

Swedish vocational education and research in an international context

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Introduction

This text is a translation and partly revised chapter 2 from (originally named *Background and problem area*) from an article based dissertation in Swedish (Lindberg, 2003). The translation and has been made with the permission of the publisher.

The paragraph *Swedish research on vocational education* has been completed. Compared to the original text, the following changes have been made. Firstly, texts published during 2003 have been included, and secondly some clarifications have been made in this English version that occurred later in the Swedish version. Also the paragraph *International research on vocational education* has been completed. In the dissertation, as part of this paragraph, two journals, *Journal of Vocational Education Research* (JVER) and *The International Journal of Vocational Education and Training* (IJVET) were reviewed according to the abstracts of the articles they published during the 1990's. Here the reviews of these journals are completed with those published during the period 2000-2003.

The context of vocational education

Today the vocational education in Sweden is an integrated part of the upper secondary school. Since the reform of upper secondary school in 1991, the concept 'preparatory vocational education' has been used instead of vocational education. The new concept is a sign of the new educational commission, to prepare the students for a vocational area and a "changing working life" (Lpfe94, p. 9) rather than for a specific vocation. As the preparatory vocational education is a part of upper secondary school it has also other purposes; to contribute to general knowledge and prepare the students for higher education (Wallin, 1997).

The vocational education is thus an integrated part of the upper secondary school and therefore also a part of the Swedish educational system. Formally it qualifies for higher education. The fact that vocational education is part of a system is especially significant in relation to how the system was formed during the reform in 1991. Both the compulsory school and the voluntary school forms have common principles (for instance that the system is goal and result oriented, decentralised, market adjusted etc.). One of the consequences of the adjustment to the market is that those involved, other than municipalities, can now also be responsible for vocational programmes. What is specific for the reform of the vocational programmes is *workplace based learning* (in Swedish: *arbetsplatsförlagd utbildning, APU*), which replaces the former *practice*. The purpose of the workplace based learning is to make it possible for working life (trade, industry and service) to have an impact on the formation of the education as part of the education – at least 15 weeks – is carried through in working life (Prop. 1990/91:85, Prop 1991/92:95).

One of the main preconditions for economical growth has been considered the level of knowledge of the labourers (Ds 1994:35). The reform of upper secondary school is, however, only one of many educational strategies that the Swedish state has chosen to invest in, in order to correspond to the demands made – e.g. by the employers organisations – upon the knowledge of the labour force. Other investments that have been made are the five year project *The Adult Education Initiative* (in Swedish: *Kunskapslyftet*) 1997-2002 within adult education and the establishment of a new form of education, *Advanced Vocational Education* (AVE). The purpose of the former is to offer education to adults with little or no formal education (those with the greatest needs) i.e. to narrow the educational gaps. The AVE-programmes on the one hand are an answer to the demands, made by the working life on qualified skills for product development and on the other hand they are an attempt to educate for employment that allows both vocational and personal development. Each programme is therefore designed and executed in collaboration between working life and educators. The basic qualifications [1] for the AVE-programmes are the same as for higher education and thereby complement the traditional programmes of the colleges (Ds 2000:33, SOU 1995:38). Another purpose of the AVE-programmes is to complement the programmes within *Higher vocational technical education* (HVTE; in Swedish: *yrkesteknisk högskola*). With regards to the rules for qualification for AVE and HVTE the two forms of education recruit students with varying backgrounds. Except for the basic qualifications special qualifications are also needed for both AVE- and HVTE-programmes. For the HVTE-programmes these are for each programme a relevant upper secondary education and working experience of four years minimum. In 2001, an investigation was presented concerning the development of the HVTE-programmes (SOU 2001:107). According to this, it will be possible to apply for entrance upon completion of upper secondary school.

During the 1990's and in the beginning of 21st century the investments in vocational education have been enormous. The common purposes of them all being to strengthen vocational education on several levels.

Swedish vocational education in an international perspective

The Swedish upper secondary education can be regarded as unique. Since the reform of upper secondary school in the 1970's it has, on an organisational level, integrated 'theoretical' programmes (academic programmes) and 'practical' programmes (vocational programmes). Most Western countries have chosen other solutions. In an international context, the term *Vocational Education and Training* (VET) [2] signals that the pathways to formal vocational competence are many; different countries have varying solutions. Two comparisons have been made between different systems for VET in Europe. Within CEDEFOP (1998) the focus for comparison was the steering of VET, that is who defines, forms and regulates the standards for VET and the relation between basic VET and labour market. Three different systems were identified: systems that are mainly steered by the market (e.g. England); corporately steered systems, that is systems that are steered collaboratively by the state and by the actors in labour market (the dual system, e.g. Germany) and systems that are mainly steered by the state (e.g. France).

Lasonen and Young (1998) have compared how ten EU-countries have worked with linking vocational education to higher education; vocational education to working life; the status and qualifications of vocational teachers/educators and the curriculum of vocational education. Four main strategies for developing vocational education, thereby promoting its parity of esteem, were identified:

- *Vocational enhancement.* The countries that have invested in vocation enhancement (Denmark, Germany and Austria), have reformed and widened higher vocational education. Furthermore, they also have worked on strengthening the partnership based upon the dual system (see above). In relation to teachers in general subjects, the vocational teachers have formally achieved equity in parity of esteem. As to the curriculum, the vocational competence has been enhanced.
- *Mutual enrichment.* Finland and Norway represent the second strategy. On the one hand, the possibilities for students with vocational education to gain access to existing higher education have been improved by legislation. On the other hand, a new system for vocational higher education has been established. The preconditions for an increased collaboration between employer and educational actors have been improved. The parity of esteem of vocational teachers has been promoted by giving common courses for vocational teachers and for teachers in general subjects. In order to develop the curriculum, general subjects have been increased.
- *Linkage.* England, France and Spain represent the third strategy. In principle, the different sub-strategies could be described in the same terms as for the second category, but the general strategy (linkage) is different. Linkage concerns the gap between vocational education and working life on the one hand, and between vocational education and higher education on the other. The elaboration of for example national vocational qualifications (NVQ) in England, and syllabuses for general subjects related to higher education are examples of how linking is established.
- *Unification.* Sweden and Scotland represent the last strategy. They have established a uniform post-16 educational system based upon compulsory school. In these countries the focus is on strengthening the linkage between employers, vocational teachers and teachers of general subjects. The teacher education for vocational teachers and teachers of general subjects is similar. According to the curriculum integrated learning [4] is preferred.

The two comparisons presented above have focussed upon different things. In the first case, steering, Swedish vocational education appears to be similar to the vocational education in France and Finland; the state forms and regulates the guidelines for vocational education. Put into practice it means that vocational education is school based (CEDEFOP 1998). In the second case, strategies for developing vocational education, Lasonen and Young (1998) have come to the conclusion that the strategies of Sweden and Scotland are similar. What unites these countries, and simultaneously separates them from other countries in this comparison, are the investments made in a uniform post-16 educational system. Further, the curricula of both these countries emphasise integrated learning – i.e. the aim to reinforce the collaboration between working life, the vocational education and the general subjects is explicit. In conclusion, what, in an international context, appears to be specific for Swedish vocational education can be summarised in terms of a combination of the following items:

- The State steering.
- The mainly school based education.
- The integrated upper secondary school.
- The striving for a stronger link between on the one hand, school based and work based education and, on the other hand, general subjects and vocational subjects.

Within the European Union there is an effort to promote vocational education and competence development. One way of doing this is to produce reference material, often statistically based, and analyses of a variety of phenomena within vocational education and

different educational systems (cf. Stenström & Lasonen, 2000; Höghielm, 2000). Initially this has been a way of describing how vocational education has been formed and regulated within the countries of the Union (CEDEFOP, 1998). Departing from these descriptions, some areas for research have been identified. One purpose is that the member countries can use these results to initiate projects for development within their respective vocational education. The research areas defined as especially interesting with regards to the development of vocational education are: the collaboration between school and work, the school-to-work transition, competencies/key qualifications, general subjects within vocational education, and vocational education in relation to life-long learning. In relation to these areas of development, this thesis contributes to these areas of development by illuminating two of these aspects: issues related to competencies and general subjects within Swedish vocational education.

Research on vocational education

By using the key words ‘vocational education’ during the search for literature on vocational education in the Swedish search engine Libris [5], several results became obvious. Firstly, the matches covered a wide range; from apprenticeship to higher vocational education. Secondly, not all of the dissertations and research reports on vocational education in Swedish appeared amongst the matches. When, for example, using advanced search methods, the key words ‘vocational education’ and publication type ‘dissertation’, the result was a total of 166 matches in six languages, including Swedish. However, in the majority of these the issue was either nursing or engineering education. For this thesis, vocational higher education and adult education are irrelevant. Of the seventeen dissertations that remained five concerned apprenticeships: two of which concentrated on apprenticeships in Sweden (Edgren, 1987; Jernström, 2000). Of the matches that concerned vocational education in upper secondary school or equivalent, only thirteen concerned Sweden. Only these thirteen have been considered for this dissertation.

The search on the Swedish search engine, Libris, was complemented with searches on the databases of the universities in Gothenburg, Linköping, Lund, Stockholm, Umeå and Uppsala [6]. Here the Internet based information of relevant institutions (educational, sociological, economical, philosophical, and historical) on dissertations and publications and the respective university library was used. In total, the search resulted in 24 dissertations with Swedish vocational education as a main issue and several others where vocational education was a secondary issue (see page). No time limit was specified in either of the search databases, as the matches were so few.

Naturally, the dissertations give a limited picture of the research conducted. The complete picture of Swedish research in this area is based upon the search engines Libris, Safari [7] and ERIC [8], completed with research reports from the above mentioned Swedish universities. In total, some 70 relevant texts for research on vocational education were found. In the following a review of the Swedish research within this area will be presented.

Swedish research on vocational education

The first Swedish dissertation on vocational education concerned the history of trade instruction (Kaleen, 1953), shortly after a licentiate treatise and a dissertation on agricultural vocational schools followed (Koort, 1956, 1958). In the 1960’s a licentiate treatise on the development of Swedish vocational education [9] was presented (Wernlund, 1965) and in the

1970's a dissertation was published (Grogarn, 1979). If the amount of dissertations can be considered a measure of the interest in vocational education as a research area, then the interest in research on this type of schooling has increased starting with the 1980's. During this decade, five dissertations on vocational education and upper secondary school [10] were published, and in the 1990's eight dissertations were published. So far, eight (including this) dissertations and two licentiat treatises have been published in Sweden during the 21st century. The scientific areas represented by these dissertations are (in alphabetical order): comparative literature, economical history, educational science, ethnology, history, social sciences, sociology, and vocational competence and technology.

Historical descriptions dominate the dissertations; of the ten found in nine dissertations out some aspect of *the history of vocational education* is a central theme. This is also reflected in other research. The various types of historical studies are represented by studies of either law documents, political decisions on a national or municipal level, or the documentation made by specific schools. The studies concern, for example, the development of vocational education on an international or a national level (Hedman, 2001; Lindell, 1992; Nilsson & Svärd, 1991; Nilsson, 1981; Wernlund, 1965), or within a specific vocational area (Andersson Gustafsson, 2002; Kaleen, 1953; Koort, 1956; Larsson, 2001; Nilsson, 1994). In Lundahl's (1989, 1994) and Bergström's (1993) studies, educational politics was the issue. Lundahl (1989) wrote about the educational politics of the Swedish Conservatives during the period 1904-1962 and (1994) about the actions of the Swedish Employers' Confederation (SAF) and of the Swedish Trade Union Confederation (LO) in relation to vocational education 1944-1990. Bergström focussed Social Democratic educational politics during the period 1975-1990 in relation to equity and democracy. The history of vocational education has also been documented in regional or local historical contexts (cf. Carldén, 1991; Fromark, 1988; Greijer, 1988) or as the history of a certain school (cf. Kupper, 1982; S-A. Larsson, 1991; Spångberg, 1987).

Lundahl and Sander (1998) and Nilsson (1998) have described factors concerning *the organisation of and/or the forms of education*. Reed (1994) has compared Swedish and American vocational education in relation to these matters. Berner (1989), Lundahl (1989, 1994, 1997, 1998) and Olofsson (2000) have described factors with an impact on (the system for) vocational education.

Another field of research has been *students' conceptions of a vocation* (Herrman, 1998; Hill, 1998; Thång, 1988; Walldal, 1986, 1987) or *of vocational education* (Axelsson, 1989; Carlsson, 2001; Thång, 1988). In a reanalysis of data from an earlier study, Hill (2001) compared the way Swedish vocational students talked about and acted in relation to their education to the results of Willis study from (1977).

The conceptions of vocational teachers' are also described in some dissertations. In relation to the narratives of teachers within hairdressing, Andersson Gustafsson (2002) studied what is important when learning a craft. During the late 1980's, Hårdig (1995) made a survey of teachers within the construction programme. Lemar (2001) studied how vocational and general subject teachers describe their work within the child and recreation programme in upper secondary school.

Furthermore, there is research within *educational sociology*, which concerns vocational education but where it is a secondary issue. Studies on social background, the recruitment to and sorting within education are examples of these (cf. Frykman, 1998; Gesser & Fasth, 1973; Gesser, 1984; Husén, 1972; Härnqvist, 1992, 1994; Jonsson, 1988; Palme, 1994; Reuterberg & Svensson, 1998). Issues of gender, among others in relation to vocational education, have been discussed by Berner (cf. 1975, 1996) and by Persson (1994). These studies focussed the

technical area, while Kyle (1979) studied women's industrial work. The dissertation of Schånberg (2001), among other things, concerns aspects of choice of career and vocational education related to division of labour and gender. Dryler (1998) also discussed choice of career and gender, while Härnqvist (1996) and Nilsson Lindström (1998) instead focussed educational choice. Studies of various effects of (Boström, Boudard & Siminou, 2001) or for vocational education (Marklund, 1978) are further examples of studies where vocational education is an aspect of but not the issue for the respective study.

There are few *classroom studies* of vocational education [11]. Berner (1989) compared the education within two Swedish systems, the industrial programme within upper secondary school and the corresponding apprenticeship within a company. She described the impact their respective structures had on the design of the education they provided and what the students learned within each education. The classroom observations were conducted during the late 1970's. Here Berner examines tasks within vocational education with the emphasis on the learning process within school. According to Berner, the intentions for the vocational education were to provide "systematic instruction with a systematic content, systematic textbooks and teaching aids and systematically trained teachers" (Berner, *ibid*, p 53, my translation). She described this as time control (a national curriculum with general guidelines for how much time should be spent on each element), specific working stations and self-instructional material. A similar observation was made with the apprentices. One of her main results shows that the students' knowledge varied according to the education provided. By slightly oversimplifying Berner's result, you could say that the apprentices were better at performing the various elements of work than were the school students. The school students again were better in giving explanations of what they did and why, which the apprentices were not able to [12].

Frykholm and Nitzler (1989) have studied in what ways working life was transformed into educational discourses and how these, in turn, are reflected in different students' conceptions. The data their study was based upon consisted of texts (the curriculum and relevant syllabuses, textbooks and teaching aids), interviews with teachers, students and in workplaces, and classroom observations. By choosing the same course, vocational and career education, within various programmes and following the instruction in this course for each programme, they concluded that the syllabus was transformed to different content within the various programmes. According to the authors, the content corresponded to the respective social field each program was supposed to educate for.

In a licentiate treatise within the programme of electrical engineering, Berglund (2004) studied the learning strategies of four students in a learning environment within a course in control technique that employs computer-based learning software. The assignments were designed as virtual simulations labs. She video recorded sequences of each student working with the software and afterwards made stimulated recall interviews with each student according to extracts from the video sequences. In the analysis, the interaction between the students and the computer based learning software was the first focus. Secondly, the classroom and the conditions provided for students' learning were analysed; and thirdly, the subject, control technique, was analysed as a "hybrid-practice" between school and professional life, as well as the students' views on different aspects of their lives and the linkages between these, school, and the learning environment studied. By using an activity theoretical approach in the analyses, Berglund's result show that what takes place in the classroom instead of considered as one activity, but if one takes the students motive for participating in it as one's point of departure, the result is that there are two parallel activities taking place alongside one another; one with respect to learning control techniques, and one

for assessing the students' performance. These activities appear to coincide only for three of the students in the study, namely those whose grades are higher than 'pass'. Students who risk failing are offered special examination opportunities in order to pass, but it is not clear how they learn the substance of the control techniques.

In three sub-studies, Linde (1986, 1988a, 1988b, 1993) also studied the curriculum transformations the teachers made, e.g. the choice of content within vehicle engineering. Therefore his study focussed upon the transformation of curriculum as text to the curriculum actually taught, and what factors that had an impact on the transformation. Two of his studies were conducted in Sweden and the third in Tanzania.

Höghielm (2001) studied the actions of vocational teachers related to the organisation of tasks concerning instruction and learning, to the communication process and to the teachers' style of leading. In his results, Höghielm describes the teacher as caught between two cultures, the vocational culture and the teaching culture.

Only a few studies concern issues of *knowledge and learning* within vocational education. Andersson Gustafsson (2002) described vocational teachers' narratives about the learning of a vocation and the change in content. In case studies of 48 teachers within hairdressing (part of the handicraft programme), she described the transformation of the vocational knowledge related to when the education was transferred from one environment, the workplace, to another, the school. Three generations of teachers described the education and training to hairdresser during the 1950's, the 1970's and the 1990's. Berglund (2004) describe the situated learning of four students within the electrical engineering programme in a specific course. Also the above-mentioned studies by Berner (1989) and Frykholm and Nitzler (1989) are examples of studies focussing knowledge and learning. The same focus can be seen in Grogarn's (1979) study of, among other things, the reading ability of the students within the programmes vehicle engineering and industrial engineering.

The issue of a licentiate treatise by Tsagalidis (2003) was knowledge related to assessment. The purpose of her study was to make explicit the qualities of vocational knowledge that were important for teachers and students in the assessment of vocational subjects within the hotel and restaurant programme. Interviews with teachers and students, a survey to the students, and the policy documents were used for the empirical study. The main result indicates that eight key qualifications are focussed for the higher grades (independency, collaboration, communication, problem solving, analysing, planning, contact with customers, and development), and that these are related to the dominating vocational culture. Above all independency and ability to collaborate are emphasised.

The study of Stigmar (2002) in principle concerns issues of knowledge and learning related to information use while working with Internet. However, his study focuses the effects of a specific intervention (systematic meta-cognitive exercises), which had nothing to do with the students' schoolwork.

A study by Jernström (2000) aimed at describing and understanding the learning situations within apprenticeship for hat making – in this case a post-19 education. In a multi-method micro-ethnographical study based on video-recordings, interviews, field notes, and diaries, she describes the actions and interactions between the apprentice, the guilds and the master in various situations at a hatter. She also describes how they, in interview situations, talk about learning. In the analysis of the video sequences, she emphasised the central role of importance of what is seen and felt as regards learning.

To summarise, Swedish vocational education research describes when various types of schools have been established and the debates that have preceded their establishment. To a

certain extent it is also possible to comprehend what kind of content these schools have provided for their students. It is also possible to form an opinion of class and gender perspectives on access to and choice of various programmes from the end of the 19th century and the changes in these. Concerning the teacher and student perspectives, there are too few examples of studies, and these can only be considered as individual examples. No conclusions can be made on the basis of these. The same is can be said of classroom studies. They are conducted during various periods and thus reflect different curricula and various programmes.

International research on vocational education

As mentioned above, the European Union finances part of the European research on vocational education. An example of such a commission is the review of the content of research related to vocational education in European countries outside the EU and non-European countries (Lauterbach et al. 2001). The countries included in this review are Australia, The Peoples Republic of China, Japan, Canada, Russia, Switzerland, Latin America (Argentina, Brazil, Uruguay, and South America), Turkey and the USA. One of the first comments of the authors is that the research is difficult to overview. They claim that it is a consequence of several factors. One of them is the problem with defining what should be considered as research on or of relevance for vocational education. In different countries, the research related to vocational education is conducted within various scientific fields. Another problem they have identified is the heterogeneity among researchers, institutions and organisations that pursue this type of research. Two comprehensive areas could, however, be crystallised, mainly on the basis of secondary analysis of various reports. Firstly, the interrelations between economic development, labour market and vocational education, and secondly, research based evaluations on a national and regional level. The purpose of this last kind of research is to develop contemporary or planned education. Research on curriculum, instruction, methods and media has been given priority.

In order to complete the picture of international research within the area given by Lauterbach et al. (2001) the abstracts for two journals on research on vocational education and training have been reviewed, firstly concerning articles published during the 1990's and secondly concerning those published during the period 2000-2003.

During the 1990's, the articles in *The International Journal of Vocational Education and Training (IJVET)* represent many and quite disparate themes. As the journal emphasises the international aspect, this might be a conscious choice of the editorial board. However, this is not something mentioned explicitly. In spite of the variety in content some main themes can be identified. During this period the highest number of articles concerned the collaboration between work and school. Furthermore there was a special issue on this theme. The theme with the second highest number of articles concerned the steering of vocational education. The third theme representing somewhat more articles concerned the development of vocational education on a principle level. Otherwise individual articles within approximately ten areas were found. During the period 2000-2003, three themes related to vocational education in school were identified. Firstly, the relation between school and work, for example the transition from school to work, and collaboration between school and work was a recurring theme. A special issue focussed vocational higher education, and has therefore been considered a theme. The third (but minor) theme relating to school concerned theory vs. practice (general versus vocational education, and integration of theory and practice). The fourth theme identified was work based learning is the (www.iveta.org/journals.html).

The Journal of Vocational Education Research (JVER), represents the American research within the area. A similar review of the abstracts within this journal from the 1990's gives a picture deviant from the earlier. The themes constructed on the basis of an analysis of the abstracts are broader than the one constructed on the basis of IJVET. Also the number of themes is higher. The theme most frequent is factors related to success within VET, and most of the studies are quantitative measurements of various kinds. Themes related to gender, transition from school to work, the content of vocational education, and issues of principle within the research on vocational education are equally represented. Themes that are represented more than individual articles consider the effects of VET, the steering of VET, and teacher education and in-service training. During the late 1990s an increased interest can be identified in issues related to apprenticeship on the one hand and assessment, especially focussing vocational knowledge. The most common theme in the JVER during the four first years (2000-2004) of this millennium concerns teachers. Except for the individual articles in various numbers, one issue is a special issue on this theme. Various phenomena have been studied related to issues of for example effects, comparisons, teachers' conceptions, and pre and in-service education. Some articles concern both teachers and the content of teaching. All of them focus general and vocational teachers and/or subjects regarding collaboration or integration. Three other themes dominate; the content of vocational education/a specific subject, the students, and research matters. Regarding the content, academic and vocational integration and Tech Prep dominate in one of the issues. Students' interest in vocational subjects, the intended curriculum for workplace based learning; sustainable environment; internationalisation; and mathematics are other examples. As to the students, the focus is on their results, attitudes, and learning styles. Methodological issues dominate the research theme. These articles cover approximately 70%. Other themes with fewer articles are the vocational school as an organisation (development, effects etc), and the transition from school to work. The remaining articles represent a variety of individual issues. Generally, the studies are quantitative (www.coe.missouri.edu/~pavtat/AVERA/html/).

Summarizing, issues on vocational education are in the focus for an increasing international interest. This conclusion is based firstly on the various developmental projects related to new forms for VET, especially vocational higher education, going on within the European union. The existing forms of VET are changing too, irrespective of how it is organised. The great issues concern the relations between school and work on the one hand, and vocational – general subjects on the other. This becomes even more explicit in the articles published during the first years of this millennium. It is also an explicit conclusion made by Lauterbach et al. (2001) in their research review. Further, the same is indicated by the huge investments made by the European union in order to illuminate the field. The issues that seem to have been of greatest interest are those concerning the relationship between economic development and VET, and those concerning either the collaboration between school and work or the transition from school to work. Within American research the main theme during the 1990's seemed to be related to exploring individual and sociological factors. This has, however, changed in the articles from 2000-2003. The focus in these articles is now mainly on the teacher, but also the content is focussed in a way it was not during the former period. If the content of VET during the 1990's was invisible in research on VET, today an increasing interest in this issue can be found in the articles.

It is here that this dissertation can make a contribution. One of the starting points for the dissertation is that what apprentices/students are supposed to learn, within the vocation as well as within the VET, is related to vocational traditions. However, traditions should not be regarded as static; they change over time. Within the Nordic countries, vocational education is a self-evident concept because the school in these countries is strong. In many other countries

this is not the fact. Instead working life is responsible for the VET, or for part of it. In Sweden too, working life was responsible for the VET. When school became involved, it was first a question of as local phenomena and concerned specific parts of the VET. By and by the respective field of responsibility of school and work changed. Within Swedish VET, the relation between school and work has therefore changed many times. Irrespective of the form, there has always been an more or less explicit idea of what is desirable to learn. The content has been chosen in order to accomplish this learning. It is therefore essential to describe how this tradition of the content of this desired learning has changed, and to analyse what may be understood as essential related to the changes. Chapter 3 will focus on these issues as it has been described in secondary sources (dissertations, reports, and articles) related to the history of Swedish vocational education.

Notes

- [1] In Sweden, the qualifications for higher education are divided into two categories. Firstly, the basic qualifications that stipulate a completed education on upper secondary level with the grade 'pass' in the core subjects Swedish, mathematics and English. Secondly, specific qualifications, that vary according to each programme, or – when designing your own academic programme – to each subject. The specific qualifications concern either the number of courses in language(s), mathematics, social studies or science studied in upper secondary school or its equivalent.
- [2] In *The Blackwell Handbook of Education* the following is stated: "Training implies limitations of both content and process. (...) and is often used in relation to skills, although in professional training, knowledge and attitudes and values can be part of the course" (Farrell, Kerry & Kerry, 1995, p. 71).
- [3] Centre Européen pour la Développement de la Formation Professionnelle.
- [4] The regulations for post-16 education in Scotland were revised at the end of the 1990's. As a result the new system does not recognise differences between 'theoretical' and vocational subjects in the courses (Niven, 2000).
- [5] The following combinations of search strategies were used: keyword = vocational education; type of publication = dissertation (approx. 160 matches); keywords = vocational education + upper secondary school; language = Swedish (15 matches); keywords = technical instruction + vocational education (5 matches); keywords = upper secondary school + Sweden + vocational education (approx. 180 matches); keywords = vocational career education + upper secondary school (31 matches); keywords = learning + vocational education (31 matches); keyword = vocation; type of publication = dissertation (31 matches); keywords = educational politics + vocational education (1 match); keywords = vocational knowledge + vocational education (3 matches); keyword = learning (31 matches). By using the names of specific author the matches were approx. 40. (www.libris.kb.se/retrieved June 2001 – May 2002.)
- [6] In these searches, the same keywords and combinations as presented in footnote 5 were used. These searches resulted in a more dissertations and research reports that had not appeared in the former search, e.g. the dissertations of Kaleen (1953) and Koort (1956, 1958).
- [7] Safari (www.safari.se) is the search engine of Swedish Research Council, At the time of writing, this search engine was still quite new. The following keywords were used: vocational education, vocation, vocational knowledge, upper secondary school. The matches were few.
- [8] ERIC (www.askeric.org). Here combinations of the keywords vocational education/upper secondary + Sweden/Swedish were used (32, 17, 15 respective 7 matches). This search engine will today be found at www.eduref.org.
- [9] The licentiate treatise of Wernlund has in many studies been reported as the first Swedish treatise on vocational education. However, it would be more correct to say that it is the first treatise on the history of vocational education, since both the works of both Kaleen (1953) and Koort (1956, 1958) were presented earlier. Each of them considered only one vocational area.
- [10] Other dissertations and research, formally on upper secondary school were also produced. However, in these vocational education is either invisible or marginalized. These are not included in the review.
- [11] When a study appears to concerns the upper secondary school, it usually means that it concerns one of the general (study preparatory) programmes. If some vocational programme should be included, it is often

marginalized in the study. The following quote is representative for several studies: "Fully 80 hours participant observations have been made, above all in a class within the science programme (year 1) but also within the trade programme (year 1, 6 hours) (Beach, 1999, p. 349).

[12] In the Swedish version, a more detailed description of Berner's (1989) study is presented in chapter 3. Here, the paragraph has therefore been completed to some extent.

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