Piling up in the library - can something be learnt from master theses?

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Introduction
To develop shared knowledge and transparency of practice implementing the curriculum of the master programme in the Faculty of technical and vocational teacher education at Akershus University College (AUC) in Norway, the academic staff describe and discuss theoretical perspectives and different practices, and reflection and apprenticeship are encouraged.

One issue that has been mentioned frequently in staff meetings is the more than 200 master theses available to students and staff in the college library. Although all theses are accessible, there is no shared knowledge as to their content and how systematic use can be made of them. The staff found it important to identify and provide a common knowledge base for students and academic staff to use as reference in their work.

The inquiry discussed in this article reviews recent developments of knowledge in vocational and professional education and in work life as presented in master theses in the period 1996 – 2006. For the Faculty the intention is to seek out future research areas across vocational and professional education, questions and themes that need elaboration and possible networks for partnership (Høie 2003; 2005). To establish a common knowledge base the results from this inquiry are continuously fed back to and discussed in the academic staff. The development of documented knowledge in the area of vocational and professional pedagogy will be of interest for persons working within higher education and in the field of work life learning.

The master programme in technical and vocational education at AUC dates back to 1978. Based on a reform in Norwegian upper secondary education in 1976, the programme was designed as a road for teachers to extend, develop and document their knowledge within the field of technical and vocational education in upper secondary schools and apprenticeship in industry. The master programme in technical and vocational education builds on a long tradition and the experiences at AUC can, once they are documented, be used as one starting point for mutual learning from the diversity of national educational programmes (The Bologna process 1999).

One important purpose of the master programme was always to transform the unique experience and knowledge held by individuals and groups of actors into writing, in order to enable the emergence and sharing of a knowledge base in these fields. Another important purpose is to enable technical and vocational teachers to attain formal qualifications at the master level, and through this an upgrading of status and salary compared to lecturers who hold university degrees in general disciplines.

Due to the focus on formal and comparable qualifications and the intention to stimulate mutual learning from the diversity of national educational programmes, AUC in 2003 transformed the former main subject studies to a master programme in technical and
vocational education, meeting the requirements of the European Higher Education Area (The Bologna process 1999). The master programme was given a somewhat different structure, but the objectives, the pedagogical approach and perspectives were kept. Accordingly the knowledge gained from the inquiry of theses in this project will be relevant and useful for the further development of the master programme and its future students.

The Lisbon declaration’s (2000) with its strong emphasis on work related and life long learning, together with the international effort supported by UNESCO/UNEVOC on the international Masters Framework for TVET teachers (MF-TT): “Promoting professionalisation and innovations in teacher education for technical and vocational education and training (TVET)” (Maclean 2006; Rauner 2006; Tarrou 2006), underline the need for professional development of TVET teachers and continuous vocational development of skilled workers.

The master programme at AUC meets the international challenges of work related and life long learning, and its approach to innovation in vocational teaching-learning processes is a contribution to the professional development of TVET teachers (Askeroi 2003; Hiim 2003; Høie 2001, 2003; Lien. and Mjelde 1999; Mjelde 2006; Tarrou 1997). The master students are all teachers at different levels in the educational system and from many different vocational fields (for example building and construction trades, electrical trades/ICT/automation, health and social studies, hotel and food processing trades). They work together and specialize in education and training across vocational disciplines. They are oriented towards trades, occupations and professions linked to TVET teacher education. The programme does not give a vocational specialization addressing technical or vocational subjects as such.

In the following I will present an outline of the research design and research questions, and presents some preliminary results from my analysis of the master theses in vocational education.

The exploratory inquiry

The overall purpose of the inquiry presented above is to analyse developments of knowledge in vocational and professional education and in work life as these are documented in AUC master theses. An exploration of 168 master theses indicates that the qualitative inquiry should focus on themes, purpose, perspectives and level of concern, research approaches and results (Linne and Tarrou 2001).

Through the 25 years since the first graduations the number of students and theses has steadily increased. Theses from the years 1998-2006, 168 theses altogether, which covers the period between two latest educational reforms in Norway in 1994 and 2006, are analysed.

In addition the research design will also include data generation through questionnaires to all the 248 students admitted to the programme in the chosen period, and interviews with a sample of graduate students from each year to explore how their careers and lives have been influenced by their postgraduate studies. It further includes 8 interviews /narratives from the AUC staff. Most of the academic staff members involved in the master programme through the years are still available, and the opportunity to capture their non-documented experience from tutoring the students’ work constitutes an extra motivation for the inquiry.

This article will however, report mainly from the document analysis of the master theses.
Who are the master students in technical and vocational education?

The master students are adults, with full time employment, families and other obligations. They could be referred to as non-traditional students (Gallacher, Crossan, Field & Merrill 2002; Crossan, Field, Gallacher & Merill 2003). Their age at admittance vary from 29 – 59 years; the majority is between 40 – 50 years of age. The students are fully qualified engineers, cooks, nurses, plumbers, timber men, i.e., holding their certificates in different trades, and being formally qualified as teachers through part-time initial teacher education (Tarrou 1988; 1997). They thus have three social roles (More 2006) as certified workers, as qualified teachers and as master students. The programme emphasises work related and life long learning (the Lisbon declaration in 2000), and is also an answer to the need for professionalisation and innovations in regard to TVET teacher education models.

The majority of students admitted to the programme have their background from the vocational areas of the upper secondary schools. Of these the largest groups are Health and social studies (24%), Engineering and mechanical trades (15,8%), Building and construction, Technical building, Woodworking trades (12,6%), Electrical trades/ICT /automation (11,5%), Hotel and food processing trades (11,5%), Arts, craft and design (10,9%), together 86,3% of the total 183.

The largest single group of the 248 admitted students represent Health and Social studies in upper secondary schools (44), and 14 students from education in health related professions, together 58. The traditional building and industrial trades together represent 73 of the admitted students. These groups also represent (together with agriculture, fishing and forestry and arts, crafts and design), with a few exceptions the traditional gender division of labour found in Norwegian technical and vocational upper secondary schools, as well as in the Norwegian work life at whole.

An analysis of properties in the master theses

Since each group of adult students naturally enters the programme with widely different work and educational experience, the principle of relevance and interest for their work situation and the inductive learning processes in the programme encourage variety both thematically and in choice of research strategies. The programme offers designed learning processes, where the students’ content learning and their resulting theses emerge from the work done in the programme context and in their respective work environment. Thus a reasonable assumption is that the theses would be highly diverse both thematically and in their choice of research design.

The starting point of the thematic analysis was a list of authors, the titles and abstracts of 168 theses. The abstracts indicate the thematic focus of the theses; the themes are presented in table 1.

<table>
<thead>
<tr>
<th>Category Number</th>
<th>Theme from the title of the theses</th>
<th>Number of theses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Professional development, professional cultures</td>
<td>23</td>
</tr>
<tr>
<td>2</td>
<td>Apprenticeship, partnership, network, practice, outplacement</td>
<td>21</td>
</tr>
</tbody>
</table>
Developing distinct and separate categories was complicated, because the reading of theses made it clear that several theses could be put in more than one category. The theses dealt with more than one issue, for instance with professional development as well as reflection strategies, differentiation and outplacement in workplaces, organizational development and gender issues. It was a time consuming process as the categorization had to be rechecked several times to ensure a valid and reliable result.

Another issue was how to name the categories. They were named by concepts used in the theses rather than by those used in the master programme plan.

An important issue was whether some of the categories should be combined; for example Category 16. *Curriculum, implementation of curriculum reforms*, Category 15. *Democracy, participatory teaching, autonomy, responsibility for ones own learning* and Category 4. *Didactics, new teaching strategies, problem based learning (PBL).* The resulting 16 categories were decided upon to best reflect information from the data.

Given the recommendation of the master programme to work on challenges connected to the individual students workplace, one would assume a strong correlation between the candidates’ vocation, profession and the areas of research in the theses, this was also the case: The 23 theses in Category 1 *Professional development, professional cultures* are all written by students that teach in professional college education. Professional education in Norway has also been transformed through curriculum reforms, and several of the theses in Category 1 discuss and try out curriculum implementation strategies in these contexts.

Students who by admittance were employed outside the educational system have primarily chosen themes within Category 6 *Organizational development, innovation, scenarios, management* and Category 3 *Evaluation, vocational tests, quality development*. The theses from enterprises are diverse; ranging from education in voluntary organisations, of jail attendants, and HR-consultant work, but as an overall characteristic it would be fair to state

<table>
<thead>
<tr>
<th>Category</th>
<th>Theme</th>
<th>Number</th>
</tr>
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<tbody>
<tr>
<td>3</td>
<td>Evaluation, vocational tests, quality development</td>
<td>19</td>
</tr>
<tr>
<td>4</td>
<td>Didactics, new teaching strategies, problem based learning (PBL)</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>Special education, differentiation, drop outs, mobbing</td>
<td>15</td>
</tr>
<tr>
<td>6</td>
<td>Organizational development, innovation, scenarios, management</td>
<td>12</td>
</tr>
<tr>
<td>7</td>
<td>E-learning, multimedia, simulation</td>
<td>10</td>
</tr>
<tr>
<td>8</td>
<td>Vocational competence, vocational knowledge</td>
<td>10</td>
</tr>
<tr>
<td>9</td>
<td>Choice of vocation/career planning</td>
<td>8</td>
</tr>
<tr>
<td>10</td>
<td>Literacy, mother tongue, vocational adaptation of general subjects, vocational language</td>
<td>6</td>
</tr>
<tr>
<td>11</td>
<td>Minority students, gender, laps</td>
<td>6</td>
</tr>
<tr>
<td>12</td>
<td>Learning environment, learning styles</td>
<td>6</td>
</tr>
<tr>
<td>13</td>
<td>Teaching materials, textbooks</td>
<td>5</td>
</tr>
<tr>
<td>14</td>
<td>Counselling and reflection strategies</td>
<td>4</td>
</tr>
<tr>
<td>15</td>
<td>Democracy, participatory teaching, autonomy, responsibility for ones own learning</td>
<td>4</td>
</tr>
<tr>
<td>16</td>
<td>Curriculum, implementation of curriculum reforms</td>
<td>4</td>
</tr>
</tbody>
</table>

168
that they are all concerned with aspects of implementation and quality development.

The main arena of study is the upper secondary school as could be expected since 183 of the admitted students worked in that section of the educational system.

One assumption was that thematic choices in the theses would co vary with the students vocation and gender, this could be found in Category 14 *Counselling and reflection strategies* themes chosen by female health- and social workers, and in Category 7 *E-learning, multimedia, simulation* chosen by male students with background in electronics, maritime and building trades. Several theses in category 7 deal with how technical and vocational teachers conceive digital competence and introduce ICT to help pupils develop relevant and operative digital competence in their specific vocational area. One female student developed and evaluated a programme in communication skills, supported by e-learning, for jail attendants in Norway.

The other themes were chosen across vocations, and no further choice patterns could be found.

21 theses are grouped in Category 2 and concern partnership/cooperation between schools and enterprises, outplacement of pupils and apprenticeship. One special aspect of this cooperation between schools and enterprises are Category 9 pupils’ choice of vocation, career planning.

Another large group of theses concerns the education and integration of physical and mentally disabled pupils; Category 5 Special education, differentiation, drops outs, mobbing. Category 11 contain education of minority students, the education of the lap population, women in male dominated trades, and over the last few years educational issues related to pupils with a foreign mother tongue begin to appear.

In 1994 the upper secondary school underwent a major curriculum reform. The reform involved a new structure for the vocational areas and extended educational rights for the 16-19 year age group. The curriculum of 1994 advocates new teaching strategies problem based learning (PBL), democracy, participatory teaching, responsibility for own learning, cooperative strategies in learning and project work. Quite a number of theses from this period concern teachers’ work trying to implement different aspects of the new curriculum within different branches. They report from projects trying out strategies in order to “deliver” education that is democratic, holistic, learner directed, reflective, practice based, relevant for enterprises in the future, and tuned into cultures in different vocations.

Most theses discuss the gap between vision and reality, between available resources such as time, equipment, competence and the objectives stated in curriculum. Teachers are concerned about the reduction of pupils’ time for practical training in workshops and industry, about the increase in theoretical subjects and the lack of integration of theoretical issues with practical work. Central themes are theory – practice coherence, outplacement (shorter periods in work life), apprenticeship and the relevance of theoretical education for work life.

Theoretical educational perspectives in the programme and the theses are based in humanism, critical theory, social constructivist learning theory, systems theory, curriculum theory, reflection strategies and teamwork. Few of the theses are academic in the sense of thorough theoretical discussions, most of them are action oriented, this is not surprising since most of the students have full employment and want to understand and develop their work related
tasks. The aim or purpose of the theoretical and empirical illumination is mostly to make evaluations and to justify implementation strategies.

The majority of the theses document action research/innovation projects using mostly qualitative approaches such as interviews, open questionnaires, logs, narratives and observation in their data generating. Many of them use different ways of triangulation to ensure the validity of their results. A few have used questionnaires to larger samples of pupils or teachers, but do not use advanced statistical data analyses.

With some exceptions the perspectives tend to be local; individual schools or classes even. This constitutes an unfortunate narrow approach in many theses. Global trends and international perspectives are seldom discussed explicitly, but are indirectly recognized and acted upon through the challenges presented in the national curriculum.

Some theses give a historical perspective to the issue, but they are few, and they mostly discuss their perspectives in a national context. Integrating the historical background of work with contemporary and future perspectives is the challenge that educators’ face in ensuring the interaction between education and work. Historical, contemporary and future perspectives constitute a knowledge basis in the master degree programme, but these perspectives are seldom explicitly reflected in the master theses.

Overall the theses are sensitive to and informative of what goes on in the fields of practice, constituting a rich picture of the challenges meeting to day’s knowledge worker. The local orientation, the national context and the Norwegian language clearly make generalizations from the results documented in the theses difficult outside Scandinavia. However, as the majority has a qualitative and action research approach, they give thick descriptions (Ryle 1971: 478- 479; Geertz 1973) and lay out audit trails (Guba 1981:87) both to the actions taken and to the obtained results. They thus offer concrete examples of documented innovations in schools and enterprises.

The theses represent an impressive contribution to the knowledge base for the development of vocational and technical education in Norway in the years between the two latest reforms in the Norwegian educational system (Reform 94 and LK06). Together they give important knowledge about the status of vocational and technical education, and about what can be learned from implementation processes, both important sources of information in the implementation of Knowledge Promotion (LK06), the latest reform in primary and lower secondary education. The goal of LK06 is to help all pupils to develop fundamental skills that will enable them to actively participate in our society of knowledge. Knowledge Promotion, with its special emphasis on learning, is meant to help ensure that all pupils receive a differentiated education.

**Conclusion**

To meet future international challenges facing professionalisation and innovation in teacher education for technical and vocational education and training it is important to increase transparency and stimulate mutual learning from national educational programmes. The AUC master programme in technical and vocational education offers a strategy for work related lifelong learning (the Lisbon declaration in 2000), and has since 1978 met the Norwegian need for professional development of TVET teachers and continuous vocational development of skilled workers. The competence development experienced by graduate students and their
tutors at AUC confirms that it is possible to surpass one’s own learning identity and educational identity at an adult age.

Through the AUC master programme individuals and groups of teachers/vocational educators have succeeded in transforming their unique experience and knowledge into writing, and enabled them to share their knowledge in these fields. The programme has also enabled vocational educators to use new strategies in exploring their own work while building their capacity to apply the systemic pedagogy in their own workplace.

Altogether the theses show an emerging knowledgebase, and give a rich picture of the challenges meeting the innovative knowledge worker in the fields of practice. The thematic clusters found in the theses have been presented and discussed in staff meetings. The thematic areas will be further identified, described and made available to help future students and staff members make better use of the theses in the college library. A series of seminars headed by former students from each field are also planned.

The theses are situated in the Norwegian context and the analysis of them indicated a necessity to strengthen the AUC master programme’s global and historic perspectives. A strategy to accomplish this has been discussed in the staff, and measures have been taken; for example by seminars with international guest lecturers to inspire both students and staff members to include broader perspectives in their work.

The theses seen together show an emerging knowledgebase, and give a rich picture of the challenges meeting the innovative knowledge worker in the fields of practice.

A comparative case study is suggested in order to better identify new challenges facing professionalisation and innovations in teacher education for technical and vocational education and training (TVET). An international comparative case study would be beneficial for several reasons:
- To strengthen the AUC master programme’s global and historic perspectives.
- To increase transparency and stimulate mutual learning from national educational programmes.
- To seek out future research areas across vocational and professional education.
- To establish networks for partnership.

References


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