

## Development of Analytical Thinking in Future History Teachers

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**Abstract:** An important aspect of teacher competence is analyzing complex classroom situations and suggesting appropriate actions that follow from the analysis. Novice teachers' analyses are, however, typically simpler than analyses done by experienced teachers. The aim of this study was to investigate whether the analytical skills of pre-service teachers had developed throughout teacher education, and whether the pattern of strengths and weaknesses in students' performances during their first semester had changed at the time of graduation. The results show that the skills did not improve during teacher education, since the students performed at the same level during the first and the last semester.

**Keywords:** assessment, competence, evaluation, teacher education.

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### INTRODUCTION

An important aspect of teacher competence is the ability to analyze complex classroom situations, such as being able to identify a problem, figure out what caused the problem, understand students' incentives for behaving in particular ways, and also to take appropriate actions following this analysis. There are a number of studies, however, which report that beginner and novice teachers' analyses of classroom situations are typically simpler and more descriptive than are analyses done by more experienced teachers.

This raises the question of how pre-service teachers can acquire this expertise, and a typical answer is that it requires extensive experience, while teacher education is usually seen to have little impact on such skills. On the other hand, arguments have been made about the possibility to feed forward this learning process, claiming that experiences need not necessarily be made by the students themselves, but can also be made vicariously, for instance through role plays or simulated situations. Further, there is both theoretical and empirical support for the assumption that students' learning can be enhanced by making expectations explicit to them[1].

Following this latter set of arguments, an assessment methodology called the "Interactive examination", where students analyze classroom situations simulated through digital video, was developed in order to assess, as well as to support, pre-service teachers' learning of analytical skills. Previous research has shown that this "Interactive examination" can indeed be considered a valid instrument for assessing preservice teachers' analytical skills, and that this methodology supports student learning and improves their performance. This article reports on a comparison between students' results on this examination during their first and last semester respectively, aiming to investigate whether the analytical skills of pre-service teachers developed throughout the teacher-education program, and whether the pattern of strengths and weaknesses noted in student performance during their first semester changed.

### ANALYSIS OF LITERATURE ON THE SUBJECT

Competence, as the concept is used here, refers to the integration of knowledge, skills, and attitudes into situation-relevant actions, in order to master relevant tasks. To be "competent" thus means to be able to act knowledgeably in relevant situations[2]. This definition suggests that no

matter how much you know, you cannot be considered competent unless you can actually use this knowledge to solve problems within a certain field of practice. Moreover, it means that competence is not something we are born with, but rather a quality which can be learned and improved. This definition of competence, however, raises the question of how beginners turn into competent workers.

There have been several answers to this question, with contributions from prominent authors such as Gilbert Ryle, Michael Polanyi, and Donald Schön. However, the novice-to-expert framework presented by the Dreyfus brothers (1986) and the theory of “legitimate peripheral participation” by Jean Lave and Etienne Wenger (1991) are perhaps the most widely cited in the literature on progression from novice to competent. In the context of teacher education, much work has been done by David Berliner and his associates, referring mainly to the Dreyfus framework. One of the things that Berliner turns our attention to is that competent teachers can identify, analyze, and act upon things that go more or less undetected by novices[3]. For example, in a study by Sabers, Cushing, and Berliner (1991), teachers with varying experience and expertise in teaching viewed three different television monitors. Each monitor focused on a group of junior high school students, and the participants had to express their thoughts as they viewed the monitors.

## **ANALYSIS AND RESULTS**

They also had to answer questions about classroom management and instruction. What could be seen in this investigation was that the teachers categorized as “experts” were able to monitor, understand, and interpret events in more detail, and also with more insight, than the participants categorized as either “novices” or “advanced beginners.” Further, the teachers differed in how they attended to the “multidimensional nature of the classroom.” As the authors express it: “Experts not only used all three monitors to view the classroom activities, but by all outward appearances they seemed more at ease in completing the task. They gave the overall impression of enjoying the experiment and participated enthusiastically”. Similar results are presented from other studies. In addition, these results are not confined to the “holistic recognition of patterns” in experts or tacit knowledge; pre-service teachers also have difficulties in dealing with general and theoretically-grounded issues when reflecting on teaching events[4].

Given the conclusion that novices and experts differ in their ability to identify, analyze, and act upon multifaceted information in the classroom, how then can the students be guided towards this competence? Sabers argue that there is probably a limit to what can be learned in teacher education, and that it takes extensive time to acquire competence in such a complex domain. This argument is supported by Björklund in a review of research on experience-based learning, where he suggests that the difference between problem solving by experts and novices can be explained by the fact that experts have acquired a larger knowledge base of “implicit memories” (memories that are not consciously attained) than the novices. In principle, experts have in some sense “seen it all before,” and can therefore act in an intuitive and non-reflective manner. Unfortunately, for teacher educators this would mean that there is no way to fast forward this process, and that “teacher education can, at best, start people on the path toward expertise and provide them with the tools and dispositions to better learn from their experience”. As Elliott notes, however, even though professional learning (just like any other learning) is situated and experiential, this does not mean that it has to involve direct participation. Practical situations can also be experienced vicariously, for example by reflecting on case studies and/or discussing different ways to act in relation to simulation exercises.

That case studies can indeed be effective in this regard is shown in a study by Metcalf. Here a group of students were exposed to a series of campus-based activities, which included role play and giving short lessons which were videotaped. The students also watched simulated classroom situations on video. With these situations as starting points, they had to provide explanations, suggest possible solutions, and propose potential consequences of the situations. Every activity was analyzed and discussed by the students in groups[5]. The “reflective ability” of these

students was then compared to a group of students who had been exposed to regular field-based education. Results from this comparison showed that the group of students exposed to campus-based activities had significantly improved their skills in identifying critical events in complex, pedagogical situations.

They could also give more advanced explanations to these situations and were more inclined to provide rationales for different actions taken. Even skills in carrying out meaningful lessons, as measured in this study, were improved by this group, whereas the skills of the control group had not changed. The results from Metcalf thus suggest that, by working systematically with simulated situations (such as video sequences and role play), pre-service teachers can improve their skills in identifying critical events in complex situations, give more advanced explanations to these situations, become more inclined to give rationales for actions taken, as well as improve their performance in giving lessons.

The teacher-education program investigated in this study consists of three different components: a Course in the beginning and at the end of the program, covering general areas in the teaching profession that are common to all teachers regardless of subject major; A major subject, including both content knowledge and pedagogical content knowledge; and one or more minor subjects that do not need to include pedagogical content knowledge. As part of the program, students are also assigned to “partner schools,” where they are supposed to participate in the day-to-day activities during their school-based education and, of course, learn how to teach through real-life experiences. Notable is that there is no single course, or set of courses, in which the practicum periods are gathered. Instead, the practicum periods are always “integrated” with campus-based education into courses, encompassing learning of both practical and academic nature.

The actual level of integration might vary, however, as the use of quotation marks above indicates. A specific problem for instance is that the teacher educators observing the students during the practicum are not necessarily experts in the same subject as the students are teaching, which might lead to a focus on general issues (such as classroom management), since the educator is not familiar with the particular pedagogical content knowledge of the subject taught. Another problem that might affect the level of actual integration is that the assessment of student performance is often clearly divided between campus-, and school-based education, where the former primarily focuses on subject-related knowledge and the latter on procedural skills[6].

## **CONCLUSION**

In relation to the particular focus of this study, there is a risk that intellectual skills may “fall between two stools” in the current organization, since they are neither clearly subject-related nor clearly procedural. This means that, unless there has been any intervention specifically aimed at developing analytical skills (besides the “Interactive examination”), the students are left to develop the ability to analyze complex classroom situations by themselves on an experiential and intuitive basis.

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