

## **The appreciation and realisation of research-based teacher education: Finnish students' experiences of teacher education**

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Finnish pupils have scored well on international comparative students' achievement tests. Apparently, this is the main reason for the current wide international interest in the Finnish teacher education system and its research-based approach. The aim of this article is to describe student teachers' perspectives on the research-based approach. We will report their attitudes towards the approach and what kinds of experiences they have concerning the realisation of the research-based approach in their studies. The subjects of the research were part of a special group of students, who all had worked as teachers without being officially qualified to do so before they entered teacher education. The research was carried out as a web-based survey (n=113). The questionnaire was based on the structure of the curriculum of the teacher education programme, including items from each part of the curriculum. The subjects were asked about both attitudes and experiences. According to our results, the students appreciate the research-based approach as the main organising theme of teacher education. They presume that this approach is detectable in every part of their studies, as was the case in most of the courses.

Les étudiants finlandais ont obtenu de bons résultats dans les comparaisons internationales de résultats scolaires. Ceci doit être la raison principale de l'intérêt international aujourd'hui répandu pour la formation des enseignants basée sur la recherche. Cet article traite des vues des futurs enseignants finlandais sur l'approche basée sur la recherche. Plus précisément il s'agit de l'appréciation qu'ils portent à cette approche et de sa mise en œuvre durant leurs études. Les personnes interrogées sont des étudiants en formation multiforme qui ont travaillé comme enseignants sans qualification avant de commencer la formation et dont la plupart travaillent comme enseignants à côté de leurs études. Le matériel a été obtenu par le moyen d'un questionnaire électronique (n=113). Les parties du questionnaire étaient basées sur la structure du plan d'études et contenaient des thèses sur chacun des modules d'études. L'étude a porté sur les appréciations et les expériences. D'après les résultats, les étudiants apprécient l'approche basée sur la recherche et en général l'attendent également de leur formation.

Die finnischen Studenten haben gute Resultate in den internationalen vergleichenden Schulleistungstesten (PISA). Vermutlich ist dies die Ursache für die heutige weltweite Interesse für die finnische Lehrerbildungssystem, das auf der wissenschaftliche Research beruht. Die Ursache für dieses Artikel ist, dass wir finden wollten, welcherlei Aspekte die Referendaren/Innen zu ihrem Studium auf der wissenschaftliche Betonung (research-based) haben. Wir wollen berichten, welcherlei Einstellungen die Studenten zu diesen Betonung der Studium haben und welcherlei Erfahrungen sie in ihren Studium bekommen haben. Die Studenten in diesem Erforschung sind eine spezielle Gruppe. Sie haben alle als

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unqualifizierte Lehrer vor ihrem Lehrerstudium gearbeitet. Diese Erforschung wurde als einem Survey in Internet verwirklicht (n=113). Der Survey war auf den Strukturen des Unterrichtsprogramms für die Lehrerstudenten/Innen begründet. Beinhaltet waren auch Thesen aus allen Teilen des Unterrichtsprogrammes. Es wurden sowohl Bewertungen als auch Einstellungen befragt. Nach unserem Resultaten die Studenten bewerten wissenschaftliche Betonung des Studiums und das erwarten sie auch von dieser Ausbildung. So war es in den meisten Fällen der verschiedenen Kursen.

En comparaciones internacionales sobre resultados escolares, los estudiantes finlandeses han obtenido buenos resultados. Ésta es, con toda probabilidad, la razón principal por la cual la formación pedagógica finlandesa basada en la investigación es, actualmente, objeto de gran interés a nivel internacional. En este artículo se estudian las opiniones de alumnos de formación de profesores sobre el enfoque investigador de la formación. Con más exactitud, se trata de saber si los alumnos valoran esta orientación y cómo, según sus experiencias personales, se cumple el enfoque investigador durante sus estudios. Los encuestados son alumnos de la formación multimodal de profesores. Han trabajado como profesores no titulados antes de empezar estos estudios, y la mayoría continúa trabajando como profesores también durante la formación. Los datos fueron obtenidos a través de una encuesta virtual (n=113). Las diversas partes de la encuesta se basaban en la estructura del plan de estudios de la formación de profesores y contenían afirmaciones sobre cada uno de los componentes del plan. Se estudiaron tanto las valoraciones como las experiencias de los alumnos. Según los resultados, los alumnos valoran el enfoque investigador de la formación y, por regla general, también esperan que sea un aspecto importante de sus estudios.

**Keywords:** research-based teacher education; attitude; appreciation; experience; student teacher

### **The research-based approach among other organising themes of teacher education**

In this article, we will discuss the research-based approach as the main organising theme of teacher education. The background of the article could be described with Noffke and Zeichner's notion of the expanse of research on teacher education, a branch of research which is relatively young (Noffke and Zeichner 2006, 823). The shift towards academic teacher education with a Master's degree for all teachers took place in Finland in 1979. Now, after some 30 years, we are able to investigate the academic teacher education and the research-based approach as its main organising theme.

Teacher education is organised in a wide variety of forms and based on different ideas in different countries. One of these is research-based teacher education. The path towards the research-based approach in Finland started when the academic status of teacher education was increased along with a larger renovation of Finnish higher education (Westbury et al. 2005; Jakku-Sihvonen and Niemi 2007). In the 1970s, there was the political will to upgrade the degree of primary teacher, which was academically lower than the Bachelor's degree, to a Master's degree. The change was also welcomed by teachers themselves, who saw it as a rise in the status of a teacher's job. As a result, all comprehensive school teachers have a Master's degree.

The shift mirrored a wider change in research on teaching and teacher education, which focused on a teacher's thinking, knowledge, beliefs and classroom practice

(e.g. Richardson 1994, 6). This was in accordance with the rise of action research in the 1950s and 1960s. In the 1970s, Lawrence Stenhouse was one of those educationalists who encouraged teachers to investigate their own work (Cochran-Smith and Lytle 1990, 3). However, the academic community, which conducted educational research, was still distant from actual teachers in the 1980s. The idea of a *reflective practitioner*, as defined by Schön (1983), did not guarantee that educational research would be open to teachers (Rudduck 1985). The main part of the research which dealt with a teacher's work was carried out by academics who were not teachers themselves.

Richardson (1994, 5) draws a distinction between academic research and research carried out by teachers. Teachers who want to develop their own work through research conduct *practical inquiry* and can be called *practitioners*. Formal research which may be carried out by both academic researchers and practitioner researchers, in turn, increases general educational knowledge. This general research carried out by teachers was to be called *practitioner research* (e.g. Zeichner and Noffke 2001).

The shift was also obvious in Finnish teacher education. The professional character of a teacher's work was emphasised, with pedagogical thinking and the research-based approach as the main organising themes (Kansanen et al. 1991; Kansanen 2000; Jakku-Sihvonen and Niemi 2006). This is near what Zeichner calls inquiry-oriented teacher education (Zeichner 1983, 5–6) or teacher inquiry (Noffke and Zeichner 2005). The aim is to develop teachers who will base their pedagogical decisions on rational arguments as well as experiential arguments (Westbury et al. 2005, 477). In addition, teachers should be able to conduct inquiries in addition to reading critically educational academic literature.

When we wish to improve teachers' competencies through teacher education, we should pay attention to the characteristics of teacher education programmes (cf. Korthagen 2004). We can contemplate a teacher's work at a basic functional level or at a more abstract level. The latter deals with describing and modelling and, sometimes, valuing a teacher's work. When teaching and research on teaching are integrated, we can speak about a research-based teacher education programme. The aim is to educate practitioner researchers or reflective teachers who are both consumers of educational scientific knowledge as well as producers of it. Teachers model their everyday practice on the so-called object theory level (cf. Kansanen 1993). On this level teachers form their personal practical theories. The way in which teachers justify their actions is essential. Intuitive justifications are based on teachers' own experiences, discussions with colleagues, traditions and on a variety of personal beliefs. Rational justifications in turn are based on general principles, the reading of literature, research results and experiments. We can characterise teacher education programmes on the grounds of the categories of a teacher's pedagogical thinking that were presented above. Educational phenomena can be approached in an intuitive way or in a rational way. Further, our perspective may be inductive or deductive (see Figure 1).

This kind of characterisation leads to a model through which teacher education programmes can be analysed. When educational phenomena are approached in an intuitive way and the perspective is inductive, we are dealing with an *experiential and personal method*. Rarely does any teacher education programme follow this kind of method. However, it may describe very well the way in which teachers without

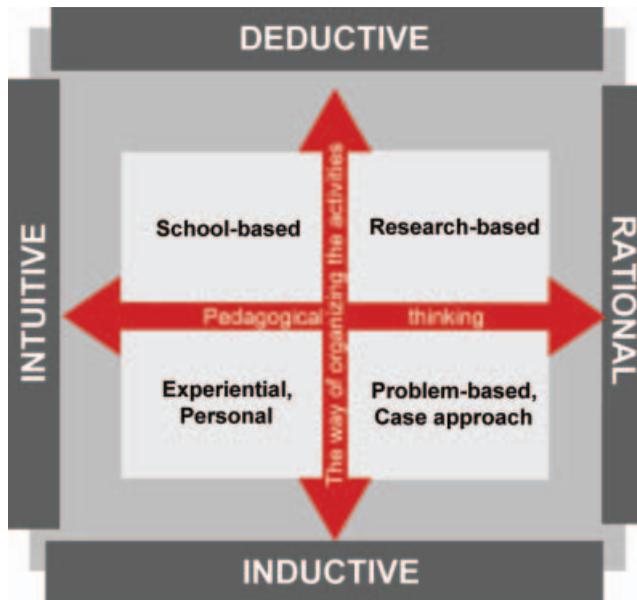


Figure 1. Organising themes of teacher education (Kansanen 2006).

official qualifications, such as the subjects of our research, work and how they construct their understanding of teaching (Krokkfors et al. 2006; Kynäslahti et al. 2006).

There may be teacher education programmes which follow some deductive principles and in which a student's way of approaching educational phenomena is based on personal experiential knowledge. This kind of programme can be called *school-based teacher education*. The basic idea is that a student becoming a qualified teacher through working and conceptual analysing of teaching is of minor importance. National curricula as well as the routines and tradition of a school provide the framework for professional growth. School-based teacher education has been the focus of lively discussion. That discussion has concerned topics such as partnership between the school and the teacher education institution (e.g. Furlong et al. 1996; Smith, Brisard, and Menter 2006; Maandag et al. 2007), the role of mentors (e.g. Carter and Francis 2001; Martinez and Coombs 2001) and how they benefit from being mentors (Carney 2003). The perspectives of university lecturers (Sinclair 1997) and pupils (Brooks 2000) have been present as well.

Lately, typical of teacher education has been the impact of cognitive psychology and the constructivistic, socio-constructivistic and contextual concepts of learning. Interest has been targeted to problem-based thinking as well as to case-specific and individual orientations towards educational phenomena. The perspective is rational, and the students' way of approaching a teacher's work is inductive. The emphasis is on issues of learning, while the entire teaching–studying–learning process and the interactive characteristics of the instructional process are of minor importance. A teacher education programme which relies on this kind of approach could be called a *problem-based or case-specific programme*.

When we are dealing with a teacher education programme based on developing the rational characteristics of pedagogical thinking and argumentation, we are speaking about *research-based teacher education*. Typical of this kind of teacher education programme is that there is a major subject, methodological studies and a relationship with the reality of school (see Kansanen 2005).

### Research design

The survey was a part of a wider study in which a special group of students was investigated (see Figure 2). These students work as teachers at the same time as they study in what is called multimode teacher education. Due to a shortage of competent teachers, schools have been obliged to hire people who do not have an official qualification to teach. This is problematic in many ways, including ethical questions and pupils' rights. That is why the multimode education has been established to educate those people. Many of them are kindergarten teachers or have had some other previous studies before entering into teacher education. They all have had the experience of working as teachers prior to their studies. The aim is to integrate theoretical studies and the work of teaching. They carry out assignments in their own classrooms. There is also the final practicum, which is carried out in the student's own classroom, supervised by a university lecturer and mentored by a local teacher colleague. This activity is called learning in one's own class (cf. Kynäslähti et al. 2006).

The research questions were:

- 1) whether student teachers appreciate the research-based approach on which their teacher education is based;
- 2) what kinds of experiences the students had concerning the realisation of the research-based approach in their teacher education studies; and
- 3) whether there were differences between this appreciation and realisation.

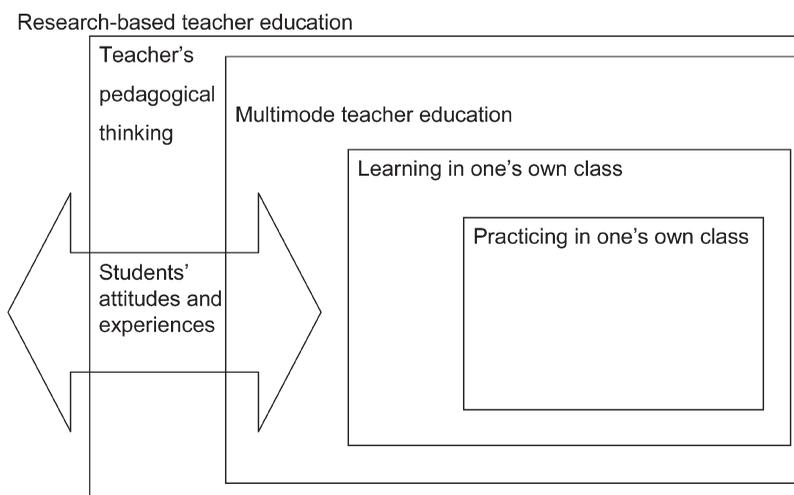


Figure 2. The research design.

## Methods

The research was carried out as a web-based survey in the spring of 2005. The questionnaire (Likert scale 1 to 7) was based on the structure of the curriculum of the teacher education programme, including items from each part of the curriculum. The students were questioned about both attitudes and experiences. Out of the 160 students, 113 responded (71%). First, descriptive parameters were calculated from the data. After that we investigated our item construction process. It is well-known (see e.g. Gorsuch 1997) that single items have lower reliabilities than scales. That is, single items have the following problems:

- 1) they are unreliable;
- 2) they contain unique variance since they are affected by idiosyncratic wording;
- 3) usually they are not normally distributed;
- 4) they have low intercorrelations; and
- 5) analyses using single items as measured indicators for the factors often make it necessary to estimate a large number of parameters.

Thus, in the present investigation, factor analysis was first used to reduce the original number of 26 items to a smaller number of factors describing the students' attitudes towards the research-based approach. Although the data were fairly small for a factor analytical approach, both the Kaiser-Mayer-Olkin Measure (KMO=.88) and Barlett's test of sphericity ( $\chi^2(190)=21539$ ,  $p<0,001$ ) supported the use of this method. Several Maximum Likelihood (ML) solutions with Promax rotation (Kappa=4) were conducted. The ML method was chosen for the analysis because it yields the most clearly differentiated factors (Gorsuch 1983, 117). Missing values were replaced with means.

## Results

The results of this research are presented according to the research questions. First, the students' attitudes towards research-based teacher education, which measure the level of appreciation, are presented, and the second research question concerns the students' experiences of the realisation of the research-based approach. Finally, appreciation and experiences of realisation are compared.

We will also take a look at the structure of the students' attitudes towards, and experiences of, the research-based approach. Both structures are presented according to the research questions before the actual results. We assumed that the factorial structure would inform us how the students perceive their studies and the curriculum as an entity. It also helped us to find the way to present the results.

### *The structure of the appreciation of the research-based approach*

The survey included 26 items which concerned the students' attitudes towards the research-based approach as a main organising theme of teacher education. A different number of factors were extracted, and a solution of four factors was chosen for reporting here (see Table 1). The interpretation of this four-factor solution was distinct, and examination of the residuals indicated no hidden variation, thus also

Table 1. The four-factor solution for items measuring appreciation of the research-based approach.

Variables	F 1	F 2	F 3	F 4
It is important that the research-based approach is realised in courses of the didactics of the subjects which are taught in elementary school.	<b>.90</b>	.06	.08	-.13
It is important that the research-based approach is realised in courses of the didactics of history, religion and philosophy.	<b>.90</b>	.10	-.12	-.04
It is important that the research-based approach is realised in the course of the didactics of mathematics.	<b>.88</b>	-.02	-.21	.13
It is important that the research-based approach is realised in courses of the didactics of arts, music, craft and physical education.	<b>.81</b>	-.04	.23	-.18
It is important that the research-based approach is realised in courses of the didactics of Finnish.	<b>.81</b>	-.04	-.16	.38
It is important that the research-based approach is realised in all courses.	<b>.52</b>	-.03	.12	.25
It is important that the research-based approach is realised when a student is working as a teacher in his or her own classroom.	<b>.52</b>	-.06	.35	-.14
The research-based approach is especially important for multimode teacher education.	<b>.45</b>	-.15	.27	.18
It is important that the research-based approach is realised in Master's thesis seminars.	-.01	<b>.94</b>	-.07	-.02
It is important that the research-based approach is realised in Bachelor's thesis seminars.	-.03	<b>.79</b>	-.01	.14
It is important that the research-based approach is realised when a student is working with his or her own Master's thesis.	-.13	<b>.75</b>	.13	.10
It is important that the research-based approach is realised when a student is working with his or her own Bachelor's thesis.	.06	<b>.65</b>	.01	.20
Methodological studies should provide students with a variety of different methods.	.12	<b>.52</b>	.06	-.21
It is important that methodological studies appear as a coherent entity.	.06	<b>.44</b>	.21	-.25
It is important that the research-based approach is realised in the supervising and counselling of the final practicum.	.03	-.03	<b>.83</b>	.14
It is important that the research-based approach is realised in the supervising and counselling of the subject didactic practicum.	.20	.11	<b>.64</b>	.09
It is important that the research-based approach is realized in courses of education as the major subject.	-.07	.09	.13	<b>.70</b>
It is important for me to have the possibility to continue my studies towards doctoral studies.	.11	-.09	-.03	<b>.34</b>
It is important that the research-based approach is realised through the required reading of education as the major subject.	-.04	.13	.32	<b>.34</b>

supporting this solution (Gorsuch 1983). The resulting four-factor structure corresponded to the arrangement of the curriculum.

*Factor 1. Pedagogical content knowledge of the school subjects which are taught in elementary school.* This factor included variables which dealt with the pedagogical content knowledge of those subjects that class teachers teach in their classes. Also, the variable which concerned the students' work as a teacher during their studies loaded on this factor. Among all their studies (including studies in educational theory), the students associated their daily work with the studies of subject didactics. A special feature for multimode teacher education is that the student's work as a teacher is aimed to be integrated with their studies. The result could be interpreted that the students relate working while studying with school subject studies in particular, which may be due to the inclusion of assignments in the courses which are to be completed in the students' own class.

*Factor 2. Working on a BA or MA thesis.* The second factor dealt with writing a Bachelor's or a Master's thesis and participating in the seminar sessions during the writing process. Variables which concerned the studies of methodology also loaded on this factor. That included the way in which methodological studies are organised, namely that they appear as a coherent entity and provide the students with a variety of different methods.

*Factor 3. Supervision and counselling.* This factor related to practice periods and to the ways in which practice was supervised.

*Factor 4. Studies of the major subject, education.* The fourth factor included variables of studies of educational theory and other studies of education as the major subject.

There were no significant correlations between the four factors and the independent variables, which included gender, age and years of working as a teacher.

### ***Appreciating the research-based approach***

The first research-question aimed to investigate whether student teachers appreciate the research-based approach on which their teacher education is based.

The students were rather positive towards the research-based approach. According to the results of the factor analysis, the means of the various courses are presented in Table 2. The highest means (with the scale 1 to 7) concerned the students' own research work with seminars and theses on both the Bachelor's and Master's levels. The theory and literature courses were also quite high, which is understandable.

There are some differences between courses dealing with various pedagogical content knowledge. The students saw a research-based approach as being less important in courses of didactics of arts, music, craft and physical education than, for example, in history and mathematics. Presumably, courses which dealt with skills and 'doing' were considered practical and those of history and mathematics theoretical.

The mean of the final practicum was also rather high. In the final practicum the students should be able to combine all the theoretical knowledge that they have

Table 2. The level of appreciation of the research-based approach.

Courses	<i>M</i>
Subject didactics	4.76
Arts, music, craft and physical education	4.17
History, religion and philosophy	5.09
Mathematics	5.05
Finnish (mother tongue)	4.87
Bachelor's thesis seminars	6.34
Bachelor's thesis work	6.35
Master's thesis seminars	6.44
Master's thesis work	6.52
Subject didactics practicum	4.71
Final practicum	5.21
Theory of education	6.03
Educational literature	5.56

gained during their teacher education studies with their practical performance in the classroom.

As a whole, the relatively high means indicate that the students have, in principle, accepted the idea of a research-based approach in their studies.

### ***The structure of experiences of the realisation of the research-based approach***

There were 14 variables which measured students' experiences of how the research-based approach was realised in their studies. The  $14 \times 14$  correlation matrix was analysed with a factor analysis. Based on the same logic as in the factor analysis of attitudes, a five-factor solution was chosen for interpretation. The result was rather similar to the first factor analysis on the students' attitudes. The difference was that the variables which dealt with the Bachelor's thesis and the Master's thesis loaded on different factors. The factors will be presented in Table 3.

The factors were:

- 1) Pedagogical content knowledge of the subjects which are taught in elementary school;
- 2) Working on the BA thesis;
- 3) Working on the MA thesis;
- 4) Supervision and counselling;
- 5) Studies on the major subject.

There were no significant correlations between the five factors and the independent variables.

### ***The experienced realisation of the research-based approach***

The second research question concerned the realisation of the research-based approach.

Table 3. Factors of the realisation of the research-based approach.

Variables	F1	F2	F3	F4	F5
How well has the research-based approach been realised in courses of the didactics of the subjects which are taught in elementary school?	<b>.90</b>	-.02	-.04	.06	-.14
How well has the research-based approach been realised in courses of the didactics of Finnish?	<b>.76</b>	.12	-.06	-.01	-.05
How well has the research-based approach been realised in courses of the didactics of arts, music, craft and physical education?	<b>.74</b>	.06	.20	-.02	-.20
How well has the research-based approach been realised in courses of the didactics of history, religion and philosophy?	<b>.71</b>	-.08	.09	-.08	.23
How well has research-based approach been realised in courses of the didactics of mathematics?	<b>.66</b>	-.04	-.17	.08	.11
How well has the research-based approach been realised in all the courses that you have so far completed?	<b>.57</b>	-.09	-.08	.07	.17
How well has the research-based approach been realised in the Bachelor's thesis seminars?	-.01	<b>1.0*</b>	-.04	.00	-.09
How well has the research-based approach been realised when a student is working with his or her own Bachelor's thesis?	-.04	<b>.82</b>	-.05	.11	.06
How well has the research-based approach been realised in the Master's thesis seminars?	-.03	-.02	<b>.99</b>	.02	-.04
How well has the research-based approach been realised when working with your own Master's thesis?	-.03	-.05	<b>.90</b>	.11	.03
How well has the research-based approach been realised in the supervising and counselling of the final practicum?	.07	.02	.08	<b>.91</b>	-.03
How well has the research-based approach been realised in the supervising and counselling of the subject didactic practicum?	-.05	.08	.07	<b>.71</b>	.13
How well has the research-based approach been realised through the required reading on education?	.01	-.07	-.06	.11	<b>.76</b>
How well has the research-based approach been realised through the required reading of education as the major subject?	.08	.35	.21	-.17	<b>.48</b>

\* Heywood case (see e.g. Rummel 1970, 316)

The results of the factor analysis were again used in presenting the means of the different courses (Table 4). We see at once that the means are not as high as they were in the appreciation of the courses. This leads to the comparison of the means of appreciation and realisation in the next section. Somewhat surprising results concerned, however, the students' own research work with the Master's thesis and their experiences with the final practicum.

One explanation could be that the students experience these courses as more difficult than courses that do not need personal teaching performance. During the final practicum the public appearance is evaluated, and the students need help and personal supervision. Writing a Master's thesis is also a difficult process and takes

Table 4. The level of experienced realisation of research-based teacher education.

Courses	<i>M</i>
Subject didactics	4.30
Arts, music, craft and physical education	3.42
History, religion and philosophy	4.24
Mathematics	4.42
Finnish (mother tongue)	3.73
Bachelor's thesis seminars	4.11
Bachelor's thesis work	4.27
Master's thesis seminars	3.56
Master's thesis work	3.63
Subject didactics practicum	2.77
Final practicum	2.58
Theory of education	4.35
Educational literature	4.67

time. In addition, this work was being done just at the time, and expectations of the research-based approach were high in this respect.

#### *Comparing of attitudes and experiences*

The means of the variables of the students' attitudes and experiences of the realisation of the research-based approach were compared using a paired-samples t-test (see Table 5). This revealed that the students expected a more research-based approach in the courses than what actually took place. This was especially so in the supervision of student teaching and in working on theses and the seminars related to them. The latter is somewhat surprising as well as worrying regarding the main idea of a research-based approach to teacher education.

#### *More points of view: some aspects of the research-based approach*

Some aspects of the research-based approach were investigated in more detail (see Table 6). These were the appreciation of Master's degree studies, the possibility to continue studies to the doctoral level and the way in which methodological studies are organised.

The students appreciated the high level of the Master's degree studies. In other words, they saw it as valuable that teachers have rather long academic studies instead of the more practical teacher training.

Although the respondents were eager to study to the Master's degree level, they were not as eager to continue to doctoral studies. However, there was a group of students who saw this opportunity as important.

The students had experienced the methodological studies as a solid entirety, which had given an all-round knowledge of different methods. The students felt that it was important that methodological courses started sufficiently early in the studies.

Table 5. Comparing of means of attitudes and experiences (scale 1–7).

Courses	Attitude	Experience	Difference	<i>t</i>
Pedagogical content knowledge of the school subjects which are taught in elementary school				
Subject didactics	4.76	4.30	.46	2.42*
Arts, music, craft and physical education	4.17	3.42	.75	3.84**
History, religion and philosophy	5.09	4.24	.85	4.22**
Mathematics	5.05	4.42	.64	3.56**
Finnish (mother tongue)	4.87	3.73	1.13	6.12**
<i>Total</i>	4.79	4.02	.77	
Working on the BA thesis				
Bachelor's thesis seminars	6.34	4.11	2.23	8.51**
Bachelor's thesis work	6.35	4.27	2.08	7.70**
<i>Total</i>	6.35	4.19	2.16	
Working on the MA thesis				
Master's thesis seminars	6.44	3.56	2.89	10.11**
Master's thesis work	6.52	3.63	2.89	9.97**
<i>Total</i>	6.48	3.60	2.88	
Supervision and counselling				
Subject didactics practicum	4.71	2.77	1.94	7.55**
Final practicum	5.21	2.58	2.64	9.15**
<i>Total</i>	4.96	2.68	2.28	
Studies on the major subject				
Theory of education	6.03	4.35	1.67	6.58**
Educational literature	5.56	4.67	.89	4.24**
<i>Total</i>	5.80	4.51	1.29	

\* $p > .05$ ; \*\* $p > .01$ .

Table 6. Means and deviations of certain aspects of the research-based approach (scale 1–7).

Variable	<i>M</i>	<i>SD</i>
An official qualification for class teaching should be earned through a lesser degree than the Master's degree.	2,39	2,01
It is important to me that I have the possibility to continue to doctoral studies.	3,71	2,22
It is important that methodological studies form a coherent entity.	6,39	0,87
Methodological studies should provide students with a variety of different methods.	6,18	1,05
It is important that there are courses of research methodology from the beginning of the studies.	5,61	1,41

## **Conclusions**

Instead of basing our item construction only on our investigator judgements, we first investigated our data by the means of a factor analysis. After this, we proceeded to our main analyses. According to these results, the students appreciate the research-based approach as the main organising theme of teacher education. They presume that this approach is detectable in every part of their studies, as was the case in most of the courses. The students also expressed appreciation for the Master's degree level of education, as well as towards methodological studies, but on the contrary, they did not show interest in post-graduate studies. The lack of use of the research-based approach in MA and BA thesis work and seminars is of major concern and calls for further evaluation. The first assumption might be that the teaching in the seminars and the supervision have been insufficient. However, it is also possible that circumstances as such have been adequate but conducting the thesis has turned out to be more challenging than the students expected. MA and BA thesis work requires persistent and independent learning and study of scientific research literature and scientific journals, and a deep understanding and use of research methods in students' own data analyses. These demands of systematic research work might have been unexpectedly difficult for students, because they do not have much previous experience of doing a scientific thesis.

The structure of the students' attitudes towards and experiences of the research-based approach resembled the structure of the teacher education studies. Our interpretation is that the students have comprehended the basic idea of the curriculum of teacher education. A different kind of result would have suggested that the students did not have a clear picture of why they study what they study. From the point of view of teacher education, we can analyse the organisation of the study programme from several kinds of perspectives. In the theoretical part of this article we presented one possible categorisation. Although we, as teacher educators, are aware of the main idea of the organising theme – the research-based approach – the students do not necessarily understand it in the same way, and therefore, our results are encouraging. Different organising themes of teacher education (see Figure 1) produce different kinds of competencies. Zeichner and Conklin (2005, 702) emphasise that teacher education programmes should be explicit about their visions and aims. If the students of our research find out that teacher education is research-based, perhaps they have developed this kind of readiness during their studies.

The research literature concerning the research-based approach of teacher education is surprisingly scarce, although the approach has aroused great international interest (Jakku-Sihvonen and Niemi 2007). In this article we report one case, that of multimode teacher education at the University of Helsinki, and the view of the students is only one perspective on the research-based approach. The study reported here is a part of a wider research project in which research-based teacher education is investigated from various viewpoints (see Figure 2) by using both quantitative and qualitative methods. Our research results so far have convinced us that multimode teacher education is a meaningful way of realising teacher education and that the students have been able to integrate theory into practice combining studies with working in a classroom (Maaranen, Kynäslahti, and Krokfors 2008). In the future the challenge will be to implement the multimode ideas into teacher education more widely.

The next phase of our research concerns teacher educators' views towards the research-based approach as well as its connections to and implications for teachers' everyday work (cf. Hammersley 2002, 14). By clarifying teacher educators' conceptions, we aim to gain a deeper understanding of the practical details and challenges of teacher education. In this way we will be able to develop it further, and it would thus hopefully have an influence on everyday teaching practices at schools.

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