A Critical Review of Vocational Education and Training Research in 2012 and

Suggestions for the Research Agenda

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Abstract (150 words)

This paper is a follow-up of the paper ECER-presented in 2012, 'A Critical Review of Vocational Education and Training Research and Suggestions for the Research Agenda' (Author & Co-author, 2012). This paper gave a description of research in the field of Vocational Education and Training (VET) in 2011. This new paper gives an overview of the field of VET research in 2012. In this article the VET research presented at the European Conference of Educational Research 2012 (Cádiz) is reviewed, as well as the articles of a number of VET research journals of publication year 2012. A total of 173 articles are reviewed and after a qualitative interpretation divided into seven different research themes. The conclusions of the review are quite similar to last year. 1. There is a lot of VET research and this research is quite diverse and fragmented. 2. The quality of the articles is not always very high, also because a lot of conference proceedings are included. 3. There are many important topics for further research.

Key words

Vocational education; vocational training, vocational learning

Introduction

Research question and method

The research question of this contribution is quiet similar to our research of last year (author and co-author, 2012) and follows from the purpose of the study to give an overview of VET research and to ascertain which topics need further research. The research question is: what research is reported at the VETNET conference of Cádiz and in the 2012 volumes of the following journals: Journal of Vocational Education and Training, Vocations and Learning, and Empirical Research in Vocational Education and Training and a search in the Web of Science. The review is based on a qualitative analysis of these articles. Remarks on the 2011 review were taken into account in that the research agenda emerged in robust research themes for the coming years and research published outside VETNET and the given journals was also reviewed, using the Web of Science for the VET research in journals in the SSCI to include the highly cited grey literature on VET research.

In the review of 2011, a lot of effort went into the composition of a classification scheme of vocational education and training research. The final comprehensive classification consisted of seven categories. This framework (see box 1) is also used for the review of 2012.

The review is based on papers of the ECER VETNET conference, 3 journals and a search in the Web of Science. Of the VETNET programme 33 papers were included which were published on the website of the programme. Of Vocations and Learning 14 of the 21 were included. Of JVET 33 papers of 41 were included. From Empirical Research in Vocational Education and Training 8 of the 12 papers where included. We left out the editorials and book reviews of all journals. In the web of science we took all articles with 'vocational education' in the title that were published in English in the year 2012. This were 78 papers in total, but not all of them were available and two papers were already included because they were published in Vocations and Learning, so only 59 out of the 78 papers where included. We also

searched on vocational training in the title and not education, also in English in the year 2012. This lead us to 22 more articles of a total of 28. And we searched on vocational learning, not education, not training in the title in 2012, in English. This lead us to 6 more articles of a total of 10. Again not all articles were available and one article has not become a part of the research because there were no references at all in the article. The last time we updated our list of articles was on the 1st of may. Meanwhile, Web of Science proceeded even more papers of publication year 2012. All papers with a processing date after the first of may are not taken into account for this research.

A total of 173 articles are reviewed. The papers were summarized, compared and categorized in the diverse research themes. For the categorization the dominant research theme and/or the conclusion of the article was leading.

Results

The results are clustered in seven research themes (see Box 1). Next to the analysis we also made an overview of all papers categorized by theme. This table gives an overview of the author, research focus, educational level, theoretical framework and research strategy of the articles. This overview is added as Appendix.

Box 1. Classification scheme of VET research themes and topics

VET and society
- Cultural aspects
- Career perspectives and personal development
- Partnership and cooperation
- Dropouts

VET policy, organization and management
- VET policy
- VET organization and management

VET teacher education and teacher behaviour
- Roles and tasks of teachers in VET
- Teacher education and the teaching profession

VET Curriculum
- National level
- Institutional level
- Classroom level
- Student level

Learning and instruction in VET
- Informal learning
- Collaborative learning
- Practical simulations
- Learning in universities
- Transferability of knowledge

Assessment and testing of educational achievement in VET

Apprenticeships/internships/workplace learning
- The apprenticeship system
- Duality and apprenticeships
- Preparations and support
- Experiences with apprenticeships
- Perceptions of teachers
- Views of employers

VET and society

Many articles can be linked to the theme VET and society. Articles about cultural aspects, career perspectives and personal development, partnerships and cooperation, dropouts and even many more. In this review 33 articles are included in this category. Education can have a very large influence on society and even on the economy. For example, Vu, Hammes and Iksoom Im (2012) stated that education can enhance economic growth, but economic growth increases education also. According to Busemeyer and Jensen (2012) economic coordination is important to increase the economic pay offs of the investments made in vocational skills. Vocational education will become more attractive, even for students with a high educational background.

Men and women

Five articles describe the differences between men and women, or the position of women in society. For example, Rogers, Creed and Searle (2012) looked at gender differences in the perception of junior doctors. They discovered that women make other choices in specialisms than men. In general the choices of women are more lifestyle friendly. Lappalainen, Lahelma, Pehkonen and Isopahkala-Bouret (2012) performed a research about gender neutrality in the teaching job. Gender neutral policies seem to exist next to gendered practices. There are sectors that are dominated by women (health care) and sectors dominated by men (technical jobs). Men who are in a minority position benefit from it, while woman feel inferior and undervalued. Albisetti (2012) focused on the position of women in education. The beginning and developing of classes for women is a transnational phenomenon that took place during a short period of 20 years. To avoid declassing, education for girls was seen as a good opportunity for charity. Cavanagh (2012) looked at the position of nine auxiliary woman workers. They feel they lack support and opportunities to learn, and therefore they came up with their own plans to develop themselves. Their learning environment needs more support

and the managers, educators, scholars and the women need to cooperate to create their future workplace curriculum. Corrales-Herrero and Rodriquez-Prado (2012) also looked at the position of women. They stated that the transition from school to work is very smooth for Spanish youngsters, but more often women choose to be in-active or work part-time.

The unemployed

Laid off workers, people in a rehabilitation process and youth in detention all need to get back to work at a certain moment. Retraining should be attractive, fit their needs and those of the labour market, and it needs to increase their chance on employability (Wang, Lewis & Greenwood, 2012). According to van Hal, Meershoek, de Rijk and Nijhuis (2012) rehabilitation should not only be about gaining skills but also on the identity work processes. The way people see themselves, their past, present and future can be of influence on their rehabilitation progress. Mareš (2012) also stated that rehabilitation should be attractive and about gaining skills. He stated too much attention is given on language learning and ICT and not on craft skills and building a network. Ameen and Lee (2012) focused on youth in detention. It is important for them to get the chance to learn and work on their future career while in detention. Experts can go to detention centres to work with the youth, help writing a new policy or help finding cooperation partners in companies. Vocational education in detention can reduce the chance of recidivism.

The disabled people

Three articles in this review are especially about the disabled. According to Chrzanowksa (2012), disabled people should fully participate in all spheres of social activities, but most of the time this is not the case. She stated that disabled people have a low level of key competences, which mainly explains the low level of job-participation. Jachimczak (2012) also stated that disabled people often have a lower level of education, while education plays an important role in getting employment. He stated that they don't care much about their

education level. Mostly they will be professionally inactive and getting a job is not a big priority for them. Fasching (2012) stated that intellectual disabled people need more support to integrate well on the labour market. Inclusive training can be very helpful together with supported employment.

Drops outs

It is important to recognize students at risk of dropping out. According to Elffers (2012), students with a high risk of dropping out are those with debts, who use drugs, are delinquents or work more than 15 hours a week. Lavendels, Sitikovs and Uhanova (2012) stated that the backgrounds of the students, where they live and what they study, all have an influence on the chance of success and the feeling of satisfaction. Elffers, Oort and Karsten (2012) stated that also the relation with fellow students and the academic connections are important. They want to fit in the school system and do not want too much autonomy. Students need proper support to succeed in education. Elffers (2012) stated that you cannot change the negative experiences by students, but you can talk about it and give them proper support. Parental support needs to be part of that. Trebbels (2012) also mentioned that communication with family can help students make the right decisions and that social and cultural capital play an important role in succeeding. Esmond (2012) stated that support is necessary for students of all ages. People who start education again at a later age sometimes feel alienated from the younger students and need support to stay in education. It is important all students know that education is available to them, that it can fit their needs and that they can get support (Epperson, 2012). Students need to believe they can succeed. Schindler Rangvid (2012) stated that immigrant students need more academic preparedness so their chances to succeed are better, as is the probability of staying in the educational system.

Career perspectives and personal development

According to Hilal (2012) vocational education can help students to develop capabilities, to achieve their own choices. With VET their chances on a better life increase, as is their expected income, social responsibility, personal wellbeing and economic inclusion. Raemdonck, Tillema, de Grip, Valcke and Segers (2012) stated that people who have a high self-directedness are more able to maintain their job and realize mobility and promotion. Companies should facilitate self-directedness, so people can take responsibility for their own development and learning. Pema and Mehay (2012) stated that VET education can improve job matching and that it can increase long-term job stability, especially if the learned skills are occupation specific. These long term employment relations will increase life time earnings and makes companies more willing to invest in firm specific training. Training can increase earnings. Tsamadias and Chanis (2012) for example looked at earning advantages of vocational training degree holders in the public and private sector. Both benefit from their degree but the advantage is even 5.76% higher in the private sector. Xiang (2012) also performed research on earnings. He stated that native urban workers and migrants in the market sector both get more earnings than workers in the state sector. Native urban workers get more earnings from education and study, while migrants get more earnings on their experiences, because there is a lack of good education in rural areas. Pfeifer, Janssen, Yang and Backes-Gellner (2012) stated that increasing earnings can play a role in the decision making to participate in training. This leads to a u-shaped relation between training participation and aging, because the amortization period for older people is shorter and the increased earnings do not play a large role anymore. Brunello, Lorena and Sonedda (2012) also did research about the effect of training on wage gaining. A simple cost-benefit analysis stated that the marginal costs are lower than the benefits of training. More research on this

topic is necessary, because many researches state that wage increase can be around 4% and these researchers only came to 1,36%.

Job security

Not all jobs can give you insurance of enough work and money to provide in your living. Creative work for example has a different position in society than most jobs. According to Taylor (2012) creative work is a bit selfish and takes unlimited commitment. Recognition is more important than earning much money, but the love for the job and the problems should be in balance. Many have a second job to provide in their livelihood. Juuti and Littleton (2012) also noticed this with musicians, because most of them cannot provide in their living as a solo artist. Therefor music education should focus more on professional identity forming and finding the right career path. Not only in creative jobs there is less security. According to Delgoulet (2012) trainers in the French vocational training system also have a lot of freedom with less security. Therefor also trainers often have more than one job. Nonetheless the trainers like their job. They stated that contact with students is the best part of their job, although it is also the hardest.

Health and safety

Health and safety is also important for society. More attention should be given to health and safety in education, in ministry documents and by teachers. Now health and safety rules are not always clear. There are differences between school and practice. When workers on the workplace do not follow rules, the students do not do it either (Chatigny, Riel & Nadon, 2012). This does not differ between men and women, but according to Shendell et al. (2012) young men do have a higher risk on injuries. They stated that the rules about health and safety and equipment should better suit the young workers. Training, supervision, appropriate equipment and more assessments of struck by/pinch point hazards is necessary.

VET policy, organization and management

29 articles are mainly about VET policy, organization and management. Many stakeholders were involved in the process of making these policy regulations and it is a hot topic for researchers. VET has a terminology that is not ambiguous and every country has his own VET system. By comparing these systems, policymakers can get more insight in these systems, but also in their own system (Winch, 2012a). It is good to look at experiences of other countries but it cannot simply be copied. It has to be tested/piloted (Dif, Baidokaite, Pranculyte, & Spaniks, 2012). The government needs a clear but not too restricting policy. It has to fit the needs and wishes of the students. Schools need space to decide and arrange things on their own (Azumah Dennis, 2012). Decentralisation can encourage the adoption of participatory leadership, shared instructional leadership and entrepreneurial leadership (Ashmawy, 2012).

The VET system

All systems develop in a different way and are based on different views. For example Schmidtke and Chen (2012) for example state that the development of the educational system in China is still going on. They are searching for the right ideas to base their decisions on. Maurer (2012) did research on this topic in Sri Lanka and Bangladesh and he stated that policy choices are not really consciously made, but are mostly based on culture and history. TVET in both countries has become a political priority before the reformulation of donor priorities had raised doubts about the validity and dominance of world culture models for the explaining of educational change. Also in the research of Rogers (2012) about colonial educational policy is visible that policy is mainly based on the culture and traditions of the country. Rogers stated that the colonizer, the relation with tourists and the role of the founder of vocational education are all of influence on changes in policy. Countries have to make sure that they follow the right path and to have a system that can rapidly adapt to social and

environmental changes (Schmidtke & Chen, 2012). A way to do this is researched by Pilz (2012) and is called the modularization structure. He did research in three German speaking countries. They all modularised their VET education to implement technological and organizational changes and to get more flexibility in their fit to the labour market. Next to the labour market the VET system also needs to fit with other educational programs. It should be possible to get skills transferred to other situations. The government in Scotland even wants to change the law so organisations are even obliged to recognize skills-credit (Howieson & Raffe, 2012). Souto-Otero and Ure (2012) call this horizontal coherence. Next to horizontal coherence there also needs to be attention to vertical coherence which is about the curriculum aspects and the coherence between different educational levels.

Value of VET

The way in which a school system is organized can be of influence of health aspects, but according to Sabates, Salter and Obolenskaya (2012) this is only the case if there is a common level of social welfare and as the value of VET is raised. The stigma's and disadvantages of VET are often a problem, even as economic or social inequality. The advantages of vocational education should be highlighted (Liu, 2012a). VET programs should have value, meet the requirements of the labour market and they should have a good apprenticeship system (Winch, 2012b). According to Agrawal (2012) it is also important that the VET education fits the needs of the labour market and should be accredited so the quality is guaranteed. For example the VET system in India should better fit the needs of the labour market. It should give opportunities to all students, also the poorer students and the students that follow informal education. Also the recent VET system in South Africa does not fit the labour market and the VET education does not lead to more skilled employees. There is still a lot of social insecurity, job insecurity and a high degree of inequality (Allais, 2012).

Cooperation

Changming (2012) stated that cooperation between schools and organisations is important for qualitative good education. It is important that this cooperation is based on developments in the profession and the superiority of this profession. The government should pay attention to the sustainable development of cooperative education and should support this. Dif, Baidokaite, Pranculyte and Spaniks (2012) also think that cooperation is important and that all stakeholders should get involved. Especially to solve problems like the lack of apprenticeship places, this can be solved by good cooperation between the government and co-founders, like companies. Hodgson and Spours (2012) stated that a network between schools, the local government, community organizations and other stakeholders can lead to a better transition from school to work and can change relations between national/regional/local power. Wals, Lans and Kupper (2012) also stated that cooperation is important. VET institutes need to respond to workplace demands, continue and renew competencies, participate in regional initiatives and innovations and facilitate the formation of networks in their region. It is important that VET institutions participate in regional knowledge configurations and be committed to research agendas of other stakeholders. In this way VET can become a key player in innovations. According to Smulders, Hoeve and van der Meer (2012) co-makership and collaborations should lead to an increase of the attractiveness of programs, more students participating and less dropouts and it should increase the quality of the professional skills the students develop. The coordination is a shared responsibility at both strategic and operational level. A good example of cooperation can be seen in the research of Sui, Yang, Du, Li and Dang (2012). They evaluated an alliance of 72 units including government departments, industry, research institutes and colleges that exists for 3 years now and was continuously innovative. By the multi-channel and multi-form cooperation between the parties the construction and development of education is promoted and problems of companies with

technique and talents decrease. Teachers can learn about new theory and technique in the companies and employers can make sure that more practice is taught in the schools. People also keep on learning after school. According to Figueira, Rosa, Koehnen & Fragoso (2012) the CVET policy should also promote training more often and at least part of training for workers should take place during working hours.

External influence

Not only the national policy is of influence on the VET system. Also the Europeanization process is of influence on the systems. European countries get new input from Bologna and Copenhagen conventions and they work hard to implement these principles (Powell, Bernhard & Graf, 2012). The Europeanization makes countries like Germany and France look more alike and further distinguished from their ideals, according to Powell, Graf, Bernhard, Coutrot and Kieffer (2012). The church can also be of influence on the political decisions of education, as stated by Clarke (2012) who investigated the development of the educational system of Ireland and the influence of the Roman Catholic church.

Policy in relation to research

Policy also relates to and influences the research agenda. In Africa policymakers need to get a better idea of what knowledge they can mobilize for policy purposes and what knowledge they claim to value. So McGrath and Lugg (2012) stated that the VET development research in Africa should be reawakened and that researchers need to be more clear in shaping their research agenda, need to be more rigorous in their research approaches and need to communicate better about their findings. In the research of Trampusch and Eichenberger (2012) the focus is on the relation between continuing vocational education and collective labour agreements. They recognize an important role of influence by the state and more research is necessary to find out how the state and small/medium enterprises influence the coordination of economic activities in skills formation. The government can also influence the

research agenda by subsidization. For example Tarazona (2012) stated that the research focus in Spain has to be on professional guidance service, while there is no budget for other research topics. It is important for the government and the researchers to communicate well. A common problem nowadays is that policymakers not always take the results and criticisms of research in to account while making new policies (Winch, 2012a). Learning is about skills and knowledge but also on who you are. The individual must always stay in the centre of the research (McGrath, 2012).

VET teacher education and teacher behaviour

In this review 25 articles are about VET teacher education, the teaching profession and the roles and tasks of teachers. Berger and D'Ascoli (2012) stated that teachers find their job demanding as well as rewarding. When teachers have had good experiences in school themselves and have a supporting environment, they mostly stay in the teaching profession. Itkonen (2012) stated that teachers have to deal with great diversity/multiculturality and have to look critically at their own behaviour. They should invest in dealing with multiculturality and should not think in stereotypes/prejudgments. The diversity in the teaching job is wide. Different kind of teachers and teacher roles can be distinguished and need different preparations. Moodie and Wheelahan (2012) distinguished visiting experts, workplace trainers and assessors, teachers who teach in an existing framework and teachers who also develop those frameworks. They also stated that teachers need different skills to teach on different levels. Teaching is a challenging job, according to Vestergaard (2012), in which content/professional knowledge and skills are important even as knowledge about the human behaviour and how to control this. Teachers need to teach, make students independent and do administrative chores. A teacher needs to be someone who is professionally and didactically experienced, who motivates students and let them participate in the course. Meilan (2012) also stated that teachers are of influence on the motivation of students, but also on the quality of the education and the cognition of students on society.

Teacher training

Teachers need the right kind of training for their job so they can meet the expectations (Moodie & Wheelahan, 2012). Miller (2012) stated that students in teacher training need early field experiences in teacher preparation. These can help them feel passion and energy to teach and helps them recognize challenges in teaching. Avis, Canning, Fisher, Morgan-Klein and Simmons (2012) also stated that teaching needs, at least partly, to be learned at the work floor.

Although reformations to make training more efficient and cheaper are not deniable, the focus should not only be on general skills and a competence based approach. Shaw (2012) also stated that work experience is important for teachers. This influences finding a relevant job and is useful in practice in class and interpersonal relations with other staff and students. Students with a pre degree have more work experience and are more secure on their choice to become a teacher. According to Henning Loeb (2012) internationalization should also be part of the teacher education. Because the life of a VET teacher does not lend itself for visits abroad, blogging on the internet is the chosen solution. This way, the student teachers can share experiences, work with ICT and practice their English. Teacher training has to change constantly to meet expectations and changing teaching roles. Lidong, Shuying, Lei, Guofang, Liang and Lixin (2012) did research at the changing teacher training system in China. It has been improved in the last years and now it should fit the needs of future teachers better. It focuses on three things: 'teachers vocational qualification training', 'teachers improving training' and 'backbone teachers training'.

Teacher roles

The role of the teacher is changing and not all teachers can cope with their new roles. Ketelaar, den Brok, Bijeaard and Boshuizen (2012) stated that teachers are not well prepared for their coaching role. They have difficulties finding the balance between directed and guided learning and they do not pay attention to collaborative learning and subject knowledge. Teacher training should pay attention to this (Ketelaar, den Brok, Bijeaard & Boshuizen, 2012). Winters, Meijers, Kuijpers and Baert (2012) stated the same while focusing on the role of teachers in career learning conversations. Teachers talk too much to instead of with their students. Mittendorf, Beijaard, den Brok and Koopman (2012) also focused on the career guiding role for which teachers are not well prepared. Career guidance should be about career networking, career exploration and career reflection and teacher training has to pay

attention to this. Persson Thunqvist and Axelsson (2012) looked at negotiated participation in media vocational education. Also on this topic teachers need to learn their new role and they need to know how to cooperate with students. Veillard (2012) stated that teachers also need to be aware of their role in transfer learning. Students need guidance to know how they can use their knowledge in different contexts. Teachers need to be prepared for supporting different learning processes. For example, Tielman, den Brok, Bolhuis and Vallejo (2012) stated that teachers are not yet well prepared to support collaborative learning. If the teacher does not know how to give instructions, clear rules and guidance, the collaborative learning will not be successful. Bliuc, Casey, Bachfischer, Goodyear and Ellis (2012) say approximately the same about blended learning. This can improve the quality of education but only if the teachers use it in a proper way. Also ICT is not always used right, according to Ingleby (2012). ICT is more than computers and it should benefit both the teacher and the students. Teachers need confidence and need to learn the right pedagogy to teach with ICT. The importance of confidence is also stated by De Bruijn (2012). She stated that teachers who have to deal with competence based education get insecure by new learning methods and that they are still searching and exploring the wideness of their job and they need more confidence to deal with their role.

Professionalization

In the teaching professions three aspects are important. A teacher needs the right knowledge, needs the ability to transfer this knowledge and he needs to know his role as a teacher. These three aspects need to be in balance. Teachers have to be prepared for all aspects of the teaching job (Bekale Nze, & Ginestié, 2012). The biggest challenges for teachers, according to Chatigay, Lévesque and Riel (2012) is the integration of the teachers practical knowledge with the skills/knowledge required to teach the trade and the lack of time to prepare classes. Teachers need resources that can assist them with learning and performing as a VET teacher

and for better recognition of their work. Meilan (2012) performed a research on the resource method PDCA (plan/do/check/act), which can be a useful cycle in preparing newly-employed teachers for their role. This could be a subject of a professionalization activity. Kendall, Carey, Cramp and Perkins (2012) stated that professionalization needs to be seen as relevant for the daily practice and not as a way to get more status or even another career. Teachers need a dialogic learning space in which they can look critically and reflective to their own functioning. Social cultural issues play a role in the decision making on professionalization of practitioners in early years education, but the attitude and values of managers are also of influence. Professionalization can help teachers to integrate an educational model of 'teaching, learning, practice integration'. Teachers have to change their pedagogy, have to gain knowledge, the educational material has to be improved and the teaching environment has to focus more on experiences (Ren & Zhao, 2012).

Collaboration

Collaboration and networking is important for teachers. Tafel-Viia, Loogma, Lassur and Roosipõld (2012) stated that the network a teacher prefers depends on his learning style and that networking is part of the teaching profession. Black and Yasukawa (2012) looked at the collaboration between VET teachers and the ESOL (English to speakers of other languages) teachers. The teachers have a shared responsibility and have to work together, also to let the students see the relevance of all learning activities for their future career.

VET curriculum

25 articles are about the curriculum, varying from the national level to the student level. The curriculum has to fit with the needs and wishes of the society and the economy. Schools, industry and companies have to work together, they can also create course content together and arrange apprenticeship places. Teachers need to be well trained and ICT also plays an important role in supporting activities and experiences in VET (Cong & Wang, 2012). Achtenhagen (2012) stated that the coherence between the curriculum, instruction and assessment is important. An expert should have the overview of goals and content and how this is seen as a whole and as loose parts. The intended curriculum is not always the same as the implemented curriculum. For example, Berger, Canning, Dolan, Kurek, Pilz and Rachwal (2012) looked at the differences between countries, between regions, between teachers and between the intended and implemented curriculum in pre-vocational education in Germany, Poland and Scotland. Policies are made on regional or school level and teachers have a great deal of influence on what and how they teach it, which can explain a lot of the differences.

Curriculum examples

The curriculum is often subject of research, but these researches can have many different focuses. Strawbridge, Emmett and Ashton (2012) looked at the curriculum in horticulture and they stated that not many people enrolled in this study right now and a new program should be developed in cooperation with growers, academic institutes and industry training organisations. The new training program should combine fundamental principles of crop production with the mechanism of technology transfer in which research activities will be stimulated. Wang, Wang and He (2012) looked at the curriculum of industrial design professionals. This curriculum is improved in the last few years of exploration and practice and the graduates are welcomed at the labour market. With a good curriculum you can make sure your education fits to the needs of the labour market and you can make sure students gain

the right knowledge. Debout, Chevallier-Darchen, Petit dit Dariel and Rothan-Tondeur (2012) looked at the curriculum of nursing education in France and they want to change nursing from a vocational to an academic program. In any case, the new curriculum will be competence based.

Entrepreneurship

According to Figueira (2012) entrepreneurship does not get enough attention in Portuguese education, although teachers and social partners see the benefits of it. Järvi (2012) also stated that entrepreneurship should be more visible in education. Entrepreneurship activities have to involve various fields and localities. Knowledge on entrepreneurship should be gained by utilizing local business and the goal of the cooperation between companies and the work field should be explained. The business profile of the region is important and a good relation with the businesses around the schools makes entrepreneurship more interesting for the students. It provides opportunities for them to meet their future workplace. Oser and Volery (2012) stated that (starting) entrepreneurs especially need a sense of success but also a sense of failure. Students and professionals need to better understand the process of entrepreneurship and the implications it can bring. Weber and Funke (2012) also see the benefits of entrepreneurship education, but they stated that the effectiveness of many of these courses are not yet proven.

Environmental awareness, economic literacy and creativity

VET education should be about more than only gaining skills and knowledge for work. It should also be about social capital and human capital (Hughes & Hughes, 2012). Li (2012) stated that students need to be aware of their civic responsibility and moral consciousness. He even stated that moral education should be the frame for the curriculum on universities. Martinez Villar, Guitiérrez Pérez and Perales Palacios (2012) stated that environmental awareness should also be part of the curriculum, not only learning sustainability but also sustainability of the learning process. Davies (2012) stated that citizens should have more

economic literacy. It is important that they know how banks/governments work and what can go wrong. Education must be about bad things (one-sided information/miss-selling), but also the benefits of banking should be known. Moreno Marchal (2012) worries about the attention to innovation and creativity in education. A course called 'creativity and innovation' can help students gain more self-confidence and it seems that their capabilities also grow. Mehmet, Hakan and Tanner (2012) made a start in researching mechatronics education, because they thought there was a lack of attention for this field of study. They distinguished four factors that play a part in students' choices: consciousness, background, school preference and expectations after graduation. Consciousness is the biggest factor influencing their preferences.

Transition in VET and Higher education

According to Harris and Rainey (2012) learning pathways are very complex and differ between people. Insight in these pathways can be helpful for students to guide their own learning and to navigate through educational sectors with different missions, cultures and practices. O'shea, Lysaght and Tanner (2012) stated that students transfer between and within schools. The transition from VET to HE can lead to some problems, because the awarding of credits is not linear or transparent, the terminology is different and the expectations of the university do not always fit the type of knowledge the VET student already gained. The Australian government finds transfer/crossing boundaries between vocational and higher education of great importance although they did not set a target to aim for. It occurs most in the nursing sector and also a bit in ICT. Most of the students that transfer have a lower socio-economic background, especially those who choose nursing (Moodie, 2012). Harris and Ramos (2012) looked at the transition in the opposite direction from HE to VET. They did not find much difficulties, but they did find differences. The adults have to rearrange their lives to go back to school and they struggle with a loss of income and it is a pathway that is not very

common and therefore adults sometimes experience problems in getting help, for example with career guiding.

Transition from school to work

Jäppinen and Maunonen-Eskelinen (2012) stated that transition-fluency is important in the lifelong learning path of students and distributed pedagogical leadership and supportive pedagogical practice can increase this. Collaboration with other schools can also be useful to share experiences and to make sure of a smooth transition. Alseddiqi, Mishra and Pislaru (2012) discovered that a new school-based learning transition module containing cognitive, affective and psychomotor skills can help the transition from school to work. Bellman and Stephani (2012) looked at the double qualification pathways that many students in Germany follow and stated that these pathways give individuals a valuable view on the labour market. Pridham, O'Mallon and Vaughan (2012) stated that in the transition that students make from novice to expert it is important to know how learning is shaped and that micro, meso and macro learning influences the cognitive, affective and perceptual embodied learning processes and the interplay between micro, meso and macro level in applied learning. Nyen and Reegard (2012) looked at a study about health workers, which is seen as a relevant study for the labour market, but these students rarely get a fulltime job after graduating. Students should know better which alternative pathways in career and education are available, although many of them now choose to transfer to higher education.

Learning and instruction in VET

25 articles in this review are about different ways of learning and giving instruction and about the transferability of knowledge. Knowledge learning is a very personal process and students have different preferences in learning style. A learning style is not constant. It changes over situations and time and can even be influenced by the teaching style of their teacher (Tóth, 2012). Vocational students can, according to Berger (2012), adopt four specific combinations of goals that can be associated with several important variables for successful learning. Biggest differences in profiles were found in motivational beliefs and individual interests. Smaller differences were found in learning strategies and cognitive abilities. The research of Moreno Herrera (2012) looks at definitions of didactics and wants to get a better overview of the learning process. There is a great demand for an all-embracing flexible didactic that fits with complex and varying situations that are occurring in guiding the learning process in vocational education in which the context, institution and levels should all be taken into account.

Learning theory

According to Jamshidi and Jamshidi (2012), there is an on-going discussion which learning theory should be the best. Learning principles are mainly based on the behaviourism, but changes and developments are mainly based on constructivism. Jamshidi and Jamshidi think it is wise to also change the education to a more constructivistic learning theory. Van Bommel, Boshuizen and Kwakman (2012) stated that constructivism is not suitable for all students, because they need more support in structuring their knowledge and critically controlling it. They need more explicit knowledge instruction than they receive from constructivistic learning methods and self-centred learning. Next to the behaviourism and the constructivism there is also the enactivism view. Kupper (2012) stated that knowledge cannot be seen apart

from the rest of the world, it is also about emotional processes, knowledge you are not aware of and the relation of body and mind and thinking and doing.

Succeeding

Support is seen as very helpful for students in succeeding in their study. Remedial teaching should focus on practice and context and has to make sure learning material is divided into small manageable pieces (Rose, 2012). Ooms and Marks-Maran (2012) performed research on the appreciation of students to their support programs. There are some differences in the amount of students that follow a certain program and the value they give it. This probably depends on the background of the students. The numeracy and literacy course for example is only highly valued by students from abroad. For the learning process it is important that students can try out the things they have learned in practice and get recognition of others in the field, that they have good communication/relation with teachers/tutors and other students and have a good understanding of law and regulation (Lagercrantz All, 2012). In a good learning environment students can make their own career path, they need real life working experiences, the possibility to make their own choices and a good dialogue with teachers and parents (Kuijpers & Meijers, 2012). Students need to feel that they are able to succeed and to continue education. Fuller & Macfadyen (2012) stated that students choose a study in which they think they can succeed. Vocational education has a low status and is mostly chosen by students who do not see any other educational pathway in which they can succeed. Most students in the research of Romero Rodríguez, Álvarez Rojo, Gómez, and Flores (2012) have a good understanding of their personal meaning of study and work and think they are able to use their skills in the future, but the students seem to have problems with searching/finding a job and getting self-employed and need more support and guidance with this. In the article of Darnon, Buchs and Desbar (2012) is stated that self-efficacy can also play an important role in the quality of school experiences of vocational students. They concluded that the jigsaw

method can increase self-efficacy of students and therefor can be an effective tool. Van Bommel, Kwakman and Boshuizen (2012) focused in their research on authentic learning experiences. Students have the feeling that these experiences can help them gain theoretical knowledge, but this does not seem to be true for all students. This also depends on their performance level.

ICT

A very important thing about ICT in education is that people not only need to be confident to use a computer, they also need to be motivated to work with it (Nicholas, Fletcher & Davis, 2012). This is the case for the students and even more for the teachers who also have to change their pedagogy to make the use of ICT in education effectively (Dặnescu, 2012). Teachers need training to see the possibilies of ICT in education and to support their students in using these new methods (Moldovan, 2012). For example e-learning is not a tool on itself, it is an instrument that can be used to learn, but the help of tutors/teachers is still necessary (Nicolas, Fletcher & Davis, 2012). Hämäläinen and Oksanen (2012) researched the use of a scripted 3D game. This tool also shows that the teacher should not only be a facilitator, he has to join students in the collaboration process and can help reduce off-task discussions. Valtonen, Hacklin, Dillon, Vesisenaho, Kukkonen & Hietanen (2012) did a research within a group of students who had to build their own personal learning environment. This was very hard for them, because most of them had a lack of ICT skills, and they also needed clear knowledge about their own learning styles. These researchers also stated that teacher and pedagogical support are very important to make use of ICT effectively. The role of the teacher or student assistant is also important in a web problem based learning environment. It can be a very useful, effective, flexible, interactive and comfortable tool for students and can stimulate them to maintain high quality dialogues and ask questions. According to Tseng, Chang and Lou (2012) the amount of comments of the teacher/tutor is a depending factor. Kaletka &

Pelka (2012) stated that an eFacilitator is necessary although this is not yet a recognized occupation. People need to be E-included. An eFacilitator has the technological and pedagogical knowledge and knowledge on labour market aspects. This way they can help people feel more part of society, and will gain their employability. Ari (2012) looked at computerized applications. They can lower cost of lab experiment setups and give students more opportunities to practice with experiments in a safe environment. There are still some limitations in soft- and hardware, but there are also solutions available that can be tested further. Guise, Chambers, Conradi, Kavia and Välimäki (2012) looked at the implementation of virtual patients in the vocational mental health nurse training. This sector does not yet make use of this option, but it can have lots of advantages. Simulations are a useful addition to the theory and hands-on experiences that are used now. Marsden and Piggot-Irvine (2012) stated that blogging can be used to improve students' writing skills in automotive and mechanical engineering courses. New technology is cool, it motivates students. Students were not discouraged by the writing task or by the digital technology. It is important that teachers are able to deal with the new technology. It is also important to notice that the use of ICT can differ between gender and ages. For example İşman and Ucun (2012) did their research on the purposes Facebook is used for and found different results between gender and age groups.

Distance education

Increasing the use of ICT in education also increases the opportunities for distance learning. For example, Moldovan (2012) stated that the e-learning structure in Romania is changing. They made e-learning ready for distance learning by buying many programs to support this type of learning. A great advantage of distance learning is that people can now learn how, when and where they want. They have to take responsibility for their own learning, but that also means that they need motivation, discipline and time to study. Teaching materials should fit their needs and distance courses should not be more expensive than regular courses

(Dănescu, 2012). Holmgren (2012) also stated that students in distance education take a larger responsibility for their own learning and he stated that the students in the distance learning program reflect more on the course and their own learning than campus students. However interaction and collaboration are a problem with distance learning.

Assessments and testing of educational achievement in VET

17 articles are about assessing and testing educational achievement in VET. According to Timmermans, Bosker, Doolard and de Wolf (2012) there is not much difference in added value and achievement on institutional level, but differences are visible on the program level. There are many different ways to test achievement and they all have their own advantages and disadvantages. For example, skill demonstrations can be seen as a good way to assess learning results according to Räkköläinen (2012). Timmermans, Bosker, Doolard and de Wolf (2012) stated that there still is a lack of research on the effectiveness of VET education, although it is important for the government to get a clear view of the quality of schools and programs.

Valid and reliable testing

It is important in assessment and testing of educational achievement in VET to have trust in the used methods (Räkköläinen, 2012). To improve the quality of assessments it is necessary to pay more attention to strategic planning and responsibility in the tests. The assessment also needs a higher distinctiveness. This will improve the quality/validity/reliability according to Klotz and Winther (2012). Ruan (2012) also stated that testing needs to be more valid and reliable, but he also mentioned that it should be fair and less time consuming for teachers. He stated that computer based testing gives these benefits and also helps students gain better computer skills, get their results faster and cheating will be harder because computers can randomly construct the tests.

Assessment criteria and self-assessment

Fastré, Van der Klink, Sluijsmans & Van Merriënboer (2012) stated in their research that students should be aware of the assessment criteria that are relevant for the learning task. Students who have seen the relevant criteria before the test score higher than students who only saw a general list of criteria. Räkköläinen (2012) also stated that assessment criteria

should be clear and that everyone has to understand the goal and the meaning of the assessment system. Especially for self-assessments the criteria and goals should be clear. The students self-perception is related to the content, objectives and learning outcomes. According to Knežević (2012), self-assessment does not give a complete overview of all the skills a student has, but it does provide more insight in the skills of the students and can help them direct their further learning. It is important that students find themselves capable to self-assess and that they see the potential of self-assessment.

Tools and frameworks

Many tools and frameworks are developed for adapting goals and assessing programs. Saunders (2012) did research at the concerns based adoption model as framework for assessing and evaluating professional development programs. The model is seen as a positive and useful tool that helps to get insight in the way individuals react to change initiatives and which support they need in the different phases of the process. It is an effective framework to understand professional changes in teachers in the VET context (Saunders, 2012). Kersh and Guile (2012) evaluated the Dynamic Concept Analysis (DCA) that can be adapted to the goals and aims of the occupation and can help people to recognize and/or assess their prior knowledge. It can also help them find their strengths and to develop their learning. Shavelson (2012) reviewed a model to assess competences using the Collegiate Learning Assessment model (CLA). This model gives the opportunity to assess real world business planning in a high fidelity simulation with clear criteria. To complete the tasks in CLA self-regulation, professional identity, affect and volition also play a part. Koopman, Teune and Beijaard (2012) looked at interviews, a think aloud method and questionnaires that all can be used to investigate information processing strategies of prevocational secondary education students. The interviews are the one with the least results and, although the results do compare to the other two methods, there is a lack of richness/depth.

Examples of achievement results

Chen, Chen, Chen, Tsai, Li, & Li (2012) looked at the achievements of students with a mental disability in a horticultural training. This training can improve the community skills, vocational skills, self-discipline skills and communication skills. The ability to deal with authority can also increase even as their adaptability and organizational skills. Ouellet (2012) focused in her research on the determining factors for choices students made and what the influence was on the working conditions. She stated that working conditions should be taken into account and the cognitive analysis of experience workers should also be used. Watson, Nordin-Bates and Chappell (2012) looked at the achievement of creativity. Students need to be stimulated to express their own ideas and be creative. They need to feel their ideas are welcome. It takes courage, vulnerability and openness. Capobussi, Sorghi, Bonetti and Frontino (2012) reviewed how to achieve goals in medical education during a six month general practice in Italia. The program seems sufficient for achieving both the methodological and the specific goals, but there are some deficiencies. More attention should go to home visits, telephone contacts and differences between territorial structures. Hahn (2012) performed an evaluation of a pedagogical device that should help students link their professional experiences with their academic knowledge. The evaluation shows that students do not only transfer theory in practice, but they also learn to make a model that fits the situation by combining the theories they know. Kjeldsen (2012) reviewed the relation between public service motivation and study. She stated that students in a study, which educates them for a job in public service delivery, do not gain more motivation during the study. They already have a high public service motivation at the start, although in other fields of study the students' motivation does increase. Rotheram-Borus, Lightfoot, Kasirye and Desmond (2012) performed their research on the results of Ugandan youth participating in a HIV prevention program. The results showed that the unemployment decreased even as the amount of sex

partners, the use of drugs and alcohol and delinquent actions. Meanwhile, the use of condoms increased. Getting the youth to work and by giving them a HIV prevention program, youth can be supported in preventing HIV.

Apprenticeships, internships and workplace learning

19 articles in this review are about the benefits of apprenticeships, the apprenticeship system, and workplace learning. Apprenticeships are important for students to gain skills and knowledge on the workplace. They give students opportunities to learn in a real context, which they find easier then learning at school. Students do not only want to know what they have to do, but also why they have to do it (Akkerman & Bakker, 2012). The apprenticeship programs should prepare the students for the transition from school to work (Barabasch, 2012) and the program has to fit with the needs of the labour market. It can also be helpful in creating a career path and in avoiding employee shortage (Conway, Brazil & Losurdo, 2012). Sometimes there is too much focus on the learning system, for example when checking competence lists instead of focusing on what is really important for the work field (Avis, 2012). All stakeholders; the students, the school and the companies, should have a clear view about their role and expectations, and also the outcomes of the apprenticeship program should be clearly defined (Conway, Brazil & Losurdo, 2012). Deitmer (2012) stated that during an apprenticeship the students need to stand in the middle of the action and should get involved in every aspect of the job, like planning, preparing and quality control. This realistic and complete context helps them to understand the tasks better. It is important that apprenticeships are carefully planned, so they can fit the prior knowledge of the students. It should be challenging for them and the tasks have to start easy and get more complex later on. Apprenticeships need to fit the needs of the apprentices and give them hand-on experiences. For example, The Royal AirForce has a special apprenticeship program to fit the needs of girls and help them gain self-confidence and career confidence (Collins, Morto & Dean, 2012). It is also important that students get clear information before the start of the apprenticeship (Donkor, 2012). There should be parental support (Conway, Brazil & Losurdo, 2012) and they need someone to talk to during the apprenticeship (Donkor, 2012). Liu

(2012b) stated that a 2+0.5+0.5 structure, which consists of two phases of professional study at school, 0.5 phase of practice in enterprises sponsored by school and 0.5 for internship programs sponsored by the enterprises, can be a good work-study combination to provide qualified professional talents.

Availability of apprenticeship places

The apprenticeship programs need to tackle youth unemployment and should be available for all students (Hogarth, Gambin & Hasluck, 2012). Mohrenweiser (2012) stated that especially for the disadvantaged youth apprenticeships can be very important. Not all apprenticeship programs work well. Many countries are experiencing problems within their apprenticeship system. It is hard to arrange enough apprenticeship places and the support during the apprenticeship is not always of good quality (Adbel-Wahab, 2012). Financial difficulties can also be of influence on the apprenticeship system. For example, in Ghana students often quit their apprenticeship due to financial problems. They do not have enough money to pay for their apprenticeship or they do not want to be treated like cheap labours (Donkor, 2012).

Alternatives

Because the existing apprenticeship policies do not always work and the lack of apprenticeship places is hard to fix, alternatives like virtual learning should be taken into account (Abdel-Wahab, 2012). There are many innovative initiatives, which are mainly focusing on the weaker students/youth at risk, but it is not sure which program works and who needs to finance it. Small companies should be involved and public funding seems essential (Barabasch, 2012). The help of experienced employees and trade union partners should also be considered (Abdel-Wahab, 2012). Another alternative is researched by Imdorf and Leemann (2012). Their focus was on the lack of apprenticeship places for disadvantaged students. It seemed that companies are more willing to take the risk if the period of time is

shorter and there is a training network that helps with a fair pre-selection and cares about quality and their relation with companies.

Advantages for companies

Apprenticeships should not only be important for students, but must also benefit the company (Deitmer, 2012). Companies with a large capacity for training, like a full time instructor and training facilities, and those who are willing to invest in resources for training disadvantaged youth, are most likely to participate in the training scheme. The size of the company, the increasing demand for skilled workers and the difficulties in finding apprentices, do not influence the participation of companies (Mohrenweiser, 2012).

Workplace learning

Learning processes also take place in companies. It is hard to establish sustainability in organisations. It is important that the learners are in control, that they can learn in their own way and that the company supports them and recognizes the development in ecology of learning (Evans & Waite, 2012). Employees also need to have a feeling that there is an openness of climate on their work. This is the degree is which people are willing and able to change habits and behaviour, and is a basic requirement for transfer motivation. If people have the feeling their colleagues/manager is open to changes they are more willing and motivated to transfer and bring in their own knowledge (Kastenmüller, Frey, Kerschreiter, Tattersall, Traut-Mattausch & Fisher, 2012). Smith (2012) also places the worker in the locus of learning. Workers are also negotiators who manage their participation in work through sets of personal values, transacted as personal working and learning practices. They show in their work what they think is important. Harteis, Morgenthaler, Kugler, Ittner, Roth and Graf (2012) also performed a review on the workplace, but they focused on a different topic. They reviewed the decision making process of medical employees, which seems largely based on

intuition. Workers develop intuition during their career, so novices score lower on intuition than more experienced workers. Novices should get support by reflecting on situations and they need support to utilize their experiences. Fenwick (2012) stated that companies should also take the age and knowledge of their employees, especially their older workers, into account. She has distinguished four learning approaches for older professional workers: consolidating, outreaching, re-directing and disengaging. Companies and organisations need to see the value of their knowledge and experience, and use this in training. Creativity can also be part of the learning process, the research of Sawyer (2012) made a contribution to the understanding of group creativity and collaborative emergence. Paloniemi and Collin (2012) reviewed collective creativity in the constraining hierarchical power structure of hospitals. It seems that power relations not only restrict collective creativity, but also promotes it in the work community.

Discussion and conclusion

The purpose of this article was to give an overview of VET research in 2012 and to formulate suggestions for further research. 173 articles are summarized and analysed and the main conclusions and topics are described in this review. We categorized the articles in seven themes. The main conclusions of the 2012 review are comparable with those of the 2011 review, although wider substantiated. Still we have many recommendations for topics that need further research. It would also be interesting to add even more information to our review. It would be interesting to add a bibliometric in which the citation behaviour of authors based on the reference list can be seen. It would also be good to add a column to our overview table in which can be seen if an article is peer reviewed or not and what the impact factor of the article is.

If we look at this VET research review from a critical perspective, we conclude that:

1. There is a lot of VET research and this research is quite diverse and fragmented.

2. The quality of the articles is not always very high, also because a lot of conference proceedings are included.

3. There are many important topics for further research.

We also have some short conclusions per research theme about research recommendations and the relation to the research in 2011.

VET and society

In the VET and society research of 2012 a lot of attention was given to the different groups in society in relation to education. Dropouts were also part of the research in 2011, but now there was also attention for gender, the disabled and for people in rehabilitation. Career perspectives were mentioned just like last year, but in 2012 there was also attention for job groups in which job security was not obvious. Even health and safety received some attention

this year. Multiculturalism still needs more attention, as we already suggested in the research of 2011. Lifelong learning would also be an interesting topic for expanded research. Just like last year, this year lacks research on the relation between companies and society and education.

VET policy, organization and management

Last year a lot of the research on policy, organization and management was about problems that occurred in VET, different VET systems and about the dual system. Problems with VET are still stated, VET has to become more attractive, of better quality and has to fit the needs of the labour market. There is a lack of apprenticeship places. It is nice to notice that there is an article written about the influence of EU regulations, which was one of our recommendations last year. More research on this topic is still necessary, but it is a good start. This year a lot of the articles are mainly about what the research should further investigate and what should be on the research agenda. The government should also play a part here, because they can influence the research agenda by subsidizing and they need the information of the researchers to come to a clear policy.

VET teacher education and teacher behaviour

In 2011 we recommended research on teacher roles as a topic for further research and a lot of researchers seemed to agree with us. Many articles in 2012 were about the very diverse roles of the teacher and on the preparation necessary to deal with these different roles. Little attention was given to the motivation of teachers to become and remain a teacher, so this still needs more research. The teacher education also received more attention in 2012, but the way teachers learn best is still not an interesting topic. This is, even as in 2011, still a recommendation for further research.

VET curriculum

In 2012 lots of attention was given to curriculum examples and the still existing gaps in curriculum. Last year's research also showed some attention to the implementation of the curriculum and the relation between policy and practice, which were topics that we recommended in 2011 for further research, but they still need more attention. The development of new curriculum is still recommended for further research even as the transition between schools and from school to work. These topics received a lot of attention this year but the focus was mainly on problems, so further research should also focus on solutions.

Learning and instruction in VET

The focus of the research on learning and instruction in VET in 2012 is very different from 2011. In 2011 the focus was on the cognitive, emotional and social domains, the balance between practical and theoretical knowledge and the transferability of knowledge. We hoped that further research would be about informal learning, on best practices of learning environments, the role of the teacher in facilitating the learning process and how student-centred learning would really work out. In the research in 2012 there was a lot attention for ICT and distance learning, the way people learn at the workplace and on succeeding in education. Learning and instruction is a very large theme, so despite the different subjects of this year, there are still a lot of subjects to be researched.

Assessments and testing of educational achievement in VET

A lot of research is done on this theme in the year 2012. There is attention to valid and reliable testing and many examples and tools for assessing are given. Research was also performed on assessment criteria and self-assessment. Still more attention should go to the classical test theory and item-response theory, which we recommended in 2011, but no one even mentioned these topics. It seems that the attention for good qualitative testing has

increased and hopefully the increased attention for assessments and testing will also increase the quality of these assessments.

Apprenticeships, internships and workplace learning

There was a lot of research in 2011 that focused on apprenticeships, internships and workplace learning. This can partly be explained by a special issue of JVET in 2011 about 'Apprenticeship as an evolving model of learning'. Last year we mentioned the importance of research on the perceptions and experiences of teachers, employers and other stakeholders, on the cost-effectiveness of the apprenticeships and their impact on learning and career development and on the motivation of students to make certain choices in managing their learning process and choosing an apprenticeship place. Some topics were mentioned in 2012, but there are still no real conclusions about one of these subjects. The experiences and the role of companies still need more research, as well as the benefits that apprenticeships can provide them. The cost-effectiveness and alternatives that can be used instead of a real apprenticeship were also mentioned, but this research is still in the starting phase and there are no clear results yet. So, in 2012, many important questions are mentioned, but it takes more time to also gather the results.

Reference list

Abdel-Wahab, M. (2012). Rethinking apprenticeship training in the British construction industry. *Journal of Vocational Education & Training, 64*(2), 145-154. doi:10.1080/13636820.2011.622450

Achtenhagen, F. (2012). The curriculum-instruction-assessment triad.. *Empirical Research in Vocational Education and Training, Vol. 4*(1), 5–25.

Agrawal, T. (2012). Vocational education and training in India: challenges, status and labour market outcomes. *Journal of Vocational Education & Training, 64*(4), 453-474. doi**:**10.1080/13636820.2012.727851

Akkerman, S.F. & Bakker, A. (2012). Crossing boundaries between school and work during apprenticeships. *Vocations and Learning, 5*(2), 153–173. doi:10.1007/s12186-011-9073-6

Albisetti, J.C. (2012). Philanthropy for the middle class: vocational education for girls and young women in mid-Victorian Europe. *History of Education: Journal of the History of Education Society, 41*(3), 287-301. doi.10.1080/0046760X.2011.620011

Allais, S. (2012). Will skills save us? Rethinking the relationships between vocational education, skills development policies, and social policy in South Africa. *International Journal of Educational Development 32,* 632–642. doi:10.1016/j.ijedudev.2012.01.001

Alseddiqi, M, Mishra, R. & Pislaru, C. (2012). The New School-Based Learning (SBL) to Work-Based Learning (WBL) Transition Module: A Practical Implementation in the Technical and Vocational Education(TVE) System in Bahrain. *Journal of Physics: Conference Series* vol. 364 issue 1 May 28, 2012. p. 012117-012117. doi:10.1088/1742-6596/364/1/012117

Ameen, E.J. & Lee, D.L. (2012). Vocational training in juvenile detention; a call for action. *The career development quarterly 60*(2) 98-108. doi.10.1002/j.2161-0045.2012.00008.x

Ari, M. (2012). Creating a New Synergy on Technical and Vocational Education via a General Purpose Computer Interface Unit. *Computer Applications in Engineering Education 20*(2), 364–373. doi:10.1002/cae.20403

Ashmawy, I. (2012). The effect of education decentralization on school leadership in vocational schools: the prerequisites in Egyptian according to the German experience. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012)*. Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Avis, J. Canning, R. Fisher, R. Morgan-Klein, B. & Simmons, R. (2012). State intervention and teacher education for vocational educators in England and Scotland.. *Educational Research 54*(2), 187–197. doi.10.1080/00131881.2012.680043

Avis, J. (2012). Workplace Learning, VET and Vocational Pedagogy: the transformation of practice. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012)*. Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Azumah Dennis, C. (2012). Quality: an ongoing conversation over time. J*ournal of Vocational Education & Training, 64*(4), 511-527. doi:10.1080/13636820.2012.727854

Barabasch, A. (2012). Meeting the challenge: between depopulation and new industrialization. Innovations in VET in Eastern Germany. *Journal of Vocational Education & Training, 64*(4), 403-416. doi**:**10.1080/13636820.2012.691540

Bekale Nze, J. S., & Ginestié, J. (2012). Technical and vocational teaching and training in Gabon: how future teachers build their vocational identity? *International Journal of Technology and Design Education, 22*(3), 399-416. doi: 10.1007/s10798-010-9143-3

Bellmann, L & Stephani, J. (2012). Effects of double qualifications on various dimensions of job satisfaction.. *Empirical Research in Vocational Education and Training. 4*(2), 95–114.

Berger, J.-L. (2012). Uncovering vocational students' multiple goal profiles in the learning of professional mathematics: differences in learning strategies, motivational beliefs and cognitive abilities. *Educational Psychology: An International Journal of Experimental Educational Psychology, 32*(4), 405-425. doi.10.1080/01443410.2012.674663

Berger, J-L.& D'Ascoli, Y. (2012). Motivations to become vocational education and training educators: a person-oriented approach. *Vocations and Learning 5*(3), 225–249. doi: 10.1007/s12186-012-9075-z

Berger, S., Canning, R., Dolan, M., Kurek, S., Pilz, M. & Rachwał, T. (2012). Curriculum-making in pre-vocational education in the lower secondary school: A regional comparative analysis within Europe. *Journal of Curriculum Studies, 44*(5), 679-701. doi:10.1086/670266

Black, S. & Yasukawa, K. (2012). Shared delivery: integrating ELT in Australian vocational education.. *ELT Journal Volume 66*(3), 347-355. *doi:10.1093/elt/ccr086*

Bliuc, A., Casey, G., Bachfischer, A., Goodyear, P. & Ellis, R.A. (2012). Blended learning in vocational education: teachers' conceptions of blended learning and their approaches to teaching and design. *Aust. Educ. Res. 39,* 237–257. doi:10.1007/s13384-012-0053-0

De Bruijn, E. (2012). Teaching in innovative vocational education in the Netherlands. *Teachers and teaching: theory and practice, 18*(6), 637-653

Brunello, G., Lorena, C. S. & Sonedda, D. (2012). Training subsidies and the wage returns to continuing vocational training Evidence from Italian regions *.Labour Economics 19,* 361–372.

Busemeyer, M.R. & Jensen, C. (2012). The impact of economic coordination and educational institutions on individual-level preferences for academic and vocational education. *Socio-Economic Review, 10*, 525–547. doi:10.1093/ser/mws002

Capobussi, M., Sorghi, M., Bonetti, F. & Frontino, G. (2012). Achieving vocational training goals during six months in an Italian general practice. *European Journal of General Practice 18*(4), 206-11. doi:10.3109/13814788.2012.685712

Cavanagh, J.M. (2012). Auxiliary women workers in the legal sector: traversing subjectivities and 'self' to learn through work. *Journal of Vocational Education & Training, 64*(3), 245-259. doi**:**10.1080/13636820.2012.691531

Changming, L. (2012). Research and Practice on Cooperative Education Pattern for Higher Vocational Colleges in China. S. Sambath and E. Zhu (Eds.): *Frontiers in Computer Education, AISC 133*, 71–74. doi:10.1007/978-3-642-27552-4_12

Chatigay, C., Lévesque, S. & Riel, J. (2012). Training yourself while training students: The constant challenge of vocational training teachers. *Work 41*, 143-153, doi:10.3233/WOR-2012-1279

Chatigny, C., Riel, J. and L. Nadon (2012). Health and Safety of Students in Vocational Training in Québec : A Gender Issue ? *Work, 41,* 4653-4660. doi*:*10.3233/WOR-2012-0104-4653

Chen, Y.R., Chen, Y.W., Chen, T.H., Tsai, J.L., Li, J.S.& Li, R.H. (2011). Evaluating the benefits of horticultural vocational training for people with mental disabilities and psychiatric disorders. *Acta Hort.* (ISHS) 920:153-166. http://www.actahort.org/books/920/920_19.htm

Chrzanowska, I. (2012). The chances of people with disabilities for continuing education and opportunities of employement in the context of the key competences level of vocational school-leavers. *The new educational review, 27*(1), 309-315.

Clarke, M. (2012). The response of the Roman Catholic Church to the introduction of vocational education in Ireland 1930–1942. *History of Education, 41*(4), 477–493. doi:10.1080/0046760X.2011.622298

Collins, J., Morton, P. & Dean, G. (2012). Maximising Opportunities For Career Learning Through Work Experience Placements. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Cong, S. & Wang, X (2012). A perspective on technical and vocational education and training. D. Zeng (ed) Advances in computer science and engineering. *AISC 141*, 67-75 doi:10.1007/978-3-642-27948-5_10

Conway, J., Brazil, S. & Losurdo, M. (2012). Findings from an evaluation of a school-based VET programme in an Area Health Service in New South Wales, Australia. *Journal of Vocational Education & Training, 64(2),* 127-143. doi**:**10.1080/13636820.2011.622449

Corrales-Herrero, H. & Rodríguez-Prado, B. (2012). Characterizing Spanish labour pathways of young people with vocational lower-secondary education. *Applied Economics, 44(*29), 3777-3792. doi**:**10.1080/00036846.2011.581218

Dănescu, N. (2012). Vocational distance learning of agricultural sciences in the EU and comparative studies with the UK, Germany, Australia and the U.S.A. *The 8th International Scientific Conference eLearning and software for Education Bucharest, April 26-27, 2012*. doi:10.5682/2066-026X-12-170

Darnon, C., Buchs, C. & Desbar, D. (2012). The jigsaw technique and self-efficacy of vocational training students: a practice report. *Eur J Psychol Educ 27*, 439–449. doi:10.1007/s10212-011-0091-4

Davies, P. (2012). Financial literacy in the context of democracy. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Debout, C., Chevallier-Darchen F., Petit Dit Dariel, O. & Rothan-Tondeur M. (2012). Undergraduate nursing education reform in France: from vocational to academic programmes. *International Nursing Review 59*, 519–524. doi:10.1111/j.1466-7657.2012.01016.x

Deitmer, L. (2012). Promoting innovative capabilities in apprenticeships. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Delgoulet*, C. (2012).* Being a trainer in the French vocational training system: a case study of job status and working conditions in relation to perceived Health. *Work 41*, 5203-5209 5203 doi:10.3233/WOR-2012-0810-5203

Dif, M'H., Baidokaite, R., Pranculyte, J. & Spaniks, L. (2012). Funding and Stakeholders roles in the Development of Apprenticeship: What can be learnt from the experience of other countries? *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Donkor, F. (2012). Reasons for non-completion among apprentices: the case of automotive trades of the informal sector in Ghana. *Journal of Vocational Education & Training, 64*(1), 25-40. doi**:**10.1080/13636820.2011.589534

Elffers, L. (2012). One foot out the school door? Interpreting the risk for dropout upon the transition to post-secondary vocational education. *British Journal of Sociology of Education, 33*(1), 41-61. doi:10.1080/01425692.2012.632866

Elffers, L., Oort, F.J. & Karsten, S. (2012). Making the connection: The role of social and academic school experiences in students' emotional engagement with school in post-secondary vocational education. *Learning and Individual Differences 22*, 242–250. doi:10.1016/j.lindif.2011.08.005

Epperson, L. (2012). Bringing the market to students: school choice and vocational education in the twenty-first century. *The notre dame law review, 87* (5), 1861-1890.

Esmond, B. (2012). 'I don't make out how important it is or anything': identity and identity formation by part-time higher education students in an English further education college. *Journal of Vocational Education & Training, 64*(3), 351-364. Doi:10.1080/13636820.2012.691537

Evans, K. & Waite, E. (2012). The Challenge of Establishing Sustainable 'Basic Skills' Provision: Organizational 'Strategies' and Individual 'Tactics'. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Fasching, H. (2012). Participation of woman and men with intellectual disabilities in labour market policy measures. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Fastré, G.M.J., Van der Klink, M.R., Sluijsmans, D. & Van Merriënboer, J.J.G. (2012). Drawing students' attention to relevant assessment criteria: effects on self-assessment skills and performance. *Journal of Vocational Education & Training, 64*(2), 185-198. doi:10.1080/13636820.2011.630537

Fenwick, T. (2012). Learning among Older Professional Workers: Knowledge Strategies and Knowledge Orientations. *Vocations and Learning , 5*(3), 203–223. doi:10.1007/s12186-012-9074-0

Figueira, E. (2012). Relevance of entrepreneurship subject and issues in the Portuguese compulsory education. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Figuera, E., Rosa, V., Koehnen, T. & Fragoso, A. (2012). Worker's participation in training and SME's competitiveness. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Fuller, C & Macfadyen, T. (2012). 'What with your grades?' Students' motivation for and experiences of vocational courses in further education. *Journal of Vocational Education & Training, 64*(1), 87-101. doi:10.1080/13636820.2011.622447

Guise, V., Chambers, M., Conradi, E., Kavia, S. & Välimäki, M. (2012). Development, implementation and initial evaluation of narrative virtual patients for use in vocational mental health nurse training. *Nurse Education Today*, *32*(6), 683-689. doi:10.1016/j.nedt.2011.09.004

Hahn, C. (2012). Apprenticeship in higher education in France: an experimental device to help apprentices to link academic knowledge and work experience. *Journal of Vocational Education & Training, 64*(1), 75-85. doi:10.1080/13636820.2011.622446

Hämäläinen, R. & Oksanen, K. (2012). Challenge of supporting vocational learning: Empowering collaboration in a scripted 3D game – How does teachers' real-time orchestration make a difference? *Computers & Education 59*, 281–293. doi:10.1016/j.compedu.2012.01.002

Harris, R. & Rainey, L. (2012). Learning pathways between and within vocational and higher

    education: towards a typology? *Aust. Educ. Res.39,* 107–123. doi:10.1007/s13384-012-

    0052-1

Harris, R. & Ramos, C.R. (2012). 'The one less travelled': adult learners moving from the

    academic sector to the vocational sector in Singapore and Australia. *Journal of*

    Vocational Education & Training, 64(4), 387-402. Doi:10.1080/13636820.2012.691539

Harteis, C. & Morgenthaler, B. & Kugler, C. & Ittner, K.P. & Roth, G. & Graf, B. (2012).

    Professional competence and intuitive decision making: a simulation study in the

    domain of emergency medicine. *Vocations and Learning, 5*(2), 119–136.

    doi:10.1007/s12186-011-9070-9

Henning Loeb, I. (2012). blogspot.com as the means of internationalizing VET teacher

    education. *Proceedings of the ECER VETNET Conference 2012: Papers presented for*

    the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012). Deitmer,

    Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung

    und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Hilal, R. (2012). Vocational Education and Training for women and youth in Palestine:

    Poverty reduction and gender equality under occupation. *International Journal of*

    Educational Development 32, 686–695. doi:10.1016/j.ijedudev.2012.02.008

Hodgson, A. & Spours, K. (2012). Understanding and supporting school-to-work transitions:

    an ecological model. *Proceedings of the ECER VETNET Conference 2012: Papers*

    presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).

    Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin:

    Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Hogarth, T., Gambin, L. & Hasluck, C. (2012). Apprenticeships in England: what next? *Journal of Vocational Education & Training, 64*(1), 41-55. doi:10.1080/13636820.2011.590221

Holmgren, R. (2012). Preparations for practical exercises in vocational education: Can ICT-based distance instruction be an alternative to face-to-face instruction? An empirical contribution. *Procedia - Social and Behavioral Sciences 46*, 1152 – 1161. doi:10.1016/j.sbspro.2012.05.266

Howieson, C. & Raffe, D. (2012). The paradox of Scotland: limited credit transfer in a credit based system. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Hughes, L.B. & Hughes, L.C. (2012). Social Capital and VET – Researching Coupling of 'Want' to 'Need': an Australian comparison with Europe. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org

Imdorf, C. &. Leemann, R.J. (2012). New models of apprenticeship and equal employment opportunity. Do training networks enhance fair hiring practices*? Journal of Vocational Education & Training, 64*(1), 57-74. doi:10.1080/13636820.2011.622445

Ingleby, E. (2012). 'How can you survive in the world if you can't use a computer?' Exploring the vocational education and training needs of early years practitioners in

England. *Journal of Vocational Education & Training, 64*(4), 475-490. doi:10.1080/13636820.2012.727852

İşman, A. & Ucun, K. (2012). Objectives of the students use general and vocational education students to facebook. *Procedia - Social and Behavioral Sciences, 55*, 1 – 10. doi:10.1016/j.sbspro.2012.09.470

Itkonen, T. (2012). Intercultural competence of vocational educators in health and social care. *Proceedings of the ECER VETNET Conference 2012. Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Jachimczak, B. (2012). Education of a higher level in life plans of schoolchildren with disability who complete their education at a vocational level. *The new educational review, 27*(1) 316-324.

Jamshidi , A. & Jamshidi, L. (2012). Evaluation of technical and vocational education in Iran. *Procedia - Social and Behavioral Sciences, 46*, 4070 – 4071.

Jäppinen, A.-K. & Maunonen-Eskelinen, I. (2012). Organisational transition challenges in the Finnish vocational education – perspective of distributed pedagogical leadership. *Educational Studies, 38*(1), 39-50. doi:10.1080/03055698.2011.567024

Järvi, T. (2012). Teaching entrepreneurship in vocational education viewed from the regional and field perspectives. *Journal of Vocational Education & Training, 64*(3), 365-377. doi:10.1080/13636820.2012.691538.

Juuti, S. & Littleton, K. (2012). Tracing the transition from study to a contemporary creative working life: The Trajectories of Professional Musicians, *Vocations and Learning, 5,* 5–21. doi:10.1007/s12186-011-9062-9

Kaletka, C. & Pelka, B. (2012). EFacilitators: Functional hybrids between ICT teaching and community management. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Kastenmüller, A., Frey, D., Kerschreiter, R., Tattersall, A.J., Traut-Mattausch, E. & Fischer, P. (2012). Perceived openness of climate during training and transfer motivation: testing two short and simple interventions. *Journal of Vocational Education & Training, 64*(2), 211-225. doi**:**10.1080/13636820.2011.631711

Kendall, A., Carey, D., Cramp, A. & Perkins, H. (2012). Barriers and solutions to HE progression for Early Years' practitioners, *Journal of Vocational Education & Training, 64*(4), 543-560. doi:10.1080/13636820.2012.727858

Kersh, N. & Guile, D. (2012). Recognition of tacit skills and prior learning: capturing informal competences in relation to occupational areas. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Ketelaar, E., Den Brok, P., Beijaard, D. & Boshuizen, H.P.A. (2012). Teachers' perceptions of the coaching role in secondary vocational education. *Journal of Vocational Education & Training, 64*(3), 295-315. doi**:**10.1080/13636820.2012.691534

Kjeldsen, A.M. (2012). Vocational Study and Public Service Motivation: Disentangling the Socializing Effects of Higher Education, *International Public Management Journal,15*(4), 500-524.

Klotz, V.K. & Winther, E. (2012). How to measure professional competency. An analysis of current assessment practices in commercial VET programs. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Knežević , B. (2012). Competence Assessment of Baccalaureus Students. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Koopman, M, Teune, P & Beijaard, D. (2012). How to investigate the information processing strategies of students in competence-based pre-vocational secondary education: selection of the right instrument. *Qual Quant 46*, 1931–1946. doi:10.1007/s11135-012-9772-6

Kuijpers, M. & Meijers, F. (2012). Learning for now or later? Career competencies among students in higher vocational education in the Netherlands. *Studies in Higher Education, 37*(4), 449-467. doi:10.1080/03075079.2010.523144

Kupper, H. (2012). An enactivist view on developing competence in vocational education. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer,

Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Lagercrantz All, K. (2012). Care and existence: Adult students in health and social care encounter with practice and conception of their education. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Lappalainen, Sirpa; Lahelma, Elina; Pehkonen, Leila & Isopahkala-Bouret, Ulpukka (2012). Gender neutralities, dichotomies and hidden inequalities: analysis of vocational teachers' reflections on gender in the profession. *Vocations and Learning, 5*(3), 297–311. DOI:10.1007/s12186-012-9082-0

Lavendels, J, Sitikovs, V.& Uhanova, M. (2012). Influence Of Socio-Demographic Characteristics To Attractiveness And Success Of Initial Vocational Education And Training In Latvia. *Procedia - Social and Behavioral Sciences 55*, 756 − 765.

Li, J. (2012). Discussion on Occupation Moral Education in Higher Vocational Colleges. A. Xie & X. Huang (Eds.): Advances in Computer Science and Education, AISC 140, pp. 77–82. DOI 10.1007/978-3-642-27945-4_11

Lidong, C., Shuying, M., Lei, S., Guofang, L., Liang, Z. & Lixin, Z. (2012). The Construction of the Secondary Vocational Teachers Training System Based on 'Cooperation between School and Enterprise' H. Tan (Ed*.): Knowledge Discovery and Data Mining, AISC 135*, 573–578.

Liu, X. (2012a). A Study on Problems and Countermeasures of China's Higher Vocational Education. H. Tan (Ed.): Knowledge Discovery and Data Mining, AISC 135, pp. 361–368. Doi.10.1007/978-3-642-27708-5_49

Liu, X. D. (2012b). Practice of flexible talents training mode "2+0.5+0.5" for surveying and mapping major for higher vocational education. Zeng (Ed.): *Advances in computer science and engineering, AISC 141*, 27-32. Doi:10.1007/978-3-642-27948-5_5

Mareš, D. (2012). Is financial crisis an opportunity for Vocational Education? *Procedia - Social and Behavioral Sciences, 46,* 1527 – 1531

Marsden, N. & Piggot, Irvine, E. (2012). Using blogging and laptop computers to improve writing skills on a vocational training course. *Australasian Journal of Educational Technology, 28*(1), 30-47. http://www.ascilite.org.au/ajet/ajet28/marsden.html

Martinez Villar, A., Guitiérrez Pérez, J. & Perales Palacios, F.J. (2012). European Perspective and Contributions to Vocational Education and Training and Environmental Awareness, in the Education for Sustainable Development Context. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Maurer, M. (2012). Structural elaboration of technical and vocational education and training systems in developing countries: the cases of Sri Lanka and Bangladesh. *Comparative Education, 48*(4), 487-503. doi:10.1080/03050068.2012.702011

McGrath, S. & Lugg, R. (2012). Knowing and doing vocational education and training reform: Evidence, learning and the policy process. *International Journal of Educational Development, 32*, 696–708. Doi:10.1016/j.ijedudev.2012.02.004,

McGrath, S. (2012). Vocational education and training for development: A policy in need of a theory*? International Journal of Educational Development, 32*, 623–631 doi:10.1016/j.ijedudev.2011.12.001

Mehmet, A., Hakan, C. & Tanner, A. (2012). A new trend in vocational education: mechatronics program and the preference factors. *Technics technologies education management, 2*(7), 638-647.

Meilan, J. (2012). Analysis of the training models of professional abilities of newly-employed teachers of higher vocational colleges based on the PDCA cycle. *International Conference on Computer Technology and Development, 3rd (ICCTD).* doi:10.1115/1.859919.paper30.

Miller, M. (2012). The role of service-learning to promote early childhood physical education while examining its influence upon the vocational call to teach. *Physical Education and Sport Pedagogy, 17*(1), 61-77. doi:10.1080/17408981003712810

Mittendorff, K., Beijaard, D., den Brok, P. & Koopman, M. (2012). The influence of teachers' career guidance profiles on students' career competencies. *Journal of Vocational Education & Training, 64*(4), 491-509. doi:10.1080/13636820.2012.727853

Mohrenweiser, J. (2012). Which firms train disadvantaged youth? *Empirical Research in Vocational Education and Training, 4*(2), 115–130.

Moldovan, L. (2012). Innovative models for vocational education and training in Romania

 Procedia - Social and Behavioral Sciences 46, 5425 – 5429.

 doi.10.1016/j.sbspro.2012.06.451

Moodie, G. (2012). Variations in the rate at which students cross the boundaries between

 Australian vocational and higher education. *Aust. Educ. Res. 39*, 143–158.

 doi:10.1007/s13384-012-0054-z

Moodie, G. & Wheelahan, L. (2012). Integration and fragmentation of post compulsory

 teacher education. *Journal of Vocational Education & Training, 64*(3), 317-331.

 doi:10.1080/13636820.2012.691535

Moreno Herrera, Lázaro (2012). A didactic for Vocational Education and Training? – Critical

 exploration of the relation between general and subject didactics. *Proceedings of the*

 ECER VETNET Conference 2012: Papers presented for the VETNET programme of

 ECER 2012 at Cádiz (18-21 September 2012). Deitmer, Ludger; Gessler, Michael;

 Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V.

 [www.ecer-vetnet.wifo-gate.org]

Moreno Marchal, J. (2012). Developing innovation competencies for organizations.

 Proceedings of the ECER VETNET Conference 2012: Papers presented for the

 VETNET programme of ECER 2012 at Cádiz (18-21 September 2012). Deitmer,

 Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung

 und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Nicholas, K., Fletcher, J & Davis, N. (2012). Raising numeracy and literacy to improve

 vocational opportunities. *Journal of Vocational Education & Training, 64*(4), 433-451.

 doi:10.1080/13636820.2012.727850

Nyen, T. & Reegård, K. (2012). Apprentice training in the public sector. The case of the health worker in Norway. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

O'Shea, S. Lysaght, P. & Tanner, K. (2012): Stepping into higher education from the vocational education sector in Australia: student perceptions and experiences. *Journal of Vocational Education & Training, 64*(3), 261-277. doi:10.1080/13636820.2012.691532

Ooms, A. & Marks-Maran, D. (2012). The evaluation of support service provision to higher education students at two universities in the UK. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Oser, F & Volery, T. (2012). «Sense of failure» and «sense of success» among entrepreneurs: the identification and promotion of neglected twin entrepreneurial competencies. *Empirical Research in Vocational Education and Training, 4*(1), 27–44.

Ouellet, S. (2012). Ergonomic analysis of work activity for the purpose of developing training programs: the contribution of ergonomics to vocational didactics. *18th congress of International Ergonomics Association Ergonomic analysis of work and training (EAWT) symposium, Recife, Brazil, from February 12-16, ACTES du congrès dans Work : A Journal of Prevention Assessment and Rehabilitation, 41,(1)*, 4572-4576. doi:*10.3233/WOR-2012-0753-4572*.

Paloniemi, S. & Collin, K. (2012). Discursive power and creativity in inter-professional work. *Vocations and Learning, 5*(1), 23–40. doi:10.1007/s12186-011-9064-7

Pema, E & Mehay, S. (2012). Career effects of occupation-related vocational education: Evidence from the military's internal labor market .*Economics of Education Review 31,* 680– 693, doi.10.1016/j.econedurev.2012.04.005

Persson Thunqvist, D. & Axelsson, B. (2012). "Now It's Not School, It's For Real!": Negotiated Participation in Media Vocational Training. *Mind, Culture, and Activity, 19*(1), 29-50. doi.10.1080/10749039.2011.632048

Pfeifer, C., Janssen, S., Yang, P. & Backes-Gellner, U. (2012). Training participation of a firm's aging workforce. *Empirical Research in Vocational Education and Training, 4(2), 131–147.*

Pilz, M. (2012). Modularisation of vocational training in Germany, Austria and Switzerland: parallels and disparities in a modernisation process. *Journal of Vocational Education & Training, 64*(2), 169-183. doi:10.1080/13636820.2011.628757

Powell, J.J.W., Graf, L, Bernhard, N.; Coutrot, N. & Kieffer, A. *(2012).* The Shifting Relationship between Vocational and Higher Education in France and Germany: towards convergence? *European Journal of Education 47*(3). doi:10.1111/j.1465-3435.2012.01534.x

Powell, J.J.W.; Bernhard, N. & Graf, L. (2012). The Emergent European Model in Skill Formation : Comparing Higher Education and Vocational Training in the Bologna and Copenhagen Processes. *Sociology of Education 85*(3). doi:10.1177/0038040711427313

Pridham, B., O'Mallon, S. & Prain, V. (2012). Insights into vocational learning from an applied learning perspective. *Vocations and Learning, 5*(2), 77–97. doi:10.1007/s12186-011-9063-8

Raemdonck, I.,Tillema, H., De Grip, A., Valcke, M. & Segers, M. (2012). Does self-directedness in learning and careers predict the employability of low-qualified employees? *Vocations and Learning, 5*(2), 137–151. doi:10.1007/s12186-011-9072-7

Räkköläinen, M. (2012). What do skills demonstrations reveal? The reliability and confidence in the assessment process of skills demonstrations in VET. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Ren, Y & Zhao, L. (2012). Research and practice of "teaching, leaning, practice integration teaching model' in higher vocational and technical education. J. Luo (Eds.) *Affective computing and intelligent interaction, AISC 137*, 633-638. doi:10.1007/978-3-642-27866-2_78

Rogers, Mary E., Creed, Peter A. & Searle, Judy (2012). Assessment of junior doctors' perceptions of difficulty of medical specialty training programs. *Journal of Vocational Education & Training, 64*(2), 199-210. doi:10.1080/13636820.2011.630538

Rogers, R.E. (2012). Language learning versus vocational training: French, Arab and British voices speak about indigenous girls' education in nineteenth-century colonial Algeria. *Paedagogica Historica: International Journal of the History of Education, 48*(3), 369-379. doi.10.1080/00309230.2012.659263

Romero Rodríguez, S., Álvarez Rojo, V. & Gil Flores, J. (2012). School to work transition: career guidance's needs among first year vocational training students. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Rose, M. (2012). Rethinking Remedial Education and the Academic-Vocational Divide. *Mind, Culture, and Activity, 19*(1), 1-16. doi:10.1080/10749039.2011.632053

Rotheram-Borus, M.J., Lightfoot, M., Kasirye, R. & Desmond, K. (2012). Vocational Training with HIV Prevention for Ugandan Youth.. *Aids and Behaviour 16*, 1133–1137. doi:10.1007/s10461-011-0007-y

Ruan, J. (2012). Research on mathematica experimental teaching reform of high vocational education. Wu, Y. (Ed): *Software engineering and knowledge engineering: theory and practice 2*(115), 285-290. doi:10.1007/978-3-642-25349-2_38

Sabates, R., Salter, E. & Obolenskaya, P. (2012). The social benefits of initial vocational education and training for individuals in Europe. *Journal of Vocational Education & Training, 64*(3), 233-244. doi:10.1080/13636820.2012.691530

Saunders, R. (2012). Assessment of professional development for teachers in the vocational education and training sector: An examination of the concerns based adoption model. *Australian journal of education, 56* (2), 182-204.

Sawyer, K. (2012). Extending sociocultural theory to group creativity. *Vocations and Learning, 5*(1), 59–75. doi:10.1007/s12186-011-9066-5

Schindler Rangvid, Beatrice (2012). The impact of academic preparedness of immigrant students on completion of commercial vocational education and training. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Schmidtke, C. & Chen, P. (2012). Philosophy of Vocational Education in China: A Historical Overview. *Journal of Philosophy of Education, 46*(3). doi:10.1111/j.1467-9752.2012.00859.x

Shavelson, R.J. (2012). Assessing business-planning competence using the Collegiate Learning Assessment as a prototype. *Empirical Research in Vocational Education and Training, 4*(1), 77–90

Shaw, A.J. (2012). The value of work experience in outcomes for students: an investigation into the importance of work experience in the lives of female undergraduates and postgraduate job seekers. *Journal of Vocational Education & Training, 64*(2),155-168. doi:10.1080/13636820.2011.628756

Shendell, D.G., Mizan, S.S., Marshall, E.G., Kelly, S.W., Therkorn, J.H., Campell, J.K. & Miller, A.E. (2012). Cut-laceration injuries and related career groups in New Jersey career, vocational and technical education courses and programs. *Workplace health & safety, 60* (9), 401-409.doi:10.3928/21650799-20120828-01

Smith, R. (2012). Clarifying the subject centred approach to vocational learning theory: negotiated participation, *Studies in Continuing Education, 34*(2), 159-174. doi:10.1080/0158037X.2011.609542

Smulders, H., Hoeve, A. & Van der Meer, M. (2012). Co-makership! Linking VET and professional practice: lessons from Dutch experience. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Souto-Otero & Ure (2012). The coherence of vocational education and training in Norway and Spain: national traditions and the reshaping of VET governance in hybrid VET systems. *Compare: A Journal of Comparative and International Education,42*(1), 91-111. doi:10.1080/03057925.2011.628836

Strawbridge, C.L., Emmett, M.R. & Ashton, I. (2011). Development of vocational training programmes with active links to current research. Acta Hort. (ISHS) 920:71-75 http://www.actahort.org/books/920/920_8.htm

Sui, J., Yang, B., Du, J., Li, Z. & Dang, M. (2012). Innovate the College-Enterprise Alliance Mode and Promote the Development of Senior Vocational Education. S. Sambath and E. Zhu (Eds.*): Frontiers in Computer Education, AISC 133*, 127–132. doi:10.1007/978-3-642-27552-4_20

Tafel-Viia, K., Loogma, K., Lassur S. & Roosipõld, A. (2012). Networks as agents of innovation: teacher networking in the context of vocational and professional higher education reforms. *Vocations and Learning, 5*(2), 175–193. doi:10.1007/s12186-012-9077-x

Tarazona, M.J.C. (2012). Legal determinations in actions supporting Continuing Vocational Education and Training. *Proceedings of the ECER VETNET Conference 2012: Papers*

presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012). Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Taylor, S. (2012). The meanings and problems of contemporary creative work. *Vocations and Learning, 5*(1), 41–57. doi:10.1007/s12186-011-9065-6

Tielman, K., Den Brok, P., Bolhuis, S. & Vallejo, B. (2012). Collaborative learning in multicultural classrooms: a case study of Dutch senior secondary vocational education. *Journal of Vocational Education & Training, 64*(1), 103-118. doi:10.1080/13636820.2011.622448

Timmermans, A.C., Bosker, R.J., Doolaard, S. & de Wolf, I. (2012). Value added as an indicator of educational effectiveness in Dutch senior secondary vocational education. *Journal of Vocational Education & Training, 64*(4), 417-432. doi:10.1080/13636820.2012.727849

Tóth, P. (2012). Learning Strategies and Styles in Vocational Education. *Acta Polytechnica Hungarica 9*(3), 195-216. http://www.uni-obuda.hu/journal/Toth_35.pdf

Trampusch, C. & Eichenberger, P. *(2012).* Skills and Industrial Relations in Coordinated Market Economies— Continuing Vocational Training in Denmark, the Netherlands, Austria and Switzerland *British Journal of Industrial Relations* 50(4), 644–666 doi: 10.1111/j.1467-8543.2011.00864.x

Trebbels, M. (2012). Formal and informal educational requirements for access to vocational education: Who is most affected by the mismatch? *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine

(Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Tsamadias, C. & Chanis, S. (2012). Testing the role of screening with vocational skills: the case of post-secondary initial vocational training institutes in Greece. *Empirical Research in Vocational Education and Training, 4*(2), 2012, 149–161.

Tseng, K.H., Chang, C.C. & Lou, S.J. (2012). The process, dialogues, and attitudes of vocational engineering high school students in a web problem-based learning (WPBL) system. *Interactive Learning Environments, 20*(6), 547-562. doi:10.1080/10494820.2010.542756

Valtonen, T., Hacklin, S., Dillon, P., Vesisenaho, M., Kukkonen, J. & Hietanen, A. (2012). Perspectives on personal learning environments held by vocational students. *Computers & Education 58*, 732–739. Doi:10.1016/j.compedu.2011.09 025

Van Bommel, M., Kwakman, K. & Boshuizen, H.P.A. (2012). Experiences of social work students with learning theoretical knowledge in constructivist higher vocational education: a qualitative exploration. *Journal of Vocational Education & Training, 64*(4), 529-542. doi:10.1080/13636820.2012.727857

Van Bommel, M; Boshuizen, Henny, P.A. & Kwakman, K. (2012). Appraising the qualities of social work students' theoretical knowledge: a qualitative exploration, *Vocations and Learning 5*(3), 277–295. doi:10.1007/s12186-012-9078-9

Van Hal, L.B.E., Meershoek, A., de Rijk, A. & Nijhuis, F. (2012). Going beyond vocational rehabilitation as a training of skills: return-to-work as an identity issue. *Disability & Society, 27*(1), 81-93 doi:10.1080/09687599.2012.631799

Veillard, L. (2012). Transfer of Learning as a Specific Case of Transition between Learning Contexts in a French Work-Integrated Learning Programme. *Vocations and Learning, 5*(3), 251–276. doi:10.1007/s12186-012-9076-y

Vestergaard L.A. (2012). What is professional VET-teaching? Empirical evidence of high quality VET-teaching in Denmark 2012 and the challenges to the teacher professional. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Vu, T. B.; Hammes, D.L. & Iksoon Im, E. (2012). Vocational or university education? A new look at their effects on economic growth. *Economics Letters, 117,* 426–428. doi:10.1016/j.econlet.2012.06.027

Wals, A.E.J. , Lans, T,, & Kupper, H. (2012). Blurring the boundaries between vocational education, business and research in the agri-food domain. *Journal of Vocational Education & Training, 64*(1), 3-23. doi**:**10.1080/13636820.2011.586129

Wang, B., Lewis, R. & Greenwood, K.M. (2012). Challenges in retraining workers laid-off by state-owned enterprises in China: findings from a field inquiry. *Journal of Vocational Education & Training, 64*(3), 279-293. doi:10.1080/13636820.2012.691533

Wang, L.X., Wang, L. & He, S.Q. (2012). Research and practice of personnel training scheme for high vocational industrial design professionals (engineering subjects). *Applied mechanics and materials 101-102*, 21-24. doi:10.4028/www.scientific.net/AMM.101-102.21

Watson, D.E., Nordin-Bates, S.M. & Chappell, K.A. (2012). Facilitating and nurturing creativity in pre-vocational dancers: Findings from the UK Centres for Advanced Training, *Research in Dance Education, 13*(2), 153-173. doi:10.1080/14647893.2012.694415

Weber, S & Funke, S. (2012). An «instructional» perspective on entrepreneurship education – focusing on the development of team competencies. *Empirical Research in Vocational Education and Training, 4*(1), 49–72.

Winch, C. (2012a). Research in Vocational Education and Training. *British Journal of Educational Studies, 60*(1), 53-63. doi:10.1080/00071005.2011.650944

Winch, C. (2012b)Vocational and Civic Education: Whither British Policy?*Journal of Philosophy of Education, 46*(4). doi:10.1111/j.1467-9752.2012.00880.x

Winters, A., Meijers, F., Kuijpers, M. & Baert, H. (2012). Can training teachers stimulate career learning conversations? Analysis of vocational training conversations in Dutch secondary vocational education. *Journal of Vocational Education & Training, 64*(3), 333-350. doi:10.1080/13636820.2012.691536

Xiang, J. (2012). Educational returns inequality in urban China. *Proceedings of the ECER VETNET Conference 2012: Papers presented for the VETNET programme of ECER 2012 at Cádiz (18-21 September 2012).* Deitmer, Ludger; Gessler, Michael; Manning, Sabine (Eds.). Berlin: Wissenschaftsforum Bildung und Gesellschaft e.V. [www.ecer-vetnet.wifo-gate.org]

Appendix

authors	Research focus	Educational level	Theoretical framework	Research strategy	theme
Abdel-Wahab, 2012	Apprenticeships in construction industry	Further education	/	Desk study	Apprenticeships, internships and workplace learning
Akkerman & Bakker, 2012	Boundary crossing	senior vocational education	Boundary crossing and identity	Case study	Apprenticeships, internships and workplace learning
Avis, 2012	Workplace learning, VET	Initial and continuing VET	/	Desk study	Apprenticeships, internships and workplace learning
Barabasch, 2012	Innovations in apprenticeships	VET	/	Multiple Case study	Apprenticeships, internships and workplace learning
Collins, Morton, Dean, 2012	RAF program	Compulsory education	/	Survey	Apprenticeships, internships and workplace learning
Conway, Brazil & Losurdo, 2012	Apprenticeship in nursing	Vocational education and training (preparing for further/higher education)	Career pathways in nursing	Evaluation/ survey	Apprenticeships, internships and workplace learning
Deitmer, 2012	Work-based learning	/	Innovation research, improvement systems/ changes	Case study	Apprenticeships, internships and workplace learning
Donkor, 2012	Traditional/informal apprenticeships in Ghana	Informal education	/	cross-sectional descriptive survey	Apprenticeships, internships and workplace learning
Evans & Waite, 2012	Sustainability	Workplace learning	/	longitudinal research + case study	Apprenticeships, internships and workplace learning
Fenwick, 2012	Older professional workers	Workplace learning	Older workers	Case study	Apprenticeships, internships and workplace learning
Harteis, Morgenthaler, Kugler,	Intuition	Workplace learning	Intuition, information processing	Case study (exploratory/laboratory	Apprenticeships, internships and workplace

				/2×3-factorial design)	learning
Ittner, Roth & Graf, 2012				/2×3-factorial design)	learning
Hogarth; Gambin & Hasluck, 2012	Apprenticeship system England	Further education	/	literature study	Apprenticeships, internships and workplace learning
Imdorf & Leemann, 2012	Apprenticeship/training network	Vocational education	Recruitment and selection	explorative single case study	Apprenticeships, internships and workplace learning
Kastenmüller, Frey, Kerschreiter, Tattersall, Traut-Mattausch, & Fischer, 2012	Openness of climate (OOC)	Training in occupations	Characteristics of organizations that influence transfer motivation	2 x 2 experimental design	Apprenticeships, internships and workplace learning
Liu, 2012b	Surveying and mapping	Higher vocational education	/	Desk study	Apprenticeships, internships and workplace learning
Paloniemi & Collin, 2012	Creativity and power in the operating theatre	Workplace learning	Creativity in inter-professional work	ethnographic research	Apprenticeships, internships and workplace learning
Sawyer, 2012	Sociocultural theory and group creativity	Informal learning	Sociocultural theory, creativity, emergence	Case study	Apprenticeships, internships and workplace learning
Smith, 2012	Negotiated participation in work	work	negotiation	Case study	Apprenticeships, internships and workplace learning
Capobussi, Sorghi, Bonetti & Frontino, 2012	General practice	Medical vocational education	/	Case study	Assessment and testing of educational achievement in VET
Chen, Chen, Chen, Tsai, Li, & Li, 2012	Horticultural therapy	Vocational training	/	Pre- and post-test design	Assessment and testing of educational achievement in VET

Fastré, Van der Klink, Sluijsmans, & Van Merriënboer, 2012	Self-assessment, relevant criteria	Secondary vocational education	/	2 x 2 factorial design	Assessment and testing of educational achievement in VET
Hahn, 2012	Transfer learning for apprentices	Higher education	Geay's alternance model/ interaction between communities of practice	Exploratory study/ 'two-tail' case study design.	Assessment and testing of educational achievement in VET
Kersh & Guile, 2012	Recognition of tactic skills/prior knowledge	Workplace learning	Tacit skills	Survey	Assessments and testing of educational achievement in VET
Kjeldsen, 2012	Public service motivation	Higher vocational education	Public service motivation	survey	Assessment and testing of educational achievement in VET
Klotz & Winther, 2012	Assessments in practice	Commercial VET programs	Action competencies	Desk study	Assessment and testing of educational achievement in VET
Knežević, 2012	Competence assessment	Higher education	/	Small scale study	Assessment and testing of educational achievement in VET
Koopman, Teune & Beijaard, 2012	Testing information processing strategies	Pre vocational secondary education	Information processing strategies	Case study	Assessment and testing of educational achievement in VET
Ouellet, 2012	Ergonomic analysis of the work of boners	Training programs at work	/	Case study	Assessment and testing of educational achievement in VET
Räkköläinen, 2012	Assessment of skill demonstrations	Upper secondary vocational education	/	Evaluation study	Assessment and testing of educational achievement in VET
Rotheram-	HIV prevention	/	/	Pilot study	Assessment and

					testing of educational achievement in VET
Ruan, 2012	Online testing mathematica	Higher vocational education	/	Desk study	Assessment and testing of educational achievement in VET
Saunders, 2012	Assessing professional development	Vocational education and training	professional development	Mixed method study	Assessment and testing of educational achievement in VET
Shavelson, 2012	Collegiate learning assessment	/	/	Desk study	Assessment and testing of educational achievement in VET
Timmermans, Bosker, Doolaard & de Wolf, 2012	Added value in VET schools	Senior secondary vocational education	/	Desk study	Assessment and testing of educational achievement in VET
Watson, Nordin-Bates & Chappell, 2012	Facilitating and nurturing creativity in dancers	Pre vocational education	/	Case study	Assessment and testing of educational achievement in VET
Ari, 2012	Laboratory practices	Technical vocational education and training	/	Desk study	Learning and instruction in VET
Berger, 2012	Achievement goals	Vocational education	Achievement goals theory	survey	Learning and instruction in VET
Dănescu, 2012	Distance learning	vocational distance learning (agricultural science)	Distance learning	Review/desk study	Learning and instruction in VET
Darnon, Buchs & Desbar, 2012	Effect of Jigsaw on self-efficacy	post-secondary vocational training qualification, certificate of technical education,	Jigsaw technique and self-efficacy	Experimental case study	Learning and instruction in VET

		and technical baccalaureate			
Fuller & Macfadyen, 2012	Career choices	Further education	Decision making	Focus groups	Learning and instruction in VET
Guise, Chambers, Conradi, Kavia & Välimäki, 2012	Virtual patients in menthal health education	Vocational mental health nurse training	Virtual patients	Pilot study	Learning and instruction in VET
Hämäläinen & Oksanen, 2012	Orchestrating computer-supported collaborative learning	Higher vocational education	Collaborative learning and 3d learning games	empirical study	Learning and instruction in VET
Holmgren, 2012	Distance education	Firefigher education	Distance learning	Case study	Learning and instruction in VET
İşman, & Ucun, 2012	Facebook	General and vocational education	/	Descriptive study	Learning and instruction in VET
Jamshidi & Jamshidi, 2012	Behaviouristic or constructivistic learning	Technical and vocational education	/	Overview study	Learning and instruction in VET
Kaletka & Pelka, 2012	Efacilitators	/	Need for active eInclusion	Desk study	Learning and instruction in VET
Kuijpers & Meijers, 2012	Career orientation/competence	University	Career learning	Survey	Learning and instruction in VET
Kupper, 2012	Enactivism	VET	/	Desk study	Learning and instruction in VET
Lagercrantz, 2012	Conceptions of students on their learning process	Upper secondary school	Prior learning and The hermeneutic theory	Survey	Learning and instruction in VET
Marsden & Piggot, Irvine, 2012	Blogging in vocational training courses	Vocational education	ICT in education	Problem resolving action research	Learning and instruction in VET
Moldovan, 2012	Virtual classroom improvement	Vocational education	/	survey	Learning and instruction in VET
Moreno	Didactics	Vocational	/	Desk study	Learning and

		education and learning			instruction in VET
Nicholas, Fletcher & Davis, 2012	Adult numeracy and literacy	Adult eduction	Theories on literacy/numeracy and adult education	survey	Learning and instruction in VET
Ooms & Marks-Maran, 2012	Student support	University	Student support	Mixed-method methodology	Learning and instruction in VET
Romero Rodríguez, Álvarez Rojo, Gómez & Gil Flores, 2012	Students perception on school	Secondary education	/	Survey	Learning and instruction in VET
Rose, 2012	Remedial education	Remedial education, vocational or occupational education (postsecondary education)	/	Case study	Learning and instruction in VET
Tóth, 2012	Learning strategies	secondary vocational schools	Learning theories, learning models, learning strategies, learning styles	Survey	Learning and instruction in VET
Tseng, Chang & Lou, 2012	Web problem based learning	Vocational high school	/	Case study	Learning and instruction in VET
Valtonen, Hacklin, Dillon, Vesisenaho, Kukkonen & Hietanen, 2012	Personal learning environments	polytechnic and one vocational level school	Personal learning environments	Case study	Learning and instruction in VET
Van Bommel, Boshuizen & Kwakman (2012)	Theoretical knowledge of students	Higher professional education	Theoretical knowledge	Explorative qualitative case study	Learning and instruction in VET

van Bommel, Kwakman & Boshuizen, 2012	Social work	Higher vocational education	Social work body of knowledge, professional practice, constructivism	explorative qualitative case study	Learning and instruction in VET
Albisetti, 2012	Woman education	VET	/	Desk study	VET and society
Ameen & Lee, 2012	Education in juvenile detention	Vocational education	/	Desk study	VET and society
Brunello, Lorena & Sonedda, 2012	Wage returns to trainings	formal continuing vocational training	impact of training grants on the training investments	Survey, desk study	VET and society
Busemeyer & Jensen, 2012	Educational preferences	Academic and vocational education	VoC and SRC literature, working class and upperclass	Survey	VET and society
Cavanagh, 2012	Self-identity of auxiliary women	Workplace learning	Self (identity), learning through work, Reflexivity	Critical ethnographic study	VET and society
Chatigny, Riel, & Nadon, 2012	Health and safety in schools and at the workplace	Vocational training	/	Action research	VET and society
Chrzanowska, 2012	Competencies of disabled people	Special schools, basic vocational schools and secondary technical schools	/	Case study	VET and society
Corrales-Herrero & B. Rodríguez-Prado (2012):	Labour pathway	Labour pathway after vocational lower secondary education.	Transition pathway	Survey/desk study	VET and society
Delgoulet, 2012	Job status of trainers	Vocational training	/	Case study	VET and society
Elffers, 2012	Risk for dropout	Transition to senior	Risk for dropout	Survey	VET and society

		vocational education	(indicators)		
Elffers, Oort, & Karsten, 2012	Emotional engagement	Senior vocational education	Emotional engagement	Survey	VET and society
Epperson, 2012	Vocational education in the 21st century	Career and technical education (secondary and post secondary)	/	Desk study	VET and society
Esmond, 2012	Identity	Vocational further education college	Identity	Case study	VET and society
Hilal, 2012	VET for women and youth	VET	/	Desk study	VET and society
Jachimczak, 2012	Life plans of disabled people	Higher level education	/	survey	VET and society
Juuti, Sini & Littleton, Karen	Identity of musicians	Music education	/	Case study	VET and society
Lappalainen, Lahelma, Pehkonen & Isopahkala-Bouret, 2012	Gender	Upper secondary education	Gender	Case study	VET and society
Lavendels, Sitikovs, & Uhanova, 2012	Socio-demographic characteristics of influence on students choices.	Initial VET	/	survey	VET and society
Mareš, 2012	Vocational education in lifelong learning	Secondary vocational schools	/	Desk study	VET and society
Pema & Mehay, 2012	Military's internal labor market	Secondary vocational education	/	Desk study	VET and society
Pfeifer, Janssen, Yang & Backes-Gellner, 2012	Relation between age and training	Apprenticeship companies	age and training	econometric case study (quasi-balanced panel design)	VET and society
Raemdonck, Tillema, De Grip,	Employability for low qualified	no qualification or initial	Self-directedness and	follow up research design	VET and society

Valcke & Segers (2012):		secondary education.	employability		
Rogers, Creed & Searle, 2012	Medical specialism and training difficulties	Medical education	/	Survey	VET and society
Schindler Rangvid, 2012	Drop outs, academic preparedness	Upper secondary education	Drop outs	Desk study	VET and society
Shendell, Mizan, Marshall, Kelly, Therkorn, Campell & Miller, 2012	Injuries in career groups	vocational and technical education	/	Explorative study	VET and society
Taylor, 2012	Problems/meanings of creative work	Post graduate	Creative work and identity	Case study	VET and society
Trebbels, 2012	Career choice	Transfer to vocational education and training	/	Survey	VET and society
Tsamadias & Chanis, 2012.	Earning profiles	post-secondary initial vocational training, secondary education	Weak and strong screening	Survey	VET and society
van Hal, Meershoek, de Rijk & Nijhuis, 2012	Identity work in relation to vocational rehabilitation	Vocational rehabilitation	Identity work	Case studies	VET and society
Vu, Hammes & Im, 2012	Economic growth	secondary, post-secondary vocational none tertiary (vocational), and tertiary (university).	Macroeconomic analysis on education and economic growth	Desk study	VET and society
Wang, Lewis & Greenwood, 2012	Retraining of laid-off workers	Unemployement retraining	Unemployment retraining	Case study	VET and society
Xiang,	Urban natives	/	/	Desk study	VET and society

2012	VS migrants				
Achtenhagen, 2012	curriculum-instruction-assessment triad	Vocational education	/	Desk study	VET curriculum
Alseddiqi, Mishra & Pislaru, 2012	quality of TVET education in Bahrain.	Technical and vocational education	.	Multiple case studies	VET curriculum
Bellmann, & Stephani, 2012	Double qualification	Vocational education/university	Double qualification	Desk study	VET curriculum
Berger, Canning, Dolan, Kurek, Pilz & Rachwał, 2012	Curriculum development	Pre vocational education	/	Pilot study (Case study and literature review)	VET curriculum
Cong & Wang, 2012	TVET development	TVET (higher education)	/	Desk study	VET curriculum
Davies, 2012	Economic literacy	Financial education	/	Desk study	VET curriculum
Debout, Chevallier-Darchen, Petit dit Dariel & Rothan-Tondeur, 2012	Reform in the nursing curriculum	Nursing profession (from vocational to academic)	/	Desk study	VET curriculum
Fasching, 2012	Participation of intellectual disabled	Workplace learning	/	Survey	VET curriculum
Figueira, 2012	entrepreneurship	Basic/compulsory/secondary education	/	Case study	VET curriculum
Harris & Rainey, 2012	Learning pathways	Vocational and higher education (post compulsory education)	Learning careers/pathways	Survey	VET curriculum
Harris, & Ramos, 2012	Transition from HE to VET	Higher education/VET	Boundary crossing	Survey	VET curriculum
Hughes & Hughes, 2012	Social capital learning in VET	Technical and further education	Social capital and competence	Exploratory study	VET curriculum
Jäppinen &	Transition	upper	*distributed*	Case study	VET curriculum

Maunonen-Eskelinen, 2012	fluency	secondary education	*pedagogical leadership*		
Järvi, 2012	Entrepreneurship education	Upper secondary vocational education	Learninggoals and teaching entrepreneurship	Literature review/ exploratory case study	VET curriculum
Li, 2012	Moral education	Higher vocational colleges	Moral element in education (no references)	Survey	VET curriculum
Martinez Villar, Gutiérrez Pérez & Perales Palacios, 2012	Environmental awareness	Initial VET and longlife VET	Education and sustainable development	Evaluative research	VET curriculum
Mehmet, Hakan, & Tanner, 2012	Choice factors on mechatronics education	Mechatronics (post graduate/bachelor/associate degree/high school)	Mechatronics	Survey and desk study	VET curriculum
Moodie, 2012	Transfer to higher education	Vocational and higher education	/	Desk study	VET curriculum
Moreno Marchal, 2012	Innovations	Vocational Training Program of Cadiz University	/	Case study	VET curriculum
Nyen & Reegård, 2012	Workplaces for health workers	upper secondary Vocational Education and Training	/	Survey	VET curriculum
O'Shea, Sarah, Lysaght, Pauline & Tanner, Kathleen, 2012	Students transitioning	Australian Technical and Further Education	transition	Case study	Vet curriculum
Oser & Volery 2012	Failure and success in entrepreneurship	/	business failure	Desk study	VET curriculum
Pridham,	Applied learning	Technical	Applied	Literature	VET curriculum

O'Mallon & Prain, 2012		and Further Education College, Technology Education pre-service teacher preparation program.	learning	study/case study	
Strawbridge, Emmett & Ashton, 2012.	Education in horticulture	Vocational education	/	Desk study	VET curriculum
Wang, Wang & He, 2012	Curriculum for industrial design professionals	Higher vocational education	/	Desk study	VET curriculum
Weber & Funke, 2012	Entrepreneurship education and team competencies	Bachelor students	Team competencies	Mixed method study	VET curriculum
Agrawal, 2012	VET education in India	VET	/	Desk study	VET policy, organization and management
Allais, 2012	Skill development policies	VET	/	Desk study	VET policy, organization and management
Ashmawy, 2012	School leadership	Vocational schools	Decentralization and school leadership	explorative qualitative study	VET policy, organization and management
Azumah Dennis, 2012	Adult language and literacy	Adult education (post compulsory education)	quality	Explorative case study	VET policy, organization and management
Changming, 2012	Cooperative education	Higher vocational colleges	/	Desk study	VET policy, organization and management
Clarke, 2012	Influence of the church	Primary, secondary and vocational education	/	Desk study	VET policy, organization and management
Dif, Baidokaite, Pranculyte & Spaniks, 2012	Funding of apprenticeships	Initial VET	/	Desk study	VET policy, organization and management
Figueira, Rosa,	Adult participation in	Continuing Vocational	Adult participation	Mixed method	Vet policy, organization and

Koehnen, Fragoso, 2012	training	Education and Training	in training	study	management
Hodgson & Spours, 2012	Ecological model	Upper secondary education (further education and higher education)	The ecological model	Desk study & case study	VET policy, organization and management
Howieson & Raffe, 2012	Credit transfer	pre-vocational education / initial VET/ work-based Modern Apprenticeships (MAs).	/	Evaluation	VET policy, organization and management
Liu, 2012	Improving higher vocational Education	Higher vocational education	/	Desk study	VET policy, organization and management
Maurer	Elaboration of TVET	TVET (secondary level)	/	Desk study	VET policy, organization and management
McGrath & Lugg, 2012	Reform in VET	VET	/	single complex multi-national study,	VET policy, organization and management
McGrath, 2012	Development in VET	VET	/	Desk study	VET policy, organization and management
Mohrenweiser, 2012	Firms training disadvantaged youth	Vocational education	/	Survey	VET policy, organization and management
Pilz, 2012	Modularisation in VET	Initial Vocational Education and Training	/	Desk study	VET policy, organization and management
Powell, Bernhard & Graf, 2012	Comparing education systems	HE and VET	/	Desk study	VET policy, organization and management
Powell, Graf, Bernhard, Coutrot &	Relation between VET and HE in France and	VET and HE systems	/	Desk study	VET policy, organization and management

Kieffer, 2012	Germany				
Rogers, 2012	Algerian school system	Vocational training	/	Desk study	VET policy, organization and management
Sabates, Salter, & Obolenskaya, 2012	Social benefits	Initial vocational education and training	Social benefits of VET	a longitudinal panel survey	VET policy, organization and management
Schmidtke & Chen, 2012	VET philosophy in China	VET	/	Desk study	VET policy, organization and management
Smulders, Hoeve & van der Meer, 2012	Co- makership	Vocational education and training	/	Case study	VET policy, organization and management
Souto-Otero & Ure, 2012	Coherence in VET	VET	Coherence in education	Case study	VET policy, organization and management
Sui, Yang, Du, Li & Dang, 2012	College and enterprise alliance	Senior vocational education	/	Desk study	VET policy, organization and management
Tarazona, 2012	Research and development policies	Continuing vocational education	/	longitudinal analysis (intertextual)	VET policy, organization and management
Trampusch, & Eichenberger, 2012	Continuing vocational education in relation to collective labour agreements	Continuing vocational education	conditions of sectoral collective bargaining agreements	Multiple case study and desk study	VET policy, organization and management
Wals; Lans & Kupper, 2012	Knowledge configurations	secondary and higher vocational education and training.	Knowledge manifestations/ innovation/transfer/circulation/co-creation/configurations	Literature study and Multiple case study	VET policy, organization and management
Winch, 2012	Vocational education research	VET	/	Desk study	VET policy, organization and management
Winch, 2012	British VET policy	Vocational education 16+	/	Desk study	VET policy, organization and management
Avis, Canning, Fisher,	Teacher training	VET	/	small-scale illuminative case study	VET teacher education and teacher

					behaviour
Morgan-Klein & Simmons, 2012					behaviour
Bekale Nze, & Ginestié, 2012	Vocational identity of teachers	technical and vocational education and training	Vocational identity of teachers	Case study	VET teacher education and teacher behaviour
Berger & D'Ascoli, 2012	Teacher motivation	Voctional Education and Training	The Factors Influencing Teaching Choice/motivation	Survey	VET teacher education and teacher behaviour
Black & Yasukawa, 2012	VET and ESOL teachers working together	Technical and further education (TAFE)	Academic literacies	Case study	VET teacher education and teacher behaviour
Bliuc, Casey, Bachfischer, Goodyear & Ellis, 2012	Blended learning	Vocational education	/	Survey	VET teacher education and teacher behaviour
Chatigay, Lévesque & Riel, 2012	Teacher training	Vocational training centres	/	Exploratory study	VET teacher education and teacher behaviour
De Bruijn, 2012	Teaching innovative education	Vocational education	Teaching in competence based vocational education	Multiple case study	VET teacher education and teacher behaviour
Henning Loeb, 2012	Internationalizing VET teacher education	VET teacher education	/	Survey	VET teacher education and teacher behaviour
Ingleby, 2012	ICT	VET	ICT pedagogy	Case study	VET teacher education and teacher behaviour
Itkonen, 2012	Role of teachers in multicultural education	Upper secondary vocational education	Theoretical models	Survey	VET teacher education and teacher behaviour
Kendall, Carey, Cramp & Perkins, 2012	Professionalization for early years practitioners	Early years education	Professionalization	qualitative case study	VET teacher education and teacher behaviour
Ketelaar,	Coaching role of	Secondary	Redesign of	Exploratory	VET teacher

Den Brok, Beijaard & Boshuizen, 2012	teachers	vocational education	secondary vocational education and coaching	study	education and teacher behaviour
Lidong, Shuying, Lei, Guofang, Liang, and Lixin, 2012	Teacher training system	secondary vocational teachers' training	/	Desk study	VET teacher education and teacher behaviour
Meilan, 2012	PCDA for teachers	Higher vocational colleges	/	Desk study	VET teacher education and teacher behaviour
Miller, 2012	Service learning	Early childhood physical education	/	Mixed method design	VET teacher education and teacher behaviour
Mittendorff, Beijaard, den Brok & Koopman, 2012	Career competencies	Secondary vocational education	Career competencies	Survey	VET teacher education and teacher behaviour
Moodie & Wheelahan, 2012	Teacher training	post compulsory teacher education	/	Survey, desk study	VET teacher education and teacher behaviour
Persson Thunqvist & Axelsson, 2012	Negotiated participation	Upper secondary vocational education	legitimate peripheral participation	Case study	VET teacher education and teacher behaviour
Ren & Zhao, 2012	Educational reform teachers	Higher vocational and technical education	/	Desk study	VET teacher education and teacher behaviour
Shaw, 2012	Value of work experiences	Higher education	Knowledge economy and constructivism	Case study	VET teacher education and teacher behaviour
Tafel-Viia, Loogma, Lassur & Roosipõld, 2012	Teacher networks	Vocational and professional higher education.	Networks and innovation	Quantitative survey	VET teacher education and teacher behaviour
Tielman, Den Brok, Bolhuis &	Collaborative learning in multicultural	Senior secondary vocational	Collaborative learning in a	Descriptive study	VET teacher education and teacher

Vallejo, 2012	classrooms	education	multicultural classes		behaviour
Veillard, 2012	Transfer learning	Tertiary education	Transfer of learning	Case study	VET teacher education and teacher behaviour
Vestergaard, 2012	Vet teaching	Vocational education and training	Learning and didactics	Field study	VET teacher education and teacher behaviour
Winters, Meijers, , Kuijpers, & Baert, 2012	Career learning	Secondary vocational education	/	explorative multicase design	VET teacher education and teacher behaviour