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## **Effects of Teacher Training in Adult Learning: Insight from a Danish Research Project in Progress**

Deutsches Institut für Erwachsenenbildung  
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# Effects of Teacher Training in Adult Learning: Insight from a Danish Research Project in Progress

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## 1. Abstract

This paper tries to shed light over two questions raised in the workshop: 'Effects of Teacher Training' at the ASEM conference June 2009 on Teachers and Trainers in Adult Education and Lifelong Learning Professional Development in Asia and Europe. At first it is asked *what do we already know about teacher training effects in relation to adult learners?* This will be identified by a search for systematic reviews in the international clearinghouses and afterwards by a small scale mapping done in the pedagogic database ERIC. And second: *which methods can be used to measure the effects of teacher training?* This will be illustrated by describing a research design in progress at the National Centre for Competence Development, Denmark, regarding a program where teachers are taught teaching Cooperative Learning as a pedagogical and didactical method.

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## 2. Effects of teacher training in adult learning

Teacher training is a well established research area. The focus has been on competences needed for being a qualified professional teacher. The effect of teacher training has been in focus too, but seldom in relation to adult learning<sup>1</sup>. Politicians, practitioners, and researchers should raise the simple question: When you provide training programs for adult teachers – newcomers or experienced, short or long courses – how can you tell that you are on the right way? How can you tell that you are improving the competences most needed or with the greatest impact on the adult learners?

To give a more solid ground to discuss how to measure the effect of training of teachers in adult learning we will summarize what we know (until now) and how do we proceed this knowledge gathering process. In the first part of this paper therefore we summarize what we have found in a search database, and in the second part we will give a short presentation of a Danish research project on training of teachers in general adult education, and the method used to measure the effect of this training.

### 2.1. Teacher training and its effects in relation to adult learning

To put some more light on the problem, we have tried to create an overview of the existing knowledge concerning teacher training, and have conducted a search for empirical studies examining the impact of teacher training aimed at teaching adult learners. We have investigated the work made by clearinghouses reviewing educational research, and we have made a small scale systematic search.

#### 2.1.1. Search in five international Clearinghouses

A search in five international clearinghouses<sup>2</sup> showed that New Zealand Education Counts has produced a systematic review concerning the effect of the adult teacher (Prebble, Hargraves, Leach, Naidoo & Suddaby, 2004) and the part of the review concerning "*Academic Staff Development: A summary of a synthesis of research on the impact of academic staff development programmes on student outcomes in undergraduate tertiary study*" (Rivers, 2005) is of interest here. The review examined over 150 international studies of which 33 primary studies were included.

The findings have been summarized into two head propositions. The second one is summarized under this headline: Through a variety of academic development interventions, teachers can be assisted to improve the quality of their teaching. By that is meant, that teachers can be assisted to improve their teaching by means of a variety of interventions which has been further divided into five sub-propositions: 1) *Short training courses* are unlikely to lead to significant change in teaching behavior. They tend to be most effective when used to disseminate information about institutional policy and practice, or to train staff in discrete skills and techniques. 2) *In situ training* which shows that, the academic work group is generally an effective setting for developing the complex knowledge, attitudes and skills involved in teaching. 3) *Consulting, peer assessment and mentoring* helps to improve teaching. Teachers can be assisted to improve the quality of their teaching through obtaining feedback, advice and support for their teaching from a colleague or academic development consultant. 4) *Student assessment of teaching* are among the most reliable and accessible indicators of the effectiveness of teaching. When used appropriately they are likely to lead to significant improvements in the quality of the teaching and learning. 5) *Intensive and comprehensive staff development programs* can be effective in transforming teachers' beliefs about teaching and learning and their teaching practice.

The synthesis of the review focused on research concerning the impact of academic staff development programs on teaching practice. It recommends that institutions should continue to invest resources in assisting their staff to develop in the professional practice of teaching. It states that teacher development does make a positive difference. But the evidence does not favour one methodology over another. It is unlikely that focusing exclusively on short, skills-based courses will lead to significant professional growth or change, the findings supports a greater emphasis on assisting work groups to reflect collectively on their joint tasks.

### 2.1.2. Search for empiric studies in ERIC

As a supplement to the above mentioned review we have made a small scale search in the literature of empiric studies searching for the effect of interventions concerning aspects besides the academic level.

The small scale search has been conducted in the database ERIC. The narrowing down of the search profile build upon the question: *What do we already know about teacher training effects in relation to teaching adult learners?* The purpose of the search is to find studies that examine the effect of adult teacher education and this scope includes the effect in relation to the adult learners that the teachers teach and it may be the learners' social or motivational or academic outcome. The effect may also be viewed from the teachers' own perception. Whether if it is their opinion that they are capable of teaching the group of adult learners or not? Are they satisfied? Do they feel secure in their decision-making on the basis of they teacher education.

The search resulted in 21 hits which have been reviewed<sup>3</sup>. Out of the 21 studies only 4 is primary studies dealing with the specific question we asked about. We summarize the findings which can be read in more detail in an appendix where all the hits from the search have been analyzed<sup>1</sup>.

The first study is an action research (Madgar, 1999) *"Implementation of a Procedure Manual to Improve Teacher Performance"*. The Southwestern Pennsylvania Area Labor-Management Committee (SPALMC), which serves approximately 180 adult students annually, was experiencing inconsistencies in performance among its adult education staff. The problems included teachers arriving late 50% of the time and individualizing instruction only 70% of the time. To remedy these

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<sup>1</sup> The appendix is to be found:  
<http://www.dpu.dk/everest/Publications/Subsites/NCfK/20090604111121/CurrentVersion/Appendix%20-%20small%20scale%20search.pdf>

problems, the SPALMC undertook an action research project consisting of development of a teaching policy manual and delivery of staff in-service training. And a student questionnaire showed that after following the implementation of the policy manual and in-service training instructors were on time for class 95% of the time and using individualized instruction 100% of the time.

The second study is a research in progress (Persichitte, 1993) "Instructional Strategies for Metacognitive Development: An In-service Design". The purpose of the study is that the teachers learn to teach instructional strategies that promote metacognitive development to classroom teachers in their roles as instructional designers, based on the notion that instruction in metacognitive strategies must be incorporated into content instruction. An initial test of the in-service design, not yet evaluated formally, indicates its utility and the positive reaction of teachers. Regarding to the results it is important to mention that "The data has not yet been collected, the "reviews" are very positive", therefore the results are weak<sup>4</sup>.

The third study is a three year research project (Marlowe, 1991) "*Adult Basic Skills Instructor Training Project (1988-1991)*". The purpose of the study was to improve basic skills instructor training in North Carolina's 58 community colleges. It was designed to develop a cadre of local trainers who could meet the training and development needs of basic skills instructors at each community college. This project concerned instructors being teachers who taught teachers to improve their local staff development plan. The project identified seventy-one instructor trainer competencies and the competency training was based on Kolb's experiential learning theory. Evaluations indicated that participants viewed the information as useful and colleges were incorporating the instructor trainer role in their local staff development plan.

The fourth study concerns (Lindsey, 1969) "*A Program of Professional Readings for Secondary School English Teachers*" examines a group of 76 secondary school English teachers which attend a program whose goal was to enhance the teachers' effectiveness regarding positive changes in the teachers' cognitions, feelings and action tendencies. The study showed that many of the teachers had profound changes in their cognitions, feelings, and their actions tendencies as a result of the program. The results indicated that professional readings can change teacher attitude and performance, and that a broad program of readings is an effective method in updating English teachers. The greatest change was accomplished when theory was juxtaposed with practical application in presenting material.

When summing up from the four findings we have some indications that there is a positive effect of teacher training in-service programs in the area of adult learners. Especially; when the project consists of action research; when the project includes that the teachers have hands on; when the projects purpose is to enhance teachers' professional development. Generally the effect of the interventions is focused on the teachers regarding their change of behavior, thinking or feelings and not on the students they are to teach after attending the training.

When summing up from all 21 findings it reveals the information that the international field of adult teacher education hardly is formalized but typically exists of in-service teacher training programs<sup>5</sup>. And furthermore the findings indicate an interest in developing guidelines, toolkits and handbooks in use for institution of adult education (see study no: 8, 10, 12, 18, 20 in appendix). In addition there is a great deal of interest in discussing and exploring what kind of competencies a teacher must possess being able to teach adult learners and also in relation to building up an acknowledged profession as adult teachers (study no: 2, 3, 5, 9, 16). There is an interest in gaining knowledge about how teachers learn (study no: 11) and in how teacher candidates percept they teacher training while they are students (study no: 1, 15). One study concentrate on the methodological dimensions concerning how to evaluate the teachers learning outcome after having attended a teacher training program (study no: 17). Also in-service programs, their purpose and intentions are

outlined (especially study no: 4). Moreover there is panel discussions which contain papers with broad contents (study no: 14, 19).

If any conclusion can be made out of this small scale search it is not very specific. The conclusion must be that there is a lack of research examining the effect of teacher training in relation to the field of adult education. It may be because of the challenges facing us when we want to examine the effect of a pedagogical intervention. Which lead us to the second question: *which methods can be used to measure the effects of teacher training?* In relation to the measuring part it is important to acknowledge that there is a huge amount of challenges when wanting to gain knowledge about the effect of a certain teacher training program. As Darling-Hammond, expresses: *"First is the difficulty of developing or obtaining comparable premeasures and postmeasures of student learning that can gauge change in valid ways that educators feel appropriately reflect genuine learning; second is the difficulty of attributing changes in student attitudes or performances to an individual teacher, given all of the other factors influencing children [or adult learners], including other teachers past and present; third is the difficulty of attributing what the teacher knows or does to the influence of teacher education"* (L. Darling-Hammond, 2006, s. 121). With these considerations in mind we will now describe a Danish project in process by discussing an emerging research design where the goal is to measure the effect of the use of a pedagogical method used in the teaching of young adult learners.

### **3. Measuring the effect of a Danish in-service teacher training program**

#### **3.1. The context: Implementing "Cooperative Learning" as a teaching method**

The project in which the Danish National Centre of Competence Development (NCK)<sup>6</sup> takes part is called "The Cooperative Classroom – new target groups of young adults at general adult education"<sup>7</sup>. The Capital Region has initiated a project which aims to ensure quality education in relation to the "young adult". It will be carried out through the development of new teaching methods and training of teachers in the form of supervision. Around 40 teachers will participate. The project runs from spring 2009 until the last data collection summer 2010. The project will develop, implement, test and measure the effect of a pedagogical method Cooperative Learning (CL) in a specific Danish context.

CL is the didactic and pedagogical method tested and proven in the USA. There is some evidence that the method can meet the complex requirements for developing the students' academic, social and communicative competencies. CL increases the awareness of the way the teaching is organized and CL contribute to focusing on the didactical reflection both during the planning and after the teaching. Moreover CL creates awareness of the teacher's behavior by considering what impact it causes among the students in the classroom (Johnson, 1974, 1992; Slavin, 1996).

CL requires the development of the teacher's social competencies that makes him / her capable of the recognition behavior to build constructive relationships between teacher and student and among students. The development is evolved in the space of self-reflection done by supervision sessions with extern supervision consultants. The supervision sessions uncovers the competencies required by the teacher for allowing him to practice the method optimally.

## 4. The methodological elements in the research design

We are measuring the impact on teacher training in two ways: the direct and the indirect. The direct measure is to measure the improvement of the teaching standard of the involved teachers. The indirect measure is to measure the improvement of the outcomes of the student's performance.

### 4.1. The direct way to measure the effect of the teacher training

The evaluation will carry out a measurement of the teachers' approach to teaching and the use of CL in their classroom after their participation in CL instruction<sup>8</sup>. From a perspective of change it will be examined whether teachers believe that they learn something that creates positive improvements in the classroom. The measurement of the teachers' competence development is carried out through *a competence log* with open questions, which is filled out immediately before and in preparation for supervision by the teacher four times in the process. Supervision is seven times in total.

*The competence log* contains open questions concerning teachers' competency development and their increased satisfaction. The log questions have been tested on two educational consultants at one of the centre where the educational consultants, who also teaches after CL have answered two preliminary proposals for the log.

The log will be used as a systematic record measuring how good teachers are in using the method. This will be assessed by the teachers' descriptions for doing something where the quality lies in the teachers described reflections. We assess indirectly their teaching qualification, within their answers must be found a justification for their actions and choices. The teachers' experiences must be addressed in the context of supervision in which teachers present the experiences and thus demonstrate their competencies. Teachers must, through their reflection describe their actions and reflections. The log forces the teachers to reflect on their actions in a retrospective but it is simultaneously also a forward-looking development perspective, since the teachers participating in the supervision addresses the use of CL in the classroom. The log asks the teacher about his acts and his reflections on what worked and what did not work; why did it work and what was improved. And the questions do always ask for examples from actual teaching situations. We hope their answers will reveal the teachers' ability to reflect on their teaching and thereby give us indications of their competence development.

The teachers' work with the competence log has at least four benefits in an evaluation and development perspective: 1) It gives the teachers an opportunity to keep up with their knowledge gained from courses and literature. Within a manageable space, they must consider what they use from the course and what fore and how they use CL as a method. 2) From a development perspective, working with the log invites teachers to learn something after participation in the CL course, since they must take their theoretical knowledge of CL and their education into consideration continuously associated with supervision. 3) When teachers are asked to put into words how they put CL into practice it is expected that teachers will be far more explicit and thus consciously reflective about their teaching. 4) From a collegiate perspective, working with the log gives an option of teaching at a theoretical level. Together the teachers can discuss and develop useful teaching theory and didactical considerations. This is likely to influence the pedagogical environment at each centre.

The log will also try to measure *the teachers' increased satisfaction*, by asking the teachers in a seven point scale whether they have experienced that the students show greater commitment in the classroom or not? And by asking whether the teachers experience that they can better control their teaching because of their knowledge of the CL or not? Have the teachers become more satis-

fied with their teaching or not? Do they better control the heterogeneous student because of their knowledge about CL as a teaching method?

Reflection is a keyword in the examination of the teachers' competence development. The examination is concerned with the reflection appearing as a part of their learning acquired. Our research design is based on the assumption that reflection is a more or less conscious and a more or less comprehensive consideration of correlations between our actions and their consequences. It is through reflection we become wiser on what to do in a given situation if we want to achieve a particular goal. There is a close link between learning and reflection, but there are learning processes which do not involve reflection. The processes of learning which includes reflection contribute to qualify the learning acquired and those processes are the kind of reflection which represents the projects success. In this context, we refer to Peter Jarvis' model of the learning processes (Jarvis, 2002, p. 71).

We are interested in measuring the teachers' emerging knowledge, as it will appear through their ability to reflect on their own teaching. Our point is that it is the degree of reflection that determines the degree of the teachers' competence development. We hereby link learning and competencies and competence development together in one.

By using the described tools (the log) we are able to tell whether the teachers use, what they have learned, and we can tell if they are able to give reasonable explanations on why they are doing something else compared with what they usually do. The crucial point however is: Is it possible to tell if there is a progression in the teacher's way to reflect? Is it possible to measure whether there is an improvement in the quality of the reflection. If so, we are able to describe the learning process and the learning progress. If not we are only able to tell whether they use the learned teaching method and how often they use what they have learned. The research challenge is to find a method to describe the progress in the written reflections.

#### **4.2. The indirect way to measure the effect of the teacher training**

We have the opportunity to compare the teacher's progress in learning and action with the outcomes of the students. The use of the CL-method is supposed to have an impact on the student's behaviour and outcome.

CL is assumed to have a positive effect on the following three objective goals: decrease in the drop out, decrease in the student non-attendance and on the grades. The variables are examined by comparing with existing data from former classes attending teaching at the centre and by comparison with comparable classes. Some of the centre class compositions allow us to make a comparison between an experimental class having had CL as a pedagogical method and a control class who hasn't. We will try to adjust for variables, which complicates the comparison in order to achieve quasi-experimental conditions.

CL is also assumed to have a positive effect on the following more subjective goals: social competences, communicative competences and motivation.

The subjective goals will be measured in relation to the change that occurs to the students during the process. The measurement is carried out through:

- *Questionnaires*: Must be filled out three times in the project, which follows the students from fall term 2009 to spring term 2010. End October 2009, end January 2010, end March 2010.
- *Focus group interviews*: Focusing on the differences over time, trying to make the students elaborate on their experiences. A total of two student groups from two centers. Interviews start October 2009, start January 2010.

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## Notes

<sup>1</sup> The empirical research from the area of elementary school shows that the content of teacher education reflecting the educational disciplines, subjects and practical training are vital to the development of teacher pedagogical, didactic and personal competencies. "Looking across studies, several aspects of teachers' qualifications have been found to bear some relationship to student achievement... (...)... such as basic skills and general academic ability, knowledge about subject matter, knowledge about teaching and learning, and some teaching experience" (L. Darling-Hammond, Youngs, P., 2002, s. 16). And further we know from research in elementary schools, there is significant relationship between teacher education and student performance. "Quantitative analyses indicate that measures of teacher preparation and certification are by far the strongest correlates of student achievement in reading and mathematics, both before and after controlling for student poverty and language status" (L. Darling-Hammond, 2000, abstract). "Studies employing national, state, and other data sets have reported significant relationships between teacher education and certification measures and student performance at the levels of the individual teacher" (L. Darling-Hammond, Youngs, P., 2002, s. 16). Much empirical research from primary school determines that the teacher represents a crucial factor in students' learning. "Student achievement gains are much more influenced by a student's assigned teacher than other factors like class size and class composition" (L. Darling-Hammond, Youngs, P., 2002).

<sup>2</sup> Following clearinghouses produces systematic reviews regarding educational topics. Searches made May 15. 2009 in British EPPI-Centre <http://eppi.ioe.ac.uk/cms/>. Canadian Council of Learning: <http://www.ccl-cca.ca/ccl> the American What Works: <http://ies.ed.gov/>. New Zealand Education Counts: <http://www.educationcounts.govt.nz/>, and in Danish Clearinghouse for Educational research: <http://www.dpu.dk/site.aspx?p=9882>

<sup>3</sup> Grounded the limited amount of time available the search query was limited only to show the results with free published works found in full text directly from ERIC, which naturally narrows the hits down. The period of search ranged from the earliest to 2009. The educational level was chosen to be "unlimited" because I didn't want to exclude possible studies by selecting only the "adult basic education" or "adult education". Likewise I did not exclude the keyword "secondary school" or "high school" or "college" to secure the inclusion of teaching young adults. I did neither exclude the descriptor "In-service teacher training" to make sure not to miss any that could have something to do with a more formal teacher training program. ERIC's descriptor for the words effect, output, impact, recommend using: "Teacher Effectiveness", which contain: "Degree to which teachers are successful in satisfying their objectives, obligations or functions". The first search query was: DE=((**teacher training**) or (**teacher education**)) and DE=(**Teacher Effectiveness**) and DE=**adult\*** and not DE=((**elementary school**) or (**elementary education**) or (**primary school**)) and not DE=**child\***. This query gave only 13 published hits. I therefore expanded the search query a bit by defining adult\* to be a keyword (KW) rather than the narrow term descriptor (DE). Keyword in ERIC means that the search will include studies where the word is mentioned in both the title and the abstract. The new but still narrow search query was: DE=((**teacher training**) or (**teacher education**)) and DE=(**Teacher Effectiveness**) and KW=**adult\*** and not KW=((**elementary school**) or (**elementary education**) or (**primary school**)) and not KW=**child\***.

<sup>4</sup> It has not been possible to find a follow up study from the researcher in ERIC, where she was to deliver the final results and effect of the in-service program.

<sup>5</sup> All the findings indicate that the field of teacher training contains a great deal of in-service programs. When looking at the descriptors of the studies analyzed from the search eleven studies are marked with "In-service Teacher Education". Which ERIC defines: Additional professional development, usually through formal course work and practical application, of persons currently employed as classroom teachers, to use for "In-service teacher Training".

<sup>6</sup> The purpose of the National Center for Competence (NCK) is to strengthen adult education and in-service training and adult guidance in Denmark. [www.ncfk.dk](http://www.ncfk.dk)

<sup>7</sup> VUC stands for the Centre for Adult Education (VUC means **V**oksen **U**ddannelses **C**enter in Danish terms).

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<sup>8</sup> The teaching in Cooperative Learning is carried out by external expert trainers.