and *3.2*, reveal that for both aspects of global social competences (Expressiveness and. Participant Orientation, except for Participant Orientation in *Study 3*, beginning teachers) could be obtained. With the latter exception they became significant or nearly significant. The results, as summarized in *Table 3.3*, reveal that for both aspects of social competence significant results could be obtained in *Study 2 - 4*. Effect Sizes show that the improvements are also practically significant. In *Study 1*, however, (see *Table 3.3*) no improvements in De-/Encoding abilities could be observed. In this Study the participants had only *one* opportunity for practice experience. This is an clear indication of how important the practice component of trainings is.

**4. Results from the Evaluation of the Training Program by Participants (Course Instructor Evaluation Questionnaire) (Research Question 4):** As mentioned above, this instrument was administered at the end of the courses (treatment of the experimental group and the treatment of the control groups). It was administered again by mail two months after the end of the training in *Study 1*. In *Table 4.1* the results are summarized for *Study 1*.

**Table 4.1: Results from the Course/Instructor Evaluation Questionnaire (CIEQ): Directly after Training and Two Months Later. Means for the five Sub-scales of the Instrument for the Experimental and the Comparison Group for Study 1 (University Students)**

Sub-scales	Test administered at the end of the training		Test administered two months after the end of training	
	Experimental Group (N = 11)	Control Group (N = 11)	Control Group (N = 8)	Control Group (N = 10)
	M	M	M	M
-----				
-----				
<b>General Course Attitude</b>	<b>1.15</b>	<b>1.22</b>	<b>1.21</b>	<b>1.17</b>
<b>Method of Instruction</b>	1.29	1.65	1.46	1.32
<b>Interest and</b>	1.33	1.29	1.20	1.32

<b>Attention</b>				
<b>Course content</b>	1.31	1.58	1.35	1.32
<b>Instructor</b>	1.21	1.30	1.35	1.30
-----				
<b>Total:</b>	<b>1.25</b>	<b>1.40</b>	<b>1.31</b>	<b>1.28</b>

Four point scale: 1= strongly agree; 4 = strongly disagree.

The results as summarized in *Table 4.1* show a very positive evaluation of the program by the trainees which was still observable two months after the end of the course. The slightly less positive findings in the comparison group may due to the shortened training they received after their posttests.

The results from the Course/Instructor Evaluation Questionnaire (CIEQ) for *Study 2 – 4* are summarized in *Table 4.2*

**Table 4.2: Results from the Course/Instructor Evaluation Questionnaire (CIEQ) for University Students (Student Teachers) and Beginning Teachers: Means for the five Subscales of the Instrument for Study 2 - 4**

<b>Study/ Subscales</b>	<b>Study 2</b>		<b>Study 4</b>		<b>Study 3-</b>	
	<b>(University Students)</b> (N=13)		<b>(Beginning Teachers)</b> (N=22)		<b>(Beginning Teachers)</b> (N=20)	
	<b>M</b>		<b>M</b>		<b>M</b>	
-----						
<b>General course attitude</b>	<b>1.21</b>				<b>1.23</b>	<b>1.81</b>
<b>Method of instruction</b>	1.44				1.36	2.15



<hr/>												
<b>General</b>												
<b>Course attitude</b>	1.32	1.25	1.25	1.45	1.37	1.45	1.27	1.33	1.28	1.24	1.15	1.20
	1.30	1.25	1.32	1.30	1.22	1.27	1.28	1.25	1.72	1.23		
<b>Method of instruction</b>	1.55	1.37	1.35	1.70	1.15	1.57	1.41	1.55	1.54	1.24	1.65	1.58
	1.45	1.46	1.52	1.37	1.60	1.37	1.48	1.35	1.82	1.36		
<b>Interest and attention</b>	1.30	1.49	1.42	1.50	1.40	1.17	1.34	1.13	1.26	1.24	1.10	1.41
	1.32	1.18	1.43	1.14	1.27	1.37	1.43	1.30	1.46	1.33		
<b>Course content</b>	1.40	1.57	1.34	1.62	1.40	1.60	1.52	1.27	1.62	1.37	1.65	1.41
	1.37	1.28	1.32	1.34	1.38	1.31	1.46	1.33	1.58	1.39		
<b>Instructor</b>	1.28	1.32	1.37	1.48	1.18	1.36	1.22	1.26	1.36	1.19	1.20	1.43
	1.31	1.29	1.31	1.35	1.33	1.19	1.46	1.42	1.42	1.36		
<hr/>												
<b>Total:</b>	1.34	1.40	1.34	1.55	1.26	1.43	1.35	1.31	1.41	1.26	1.35	1.41
	1.33	1.29	1.38	1.30	1.36		1.29	1.45	1.32	1.62	1.33	

\* duration: 1 day

Four point scale: 1 = strongly agree; 4 = strongly disagree. Administration of the questionnaire at the end of the courses.

**5 Results for the Relative Effectiveness of Different Training Programs (Research Question 5).** The design of *Study 1* was also to investigate the relative effectiveness of the complete program which included having the opportunity to practice in microtraining format (X1) and a shortened program in which trainees did not have opportunity to practice in a laboratory format (X2). The findings are reported in detail elsewhere (Rupp, 1999). Only the main results can be summarized here.

The training program of the experimental group X1 was tested for its effectiveness without an opportunity to practice. As the comparison between the opportunity to practice in a laboratory format of the experimental group and the post-test of the control group (O2, having had no training at this point of time) reveals, there are positive trends in all measures, achieving significance however, only in low inference behaviors: As compared with the control group without training (O2) the participants of the training program (without practice) reduced *Initiation/Guiding* (especially by reducing *Giving Information*), used less *Pre-Structuring* in favor of more *Re-Structuring* behaviors (especially more *Summarizing Discussion Sections* and *Making the Discussion Process Transparent*), used more *Supporting* behaviors (especially more *Integration of*

*Contributions, Acknowledgement, and Probing*). Also, significant effects were obtained in aspects of general social competence: Orientation to the Participants (self-rating and rating by the discussion partners) and Expressiveness (rating by the participants); but the improvements are smaller than for the complete training program *with* the opportunity for practice. In summary, the training course *without* an opportunity to practice brought about at least some effects.

To investigate the relative effectiveness of the programs X1 (complete program) versus the complete program without the microtraining-laboratory session, the difference in gains between the practice session of X1 and the complete training X1 (O1: posttest after complete training) was compared with the gains between O2-O3 (O2 = posttest of the control group which received a shortened program after O2 and was measured again in O3). By and large, all results point in the expected direction. However, only few results achieved statistical significance: Trainees who had one practice session in a microtraining format used less *Initiating/Guiding Behaviors* (especially they reduced Giving Information), increased *Calling-on Participants*, made more the *Discussion Process Transparent*, more *Agreements with Giving Reasons*, and *Clarifying Contributions*. Merely one practice session doesn't show the value of this component in training.

### **Summary and Conclusion**

Discussion in classrooms and in other settings is widely recommended as a communication form valuable in its own right. For the context of teaching, the discussion method is seen as particularly effective and appropriate to achieve a variety of ambitious educational goals, including content- and subject-matter and educational citizenship goals.

The role of discussion moderators/teachers is diverse and demanding. He/she is responsible, at least in part, for the success in developing the subject under discussion and, as a prerequisite for this, for the positive interpersonal relationships of the discussion group. To perform the main leadership functions, the **task leadership and social-emotional leadership**, with a high level of skill, an intensive preparation seems

necessary. For this reason, a program was designed using a Teaching Laboratory approach (“*Interacting as Experimenting*”, see Klinzing, 1976; 1982; Klinzing & Floden, 1990; Rupp, 1999; Klinzing & Gerada, 2007) which combines different educational techniques aimed at the improvement of the following interrelated and overlapping knowledge and abilities: acquisition of theoretical knowledge about discussion, the ability to use concepts as organizing tools, to generate hypotheses, to make and test decisions, to skillfully carry out actions, and to reflect upon the execution of behaviors and their consequences (Klinzing & Floden, 1990).

This program was tested for its effectiveness in four studies with student teachers and beginning teachers, and evaluated by 26 various groups of participants (university professors, university students, executives in business and industry of different levels).

The results of the studies testing the effectiveness on behavioral changes are encouraging:

The result of *Study 1* show that for the important features of the function of *task leadership*, specific discussion moderator behaviors can be trained successfully, even with a short training program with only *one* opportunity to practice. Findings on *low inference observations* from *Study 1* revealed significant improvement for practices regarding

1. *Initiating/Guidance* (decrease of giving information, increase of calling-on participants),
2. *Structuring* (reduction of pre-structuring in favor to restructuring behaviors: summaries of the discussion sections, making the discussion process transparent, keeping the discussion focused), and
3. *Supporting* (*improving participants’ contributions* by giving reasons for agreement, use of acknowledgements, clarifying contributions, and probing).

Only for some of the target behaviors no changes could be achieved. Certain skill were not used, or no significant differences could be obtained skills like, the use of *higher order questions* (broad questions), *stating consequences if a discussion point is discussed in a deviating way or*

*too detailed, integrating contributions into the flow of the discussion process, and in behaviors related to further development of ideas. Probably these behaviors are either too complex and/or too unknown, strange, and rarely used in everyday discussions. They need more frequent and intensive training (see Klinzing, 1990; Klinzing & Tisher, 1992; Klinzing & Klinzing-Eurich, 1988; Klinzing, et al., 1989)..*

The success in the three features was achieved differently increase or decrease of particular behaviors. Even a short training program can bring about positive changes in the frequency of use of low inference target behaviors. The trainees achieved improvements in the target features on one or the other way, using different particular behaviors at a different frequency. In spite of some non-significant results, *research question 1.2* can be answered positively.

Furthermore, the training achieved gains in aspects of global social competence: Significant or nearly significant improvements due to the training could be obtained almost in all four studies for self-rated and other-rated Expressiveness and Participant Orientation. *Research questions 3.1* and *3.2* can be answered positively.

While for *Accuracy of De-/Encoding* (“Self-Realism”, Fuller & Manning, 1973) significant results (exception: *Study 2* for Participant Orientation) could be achieved, no improvements in De-/Encoding abilities could be observed in *Study 1*. In this study the participants had only *one* opportunity for practice experience. This was a clear indication of how important the practice component of trainings is. *Research question 3.3* can be only partly answered positively.

The *Evaluation of the Courses* by participants were very favorable in *Study 1 – 4*, Results were still observable two months after the end of the training (*Study 1*). The CIEQ-results for the 22 additional courses indicate that the program also was also perceived positively by industry-executives and university teachers. *Research question 4* can be answered positively.

However, in some of the global ratings no success could be obtained due to the training.

Only a small (non-significant) trend for global ratings regarding *Task Leadership*,

Clarity and Interest for the introductory presentations of the discussions, could be observed (*Study 1*). To be successful in a training of these complex variables, assessed by global ratings more training seems necessary (Klinzing, 2002b). Also no positive results could be obtained for *Interpersonal Management*. To have discussions in small groups of peers may preclude discipline/management problems; thus, there may not be critical need to teach those interpersonal and management skills in the context of discussion-moderator training for small groups. *Research questions 1.1* and 2 cannot be answered positively.

These findings, and those from the investigation of the relative effectiveness of program variations (*research question 5*), point to extensions of the program - especially providing more opportunities to practice in experimental laboratory settings.

In conclusion, the results of these studies suggest that short training programs of the kind described above can increase discussion moderators' communication skills and that these improvements can be achieved within preservice, inservice, and administrator courses. With some exceptions, it can be stated that, all in all, the findings indicate that the programs in laboratory format promoted the development of a rich communication/teaching repertory which makes decision making and reflection meaningful –mutually inspired and improved by the training - in a relatively short time. These results are in line with those of international research but also extend it by the finding that self realism can be enhanced by interaction/teaching laboratories (Klinzing & Tisher, 1993; Klinzing, 2002b) when sufficient opportunities for practice are provided.

*„Many fads have come and gone in education during the past few decades; but some of them, like microteaching, probably had large constructive effects. Educational research will accumulate more knowledge and help improve education more than it has if the results of old and new programs such as microteaching are synthesized.“ (Walberg, 1986, 220).*

Interaction/teaching laboratories occupy an important place in many educational programs and provide an ideal context for the training described in this study. Additional research and development should be carried out to see how our understanding of this component of education, especially teacher education, can be extended to encompass a

wide range of discussion goals in the classroom for effective teacher preparation.

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(1) The research and development reported here in was part of a project of the working group: Microteaching/ Laboratory Training at the University of Tübingen). The framework for the program development, testing its effectiveness, and evaluation (and the report on it) is taken from Klinzing, (1982), especially from Klinzing & Floden (1990). For the program development, conduction of the course, the design of the study, and the data collection both authors were responsible for Study 1, for *Study 2-4* the first author only. The data analysis, description of the project and the review of related research was subject of the doctoral dissertation of the second author, published as a monograph: Rupp, A. (1999).

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