

Diary-based strategy assessment and its relationship to performance in a group of trainee teachers

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Abstract

Our work is based on the study of learning strategies used by a group of trainee teachers in a real learning situation, and how this use of strategies influences the results of the learning process. We use a diary as a tool to assess the learning strategies and compare the results obtained with those using an inventory. Our findings indicate that the deliberate use of strategies (measured by diaries) has a positive effect on knowledge acquisition, with the qualitative analysis method of the verbal protocols noted in the diaries proving more valuable than the use of traditional inventories.

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1. Introduction

Our work is based on the learning strategies used by qualified primary school teachers who are also studying a subject from a further degree course. We evaluated these strategies in real learning environments, during the learning and acquisition of knowledge and complex skills (such as the acquisition of large units with significant content), employing new tools for obtaining information, such as diaries, together with traditional instruments, such as inventories.

We propose to analyse which learning strategies the trainee teachers use and how this use of

strategies influences the results of the knowledge gained, in addition to whether there are any variations between the assessment of strategies when using the diary compared to the inventory. We shall also analyse the contribution of intellectual skills to the explanation of knowledge.

It is important to have some background knowledge of the learning strategies employed by trainee teachers and their relationship to the results of learning, in order to apply the findings of such research when devising teacher training programmes. We need to focus on the requirements of teachers who have to learn how to teach. By learning how trainee teachers learn, we are able to understand the problems they encounter and, in this way, we can attempt to improve the learning process. This also applies to teachers themselves, provided that they are involved in innovative

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education, since they are also learners, as [Bolhuis and Voeten \(2004\)](#) indicate.

In this article we analyse the teaching and learning processes with an emphasis on learning processes in teacher education.

It is important that teachers construct their own knowledge and direct their own learning ([Kwakman, 2003](#)). The learning process should be organized in such a way that learners can take responsibility for their own learning processes, estimating their own levels and planning and adjusting their learning processes accordingly ([Lunenberg & Korthagen, 2003](#)).

We want to train good teachers, but to achieve this we must reflect on both how we can help people to become good teachers ([Korthagen, 2004](#)) and how learning is most effective ([Butler, Novak, Jarvis-Selinger, & Beckingham, 2004](#)).

Diaries have already been used on other occasions, such as in the work of [Ericsson, Krampe, and Tesch-Römer \(1993\)](#). Detailed data was collected and used to assess the duration and regularity of the different types of activity as regards the daily practice of the 40 musicians participating in this study. This information was divided into three categories: average students, advantaged students and professionals of the Berlin Philharmonic Orchestra. In order to ensure the validity of the verbal protocols contained in the diaries, the participants were instructed to record all the activities at the time they took place. The diaries were also used to record all other general activities, such as lunch, sleep, leisure, etc. which were part of the daily life of the experts. Therefore, the diaries contained both musical and daily activities. The diaries were exercise books with various pages, one per day for the 7 days of the study's duration, and contained 10 predetermined categories for daily activities and 12 categories relating to musical activities. The participants had to indicate whether or not they had carried out each activity and record its estimated duration.

Several relevant results were disclosed in the study, such as, for example, the significant differences registered between groups. Thus, it was found that solitary practice took up on average 3.5 h per day in the case of the professionals and the best students, whereas the average students only practised 1.3 h daily, including weekends. Nevertheless, the time devoted to leisure activities each day was considerably less in the best violinists (3.5 h) than in the case of good students (4.7 h), and in

both cases less than the average of the general population.

In a second study by [Ericsson et al. \(1993\)](#), the same previously described procedure was carried out with a different group of musicians (pianists: students and professionals) which also included cognitive skill assessment tests. However, no significant differences were found between the two groups in executing non-music related tasks.

With respect to the study of trainee teacher skills and strategies, recent works have used several processes to attempt to analyse and promote the development of strategies used by trainee teachers, such as the work of [Edman, Bart, Robey, and Silverman \(2000\)](#). Here, they analyse the creative thinking skills of the participants and draw attention to the need for further research in this field.

There are many studies that analyse the applied learning strategies, and the results of some of these studies reveal significantly greater use of learning strategies at progressively higher performance levels ([Makinen & Olkinuora, 2004](#); [Munday, 2002](#)), while other studies do not show relationships between learning strategies measured by inventories and academic performance ([Prieto & Castejón, 1999](#)).

There has also been considerable use of verbal protocols to analyse the strategies employed throughout the learning processes ([Fleck & Weisberg, 2000a](#); [Lin, 2001](#); [Taylor & Dionne, 2000](#)). Thus, [Kuiper \(2002\)](#) evaluates the self-regulated learning strategies (applied to another field, nursing) in a group of trainee nurses. To do so, he uses verbal protocols throughout a critical thought development programme. An analysis of the verbal protocols shows that the most common themes in the narrations were the observation of knowledge, thought strategies, judgements on self-efficiency, judgements on competence, judgements on resources, personal reactions and self-corrective strategies. Following this analysis, the author concludes that self-regulatory skills improve the adaptation process to the active world of work.

[Davidson-Shivers et al. \(1997\)](#) use verbal protocols to identify the use of learning strategies, coding processes and decisions in the learning of a hypermedia lesson by students. The results show that students with the best marks tend to employ a greater variety of learning strategies. The group with the lowest marks uses strategies employed by the best group, but uses them to a lesser degree and with more errors. The intermediate group tends to

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