

**This is an electronic reprint of the original article.  
This reprint *may differ* from the original in pagination and typographic detail.**

**Author(s):** Collin, Kaija; Paloniemi, Susanna; Virtanen, Anne; Eteläpelto, Anneli

**Title:** Constraints and challenges on learning and construction of identities at work

**Year:** 2008

**Version:**

**Please cite the original version:**

Collin, K., Paloniemi, S., Virtanen, A., & Eteläpelto, A. (2008). Constraints and challenges on learning and construction of identities at work. *Vocations and Learning. Studies in Vocational and Professional Education*, 1(3), 191-210.  
<https://doi.org/10.1007/s12186-008-9011-4>

All material supplied via JYX is protected by copyright and other intellectual property rights, and duplication or sale of all or part of any of the repository collections is not permitted, except that material may be duplicated by you for your research use or educational purposes in electronic or print form. You must obtain permission for any other use. Electronic or print copies may not be offered, whether for sale or otherwise to anyone who is not an authorised user.

## **Constraints and Challenges on Learning and Construction of Identities at Work**

### **Kaija Collin**

Department of Educational Sciences  
P.O. Box 35  
40014 University of Jyväskylä  
Finland  
Tel. +358 14 260 1675  
Email:kaija.collin@edu.jyu.fi

### **Susanna Paloniemi**

Faculty of Education  
P.O. Box 35  
40014 University of Jyväskylä  
Finland  
Tel. +358 14 260 1680  
Email:susanna.paloniemi@edu.jyu.fi

### **Anne Virtanen**

Department of Educational Sciences  
P.O. Box 35  
40014 University of Jyväskylä  
Finland  
Tel. +358 14 260 1699  
Email:anne.virtanen@edu.jyu.fi

### **Anneli Eteläpelto**

Department of Educational Sciences  
P.O. Box 35  
40014 University of Jyväskylä  
Finland  
Tel. +358 14 260 1669  
Email:anneli.etelapelto@edu.jyu.fi

**Keywords:** Workplace learning, identity construction, vocational students, nurses, designers

## **Constraints and Challenges on Learning and Construction of Identities at Work**

### **Abstract**

This paper analyses and discusses different constraints on workplace learning, vocational development and formation of identity. We ask how the learning and development of vocational identities are related to the various learning constraints and restrictions present in the socio-cultural contexts of the workplace. The study utilizes 20 interviews of industrial designers and nursing staff in Finland. The data on the vocational students was collected with Internet questionnaires (N = 1125) from these two fields; technology and transport, and social services and health care. The results indicated that constraints on learning and professional/vocational identity development at work were mainly social in nature among employees as well as students. Therefore, we suggest that the most necessary conditions for workers' and students' learning are related to the feeling of "weness" that arises from individuals' active participation in the social community.

### **Workplace learning and work identities in changing working life**

With increasing global economic competition and continuous rapid change in work organisations, most workplaces have become highly contested and unstable for those employed in them. Career prospects and labour policies that push workers into increased flexibility and mobility bring major challenges for workplace learning and the formation of work identities. At the same time, short-term managerial accountability and extremely narrow criteria for efficiency monitoring are being applied, even in areas where the nature of the work makes the use of such criteria inappropriate or misleading (Hodginson & Hodginson 2004). Evaluations of this kind have been considered especially inappropriate in work involving creative knowledge, as in design and research, and in human-centred jobs, like teaching and nursing – that is, jobs which are by nature open-ended and ill-defined, and whose central focus is on human encounters and the maintenance of supportive social relationships.

Among employees, these tendencies have resulted in a loss of a sense of meaningfulness and deterioration in the conditions supporting a creative atmosphere (Alasoini 2005; Sennett 2006; Siltala 2004). Barometers, for instance in Finland, measuring perceived workload and perceived meaningfulness have shown that highly educated white-collar workers, in particular, have perceived a falling off in their working conditions (Julkunen, Nätti & Anttila 2004), leading to the loss of a sense of meaningfulness in their work. A similar deterioration has been reported by public-sector employees doing human-centred work, such as health care and teaching (Kalimo & Toppinen 1997; Kirpal 2004b). Increased workload and the adoption of competitive models have also brought additional

challenges with respect to workers' learning processes, and to the development of work identities.

This deterioration in working conditions is taking place alongside with increased demands for learning and continuous professional development at work. Additionally, vocational educational and training (VET) is increasingly being shifted to the workplace, which is expected to provide vocational students with powerful learning environments (see e.g. Schuetze & Sweet 2003; Streumer & Kho 2006). In Finland, for example, a compulsory, guided and evaluated workplace learning system was introduced in initial VET in 2001. The main purpose of this new workplace learning system was to promote students' vocational skills and familiarize them with the workplace culture of their chosen field.

Compared to the contexts of traditional/formal education, we know relatively little about what kinds of learning environments contemporary work places offer employees and vocational students. In order to promote effective pedagogical practices for work-based learning, we need to understand better what constitute the main constraints on and challenges facing learning and the construction of vocational identities in different fields of contemporary working life. We also need to know how individuals can exercise agency to combat these constraints. Therefore this study seeks to identify and elaborate the above-described constraints and challenges from the perspective of middle-aged and older employees on the one hand and from that of vocational students during their workplace learning periods on the other. In order to obtain a more comprehensive understanding of the different constraints, we have chosen two fields: health care and technology, which differ in their work culture, workplace practices and prevailing gender distribution.

Our theoretical approach is informed by the recent literature and research on workplace learning as well as socio-cultural conceptions on the negotiation of work identities and promoting agency at work. We understand learning and identity development as inextricably interrelated and as taking place through participation within workplace practices (see Baruch & Cohen 2007; Hodkinson, Biesta & James 2008).

### **Learning and construction of work identity at work and during VET**

Recent studies in the area of workplace learning address the complex connections between individual learning and communities of practice which is both a specific organizational context for learning and a psychosocial work environment (e.g. Dauer Keller 2005). Consequently, in the contexts of authentic work, professional development and learning comprise the dual process of individual change and the remaking of cultural and contextual practices. It has been argued that, analytically, individual, group, and organisational learning processes should be considered simultaneously and as intertwined (Billett & Somerville 2004; Collin 2005). Individual employees, thus, are seen not just as involuntary actors determined by their environment, but as actively constituting the reality in which they live. What learning will occur, however, cannot necessarily be

predetermined, since situations differ widely from each other at any given time and are determined by many factors as is the learning in them. In addition, in parallel of the results from the studies concerning students' vocational identity formation and learning at work, we suggest that perhaps the components which support and foster both vocational identity formation, and learning skills and knowledge are very much the same (Virtanen, Tynjälä & Stenström, in press).

It can be argued that due to the multifaceted nature of workplace learning it faces various constraints as well as challenges. From an individual employee's point of view most of the perceived constraints seem to relate to organizational and group level factors. Collaboration between working teams and organizations is the source of many conflicts caused by structural organizational factors or problems arising out of practice within the team (Billett 2002; Sharrock & Button 1997). In investigating engineers' work, Sharrock and Button (1997) found that, to ensure that design projects are accomplished and that problems arising along the way are resolved, collaborative difficulties of many kinds have to be faced. In the same vein, Collin (in press) found in her study of design engineers that most working episodes included conflictual talk related to disagreements within the team, such as where a team member had neglected to perform a task despite having promised to do so. The conflicting nature of practice may also manifest itself as a conflict between objective and experienced practice. Consequently, examples of situations in which organizational principles or official viewpoints differed substantially from the ways that things were actually done in practice are very common (see Sharrock & Button 1997). It might also, therefore, be useful to consider how this "double reality" influences learning in the workplace. It may be difficult for workers and especially for newcomers, such as vocational students in their workplace learning period to learn the various conventions governing reality inside the team and the kinds of conflicts and problems that are situationally interpreted as problematic. Additionally, studies in knowledge management (see e.g. Riege 2005; Yang 2004) also show how the distribution of implicit knowledge and knowledge diffusion usually face individual and organisational barriers such as lack of time, lack of trust between colleagues, lack of a relaxed climate for sharing knowledge and foremen's attitudes towards the dissemination of important knowledge.

Employees in most fields have recently been exposed to demands for flexibility and mobility and the challenges for continuous changes in their work. It has been widely recognized (Kirpal 2004b; Fenwick 2006) that managing such changes and integrating successfully into a changing work settings requires specific learning and identification with one's work. Rapid changes in work settings are related to subjects' commitments and attachments and thus to their work identities. Work, learning and identities are thus closely interwoven in workplace learning.

Billett (2007) has suggested that through the intertwining of work and life outside work, individuals are expected to exercise a sense of self in efforts to "be themselves" and, therefore, in how they engage in and what they learn through work and throughout their working life. In addition, individuals' capacity to exercise their agency at work is strongly associated with how they value that work and identify with it so as to permit

them to exercise a “sense of self”. In sum, the continuous need for learning and redefining one’s identity at work means investigating and elaborating those aspects of work communities which are intertwined with and constrain individuals’ identity construction (Collin 2005).

In the fields of nursing and engineering different approaches to identification with work were found (Kirpal 2004a; Brown 2004). The professional profile of nurses is linked to a strong work ethos and moral commitment combined with high levels of responsibility and a certain degree of autonomy in the performance of tasks. In addition, in their work identity nurses show a strong commitment towards their community of practice which is fostered by team working, mutual encouragement and recognition between colleagues as well as direct interaction with the patients. The major reasons to choosing the profession relate to an intrinsic motivation towards helping and caring for others. This often conflicts with the demands of the job for efficiency. It is not surprising, therefore, that nurses may face the threat of stress and burnout. Their strategies used in this situation after 8-10 years in profession include: leaving the organization, academic study, adaptation because of family, crisis in work identity, taking a more professional orientation to the job. An entrepreneurial orientation, however, was rare among both the nurses and engineers (Kirpal 2004b; Kirpal, Brown & Dif 2007).

In the same large study of engineering identities (Brown 2004; Kirpal, Brown & Dif 2007) it was found that the field of engineering is undergoing significant change in terms of increased competition and changing patterns of work organisation. This is indicated, for example, as the new requirement for working in multi-functional teams and by people working as company change agents and as team leaders. The companies in this occupational field are also under pressure to find new forms of interaction with customers and to work in teams. This has consequences for learning and development in relation to communication skills and multi-disciplinary cooperation. In the metal-working industry employees identified with their work tasks and related skills, the company and the professional community. The very strong identification and attachment of a generation ago are less common, however, with the realisation that they are unlikely to work with the same employer for a lifetime. Despite the demand for constant change in the business environment and work organisation, significant numbers of people still want work-related identities that give them a sense of control, purpose and direction.

From the perspective of vocational education, the biggest constraint on students’ learning is their lack of motivation (see e.g. Mulder, Kahmann, Laubenbacher & Messmann 2006). It is, therefore very rewarding to discover that the new workplace learning system introduces in Finnish VET has been received very positively. Studies have shown, from the pilots onwards, that vocational students have been very motivated to learn “real work” during their workplace learning periods (Lasonen 2001). According to the results vocational students also reported they acquired much in the way of skills and knowledge during their workplace learning periods (Tynjälä & Virtanen 2005). Also vocational students’ vocational identity formation begins already during their VET (Virtanen, Tynjälä & Stenström in press). Because constraints on learning and identity construction seems to be social by nature, we will figure out in this present study, how students’

experiences of work communities during their workplace learning periods constrain or foster their learning and vocational identity formation during their VET.

In order to meet the challenges of continuous and lifelong learning through and for work we need to understand what factors are critical for making workplaces powerful learning environments. We also need to understand better how workplace learning is related to and intertwined with subjects' identities at work. Despite broad agreement on the importance of analysing workplace learning from various perspectives the constraints on and challenges to learning have not so far been investigated in detail from the employees' perspective. The link between the constraints on workplace learning and work identity development has, in particular, been neglected.

### **Aims of the study**

This study analyses and discusses different constraints on workplace learning among employees and vocational students. The question of the possible challenge to the development of vocational identity posed by these constraints is also examined. The perspectives of interest are those of workers in the sectors of engineering and nursing and vocational students from the fields of technology and transport, and social services and health care. We address the development of work identities and how they are related to various learning constraints.

The following research questions are addressed in this study:

- 1) What factors challenge or restrict learning in the workplace among workers in the fields of nursing and engineering?
- 2) What perceptions do vocational students from two different vocational fields (technology and transport, and social services and health care) have of work communities during their workplace learning periods, and how are these experiences related to their learning and vocational identity formation at work?
- 3) What strategies of individual agency are used by employees to combat the constraints they encountered on learning and identity construction?

### **Data and analysis**

The study utilizes diverse data collected in Finland. The empirical findings are based on interviews conducted in an industrial design company and among nurses<sup>1</sup>. Semi-structured interviews were conducted with 10 women nurses (public sector, age-range 45–57, 2006) and 10 male design engineers/designers (2007). Both work contexts are

---

<sup>1</sup> Nurses were recruited for the study during their vocational rehabilitation period in a special rehabilitation centre financed by The Social Insurance Institute of Finland. The data derives from a study conducted in co-operation between the University of Jyväskylä and the Peurunka Rehabilitation Centre.

representative of those in the fields of Finnish public health care and a private sector company in the Finnish metal industry. The both data sets also evidence the gendered structure and strong segregation of Finnish working life (see e.g. Korvajärvi 2004). Social and health care sectors are strongly female whereas fields of technology and transport are strongly male dominated. Workers in both fields had a total of 8 to 26 years of experience in their field either in their current or other workplaces. All the interviewees had a vocational education obtained from either a vocational school or a college/polytechnic.

The engineers were asked to tell interviewers about their conceptions and experiences of learning on the job and about the meaning of work for their lives as a whole. Similarly, the nurses were asked to describe their daily work, professional history and themselves as nurses. During the interviews learning and professional development was approached from several perspectives. The interview data were analyzed qualitatively by categorizing and thematizing the transcribed texts according to the research problems. The analysis was conducted using a data-driven approach. In other words, the classifications produced were derived on the basis of empirical data instead of predefined categories. The purpose of the analysis was to raise the level of abstraction by drawing upon the concrete descriptions given by the informants to produce more general characterizations of the constraints on learning and the construction of professional identity.

The interviews with the engineers and nurses were first analyzed separately to determine the informants' opinions concerning learning at work in general and how employees deal with the situations and problems encountered in learning at work in their everyday practice. We were especially interested in views which referred to constraints on learning and how these constraints were overcome. The findings from the two groups of employees were then compared with each other. The comparison was conducted by searching for similarities and differences between the experiences reported by each group. Thus, the final categories emerged from a comparison of the similarities and differences found in two different contexts of workplace learning.

The students data were collected with an Internet questionnaire in spring 2004 from final-year students (N = 1125) from vocational schools. They represented the fields of technology and transport, and social services and health care (average age 20 years), and 45 percent of them were female and 55 percent male<sup>2</sup>. Similarly to employees data, the same gendered structure of Finnish working life is seen in students' data. In total, 661 students (59 %) answered the questionnaire. The data were analysed using quantitative methods (e.g. factor analysis, independent samples t-test, Pearson's correlation coefficients, and regression analysis). In this paper the aggregate scales for students' learning and vocational identity formation at work formed and reported in the earlier studies (Tynjälä & Virtanen 2005; Virtanen, Tynjälä & Stenström in press) are utilized.

---

<sup>2</sup> In the field of technology and transport 20 percent of the respondents were women, while in social services and health care 95 percent were women. This distribution of gender is somewhat similar than it usually is among these fields in the context of Finnish working life.



## Results

On the basis of the analysis of the two data sets of interviews conducted among engineers and nurses, three categories of restrictive constraints were identified. These were: i) individual factors and, ii) social factors. In the following sections, these are described in more detail.

### *Constraints on individual learning*

Although the employees emphasized the importance of workplace learning and described many different ways of learning at work they referred several factors that prohibit learning. These constraints on learning were mostly social in nature. Thus learning at work was described as challenging because of the various social constraints at work and in the workplace, while individual constraints were seldom mentioned. Our data also showed that in most cases the division into individual level and social level constraints on learning was not justified since they seemed to be closely intertwined. Furthermore, most of the factors inhibiting learning were social or communal in their nature. These constraints will be described in greater detail below.

A few individual constraints worth mentioning were, however, found. These were connected to the individual's ability to see what possibilities exist to develop and deepen one's vocational competence. Sticking to routine-like tasks usually leads to an uncritical attitude towards one's work and a state in which new innovations cannot arise. One can, however, make a continuous effort to find new challenges to deepen one's work and learning. It was mostly the design engineers who saw it as the individual employee's responsibility to seek individual growth and to develop her or his worldview. Designers also reported that even though most of their work is team-based the ability to innovate is individual. Acting as an innovator in a team, for instance, is a question of personal character, as one of the designers, Pauli<sup>3</sup> described it:

*"It is claimed that a designer needs to have a kind of a character, he is an innovator (Gyro Gearloose). He needs to be exact and fussy and he must be capable of seeing things from different points of view. He needs to be capable of deepening his ideas from the ideas around him."*

Another individual constraint came up in the interviews with the nurses. Nurses with a few years of working life left before retirement talked about their personal future plans in the light of "getting lazy" in developing their professional competence. They described the situation in nursing as problematic, mainly because of the increase in the average age of the personnel and shortage of (new) nurses imposes a heavier work load on those at work. In the context of the work-related change they experienced the new learning requirements posed by the organizational changes taking place around them as considerable. In their situation they considered that it is more important to do their work with patients well than innovatively to adopt new ways of working. In the interviews the

---

<sup>3</sup> All the quotations under the pseudonyms.

nurses related these constraints both to social and individual factors. Päivi, a 57-years-old nurse, described a situation where you need to prioritize work tasks and save your personal resources:

*“It is this situation with getting older. The average age in our workplace is quite high, over 50. Many have problems with their health, sick leave and a heavy work load. You need to choose what is most important in your work – you can’t do everything. In this situation it might be that you are not that interested in changing your working methods or don’t get excited about new ideas. For me it is most important thing is to do my job well with the patients. Anyway, I only have a few years of working life left.”*

### ***Social factors inhibiting learning at work***

The social learning constraints described in our data are of two kinds. First, there are constraints which are related to the institutional/structural prerequisites for work and learning. Second, they are related to local cultural changes restricting learning at work.

#### *Structural factors*

Economic competition, changes in the work organization and changes in the nature of the work were seen have effects on the institutional/structural prerequisites of learning at work. In the participating organizations large changes were on-going or had been implemented recently. For most of the interviewees these organizational changes appeared purely administrative and superficial. Because of this their attitude to change tented to be passive or resistant.

Structurally restrictive factors affecting learning in the workplace were, among others, hectic pace of work tasks, hurry, competition between employees and teams, uncertainty about the continuity of one’s job, lack of sufficient personnel resources, a stop-go-like feeling concerning organizational aims and supervisors’ poor decision-making ability and general inefficiency in organizing work. The previous example from the interview with Päivi reveals how a lack of personnel together with changes in work affect the one’s experience of one’s own resources. Thus, these structural factors inhibiting learning at work have consequences for social interaction in the local (near-by) working community.

#### *Local and immediate factors of work communities*

Although the structural kinds of restrictive factors were experienced as obligatory and a hindrance, they seemed to have less affect on the employees everyday practice than the local cultural changes taking place in the organization. Thus the local cultural changes caused by institutional changes had a more visible effect on everyday work practices. These local cultural changes turned out to be the most important factors hindering learning at work. These factors were i) problems in the dissemination of information and

knowledge, ii) problems related to cooperation and team work and iii) problems related to the appreciation shown towards employees.

i) Problems related to *lack of information* were commonly found between people, whether individuals or groups. Individuals were not willing to share knowledge due to bad chemistry, or employees simply did not know who might possibly have the required knowledge of who to ask about work-related issues. It can be assumed, thus, that while in most cases failure to disseminate knowledge is unintentional, but sometimes it is deliberate. For example, cliques may develop when there is a need to fight for scarce resources. Sometimes learning is prevented because the knowledge is too context-dependent. In this situation it would be important to be able to see how things are done outside one's own organization. This is how designer (Tero) described the challenges of information dissemination in his organization:

*“Managers do not know how to inform people properly about rapid changes. Tasks suddenly appear on your desk and you don't know what to do with them.”*

An experienced nurse (Sirikka) described the meaning of personal relations as follows:

*“It is this thing with getting along with one person worse than with another. I suppose it's a personality thing and also a question of different values. I don't share the same values with my colleague about confidentiality. This is why it is sometimes hard to pass on knowledge.”*

ii) Second, the interviewees talked a lot about successful *team-work and cooperation* between colleagues. The importance of cooperation and the possibility of interaction with colleagues were emphasized even if the opportunities were not present. For example the nurses who mostly worked alone (e.g. in education) regarded this as one of the main constraints on learning. Although many of the nurses worked in teams or in pairs, their opportunities to meet colleagues from other units had become more limited during the past few years. Instead of having regular face-to-face meetings with each other, communication at work had taken the form of e-mail and internet based solutions. In teams electronic communication was not seen to be as efficient or meaningful as face-to-face communication. For those working most of the time alone with the clients, the lack of rapid and simultaneous support and advice from colleagues was one of the major constraints on learning. Although a colleague could be called after the event the nurses said that they were often in the need of sharing experiences at the moment.

The lack of opportunities for social interaction with colleagues turned out to be central for other reasons. As by its nature nursing relies heavily on personal commitment, separating one's professional and personal life is often problematic. Situations encountered in work often involve difficult personal life situations that require empathy from fellow employees. In reflecting on one's problems colleagues are of great importance. Maija (pseudonym), a 56-years-old public health nurse working in a school, stated that *“In this kind of work you need the ears of others and time to discuss things face-to-face”*.

iii) Third category of local cultural constraints concerned the *appreciation of workers* and their long work experience, possibly in the same organization. Workers with a long history and their varied and wide range of knowledge about different procedures and products are not used to their full potential. This may lead such individuals to not wanting to engage in new ways of working or be initiative. The interviewees also talked about a lack of shared responsibility over getting all the work done. In turn, this may mean an excessive work load for some employees. Two designers (Antti and Matti) commented:

*“Human resource management is not carried out very well in this organization. People shouldn’t be treated badly. Employees’ long experience, for instance, is wasted by playing down their competence. Management’s doings have not strengthened the loyalty of employees in recent years.”*

*“The know-how which I have is not utilized. When new products are being developed no one asks me though I have years of experience about customer’s wishes.”*

### ***Students’ experiences of their work communities during workplace learning periods***

Among vocational students, the constraints and challenges on learning and construction of identities at work have been approached from the viewpoint of students’ experiences of work communities. Informed by socio-cultural theories on learning we have ended up the factors described below. First, we report the results of students’ experiences of their work communities. We also used these results in the further analyses, when we searched for possible constraints on students’ learning and vocational identity formation at work. When we study students’ learning or vocational identity formation at work, we utilise the aggregate scales which were formed and reported in the earlier studies (Tynjälä & Virtanen 2005; Virtanen, Tynjälä & Stenström in press) where their formation have been described in more detail. In this study, the contents of these “borrowed” aggregate scales are presented in the appendixes (Tables 3 and 4).

The students were asked to assess, on a four-point scale (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree) their experiences of work communities during their workplace learning periods. On the basis of the factor analysis we formed three aggregate scales describing students’ experiences of work communities during their workplace learning periods: 1) social and interactive support, 2) availability of individual guidance, and 3) active membership. The content of the aggregate scales is described in Table 1. (For every aggregate scale Cronbach’s alpha was over .60, which is generally the lowest acceptable value for forming a reliable aggregate scale. Only variables that correlated at least .30 with the aggregate scale were accepted.)

Table 1. Results of the factor analysis: aggregate scales describing students’ experiences of their work communities.

Aggregate scale	Cronbach’s alpha	Items	Correlations of the item
-----------------	------------------	-------	--------------------------

			<b>with the aggregate scale</b>
<b>Social and interactive support<sup>4</sup></b>	0.82	- Collaboration with other people - Telling essential things - No bullying at the workplaces - No learning alone with questions and work-related problems	0.67 0.66 0.64 0.58
<b>Availability of individual guidance</b>	0.78	- Collaboration with the workplace trainer - Learning the rules of the game at the workplace - The availability of workplace trainer - Same treatment as among workers	0.66 0.59 0.56 0.56
<b>Active membership</b>	0.78	- Asking opinion and advice from student - Possibility to influence the way to do things at the workplace - Learning from student	0.62 0.62 0.61

Students' experiences of the work communities were mainly very positive: they felt they were given quite a lot social and interactive support (mean value 3.43, max. 4) and availability of individual guidance (mean value 3.34, max. 4) during their workplace learning periods (Table 2). The students reported that they were also able to give: regular workers learned new skills or knowledge from students (mean value of the aggregate scale active membership was 2.53, max. 4). Some differences were found between vocational fields: students in the field of social services and health care reported more social and interactive support than students in the field of technology and transport (mean value was 3.55 among students of social services and health care and 3.38 among students of technology and transport).

Table 2. Mean values of aggregate scales describing students' experiences of their work communities during their workplace learning periods (min 1, max 4)

<b>Aggregate scales</b>	<b>All students</b>	<b>Students of technology and transport</b>	<b>Students of social services and health care</b>	<b>Sig. between different fields of students</b>
	Mean value (SD) n = 649	Mean value (SD) n = 428	Mean value (SD) n = 221	<b>(Independent samples t-test)</b>
<b>Social and interactive support</b>	3.43 (.65)	3.38 (.69)	3.55 (.54)	p = 0.001
<b>Availability of individual guidance</b>	3.34 (.59)	3.35 (.56)	3.32 (.64)	p = 0.485
<b>Active membership</b>	2.53 (.71)	2.49 (.71)	2.60 (.69)	p = 0.071

<sup>4</sup> For the present study, the statements which formed this aggregate scale (social and interactive support) were transformed from negative forms to the positive forms.

We also examined the relation between students' experiences of their work communities and their learning and students' vocational identity formation at work. The results are presented at the general level only; more details (Pearson's correlation coefficients, some results of regression analysis) are given in Tables 3 and 4 in the appendixes. The results indicated that students' learning and vocational identity formation at work can not be explained solely by their experiences of the work community (Table 4). Nevertheless, we found some evidence of positive relations between students' experiences of their work communities and their learning and vocational identity formation at work. For example, intentional and active actions, such as availability of individual guidance which students reported getting in the workplaces, or students' active participation in the practices of the work community, seemed to promote their learning and vocational identity formation at work. Instead, social and interactive support, which students reported receiving, did not show a positive relation to students' learning and vocational identity formation during their workplace learning periods. However, if students felt a lack of social and interactive support, their negative learning results or negative attitude towards work strengthened. (Table 3 in appendix.)

### **How do the employees combat against constraints on learning?**

Although learning may be challenged and restricted in many ways among students and employees, much learning is nevertheless taking place. According to our data the various constraints on learning are combated or compensated for the creation of meaningful everyday practices. The aims of these fight-back strategies are to maintain one's vocational competence and membership in the organization on the one hand and indicate one's importance to the work community on the other. We found several such strategies. *First*, to fight against the institutional and structural factors inhibiting learning employees become even more invited with colleagues and seek to build good relationships between the people in their group or team. A sense of meaningfulness is created through commitment to new forms of community as these arise due to changing contexts. Although work may be experienced as burdening and routine-like and even overwhelming, maintaining of good relations between people practicing close to each other functions as a compensatory force against the more superficial local constraints on work and learning. Thus, instead of greater individualization and the adoption of a more entrepreneurial identity, employees use the strategy of committing stronger to the immediate community to meet change in their work-related domains.

This was constructed, for example, in Liisa's story about collegial support. Because of the organizational consortium two of her long term nurse colleagues have been placed to other areas. Liisa longs for the interaction with colleagues at everyday basis. Consequently, a new collegial community has emerged with other professionals working in the same area with her in the home care unit. Thus, the employees have developed a new kind of commitment under the changed structural and local circumstances.

*The second* fight-back strategy adopted by employees against organizational and local constraints on learning is maintaining a high standard of performance. All the informants emphasized the importance of "doing a good job". They found it important to take good

care of customers and patients and to be able to offer them the best products and services within their power. This strategy could also be described as professional pride. More experienced workers in particular found it essential to hang onto the principles of a job well done even if this was hampered by lack of time and other resources sometimes.

*Third* compensatory strategy emerged from the interviews was the status of work in relation to other domains of life. For many workers work is an important part of life and thus of self fulfillment. However, it is not necessarily the most important one. The interviewees reported that other areas of life, such as family life, friends and hobbies, are as important to them as their work, if not even more important. Many of the informants compensate for the pressures of work with other things in their lives. One example such ranking of the various domains of life is the interest people reported in continuously educating themselves. They also reported deliberately searching for new challenges outside working life. This is the kind of compensatory strategy with the help of which, at its worst, people prepared themselves for at worst possible temporary dismissals and redundancy. In addition, for many workers their environment (for example where they are come from) is a more important reason stay than their present work or work organization.

For all the nurses interviewed a big challenge was to separate their professional life from their personal life. In order to take care of their own well-being they needed to draw a clear line between work and free time. Distinguishing one's professional from one's personal identity and thus giving more value to other areas of life can be seen as a compensatory strategy in coping with work-related stress encountered at work. Realizing this strategy by turning the emphasis on your own well-being instead of the patients and their families requires actions also in the area of personal life. This was illustrated by Maija, who lives and works as a nurse in a rural area:

*“It is this thing when you live in a small town. I am known as a person to whom you can easily speak and call to – and here they do. I have AGAIN promised to myself that I will make an end to that. And I have already changed my telephone numbers unlisted. Maybe I need to get a new cell phone number, since some know my present number anyway.”*

*Fourth* compensative strategy for a few experienced workers is a kind of “a give up strategy”. By this we mean an attitude to give up developing one's competence and organizational practices. They feel tired because of continuous changes which take place in organization. Continuous development is not seen as important issue for their work as is the basic work tasks they try to accomplish well. They may also feel that their ideas and work is not appreciated enough or they are not listened to. This is why they are not willing to change things, for instance practices, which they feel are performed well enough at present. It is usual that these workers wait for their retirement and they feel that they have earned their pension. A typical example of the worker in this situation is Martti who has a yen for the old days when managers were interested in employees' well being and there was a good atmosphere and a sense of community in the workplace created by them. Martti is giving up of being initiative in his job because he is tired and fed up with

managers' attitudes and the ways they treat employees. He comes to work mostly for the sake of the salary and enthusiastically waits for his retirement in couple of years.

### **Discussion - Workplace learning and the development of professional and vocational identity**

Although the results emerge from the analysis of two different data sets gathered utilizing different methodological (quantitative and qualitative) approaches, we believe that they highlight many issues that merit further consideration and investigation. The results showed that the constraints perceived by the interviewees were mainly social in nature: many reported that the main constraints on workplace learning were related to their immediate local community and practice as well as to more institutional and structural factors specific to their work organizations. In contrast, only a few individual constraints on learning were mentioned. We see, however, informed also by current models and theories (see e.g. Billett 2006) on workplace learning, that individual and social aspects of learning are intertwined and constituted in many ways in workplace practices.

The students, in turn, also reported social factors to be of great importance in workplace learning. According to the results, availability of individual guidance and active membership of the work community promote both learning and vocational development at work. Social and interactive support as such, however, did not seem to promote students' learning or vocational development at work. Nevertheless, the existence of social and interactive support in the workplace seems to be crucial for students' identification with work. Thus, if students felt that they did not get adequate social and interactive support in the workplace during their workplace learning periods, they learnt negative knowledge, skills, and attitudes toward work. The results presented indicate that the appropriateness of the workplace need to be evaluated in terms of students' opportunities for learning the relevant skills, obtaining guidance and becoming active members of the work community as well as relevant social support. So, from the perspective of students, attention should also be paid to the social and interactive environments of workplaces. Thus we conclude that the most necessary conditions for workers' and students' learning are related to the feeling of "weness" that arises from individuals' active participation in the social community. This implies that the lack of active membership acts as a serious constraint not only on social togetherness but also on learning at work (see also Eteläpelto, Littleton, Lahti & Wirtanen 2005; Eteläpelto & Saarinen 2006).

The related concepts for *weness* include, for example, those of collective competence (Boreham 2004) and togetherness (Jensen & Lahn 2005). However these concepts are mainly based on shared *knowledge* or *competence* which is constituted mostly by teams which are determined by organizational structures. Shared competencies are something which can be learned, developed and trained inside the company. Compared to these concepts presented in literature above the concept of *weness* emphasizes the emotional solidarity and the active agency of employees (and students) in constituting their sense of *weness* in their local communities. Furthermore, in the construction of *weness*, it seems



that also other areas of life, not just knowledge and competencies needed in actual work practices, are important.

Despite of the many perceived challenges and constraints related to workplace learning the workers in the fields of nursing and engineering seem to compensate for these by developing different fight-back strategies. We described such strategies as developing a stronger weness in the immediate local community, maintaining a high level of work performance, strengthening the meaning of other areas of life or giving up. The first two strategies can be termed attachment strategies where the means of fighting back are found in cooperation with others practicing in the work community. The other two strategies can be termed bypass strategies, in which the constraints on learning are compensated for things outside the actual workplace and the social interaction which takes place in it.

Recent studies on subjects' work identities have shown a movement towards individualisation in subjects' identification with their work (Kirpal, Brown & Dif 2007). Individualisation implies that individuals' work orientations and commitment patterns as well as the coordination of their personal work biographies, which earlier were, shaped more on a collective basis, such as through their work organisations (Rhodes & Scheeres 2004), are now seen as the responsibility of individuals. Our study in the areas of engineering and nursing and vocational students, however, shows that the current trend towards individualization may not be the whole story. For example, among vocational students, the social aspects of the development of vocational identity are more in the forefront than the personal aspects (see also Harré 1983; Blåka & Filstad 2007; Virtanen, Tynjälä & Stenström in press). In the same way, the engineers' and nurses' fight-back strategies seem to be more traditional than described in recent studies (e.g. Kirpal, Brown & Dif 2007). The engineers' fight-back strategies are connected to close relations with colleagues and other areas of life as well as professional pride in producing functional products to meet customers' needs. Among the nurses, their professional identities are typically linked to a strong work ethos and moral commitment combined with a high level of responsibility and a certain degree of autonomy in the performance of tasks related to direct patient care. These forms of commitment and identification with professional ethics largely transcend any kind of organisational commitment or attachment to a particular employer. In addition, nurses show a strong commitment towards their communities of practice fostered through team working and mutual encouragement and recognition between colleagues. Thus, direct interaction with patients is a key element through which the nurses' work identity is sustained (Kirpal, Brown & Dif 2007).

#### *Fighting back strategies as means for active agency and identity construction at work*

As shown in our findings many fight-back strategies can be seen as strategies for practising active agency and the construction of individual subjectivity in relation to work. Such strategies have been elaborated in studies concerning identities and agency in cultural worlds, including the conditions in the workplace and situations outside working life. Holland (2003), for instance, has suggested that individual and collective improvisation represent important forms of practising agency. In improvisation, subjects

piece together existing cultural resources opportunistically to address present conditions and problems. Cultural resources are present in work communities and in their discursive practices. Using Foucault's analysis of power, she supports the idea that even within grossly asymmetrical power relations, the powerful participant rarely can control the weaker so completely that the latter's ability to improvise resistance becomes impossible. Thus, even in restricted conditions there always exist those moments of resourcefulness or rich points that represent spaces for practicing individual agency. In our study these moments are strongly linked with communities comprising of one's closest colleagues.

Subjects' strategies for combatting the social constraints of their work contexts are thus actually resourced from within the same cultural and social contexts that are embedded in the local work communities and constraints included in them. Thus, for Holland individual agency lies in the improvisation that people create in response to particular situations, mediated by their senses and sensitivities, and subjects opportunistically use whatever is at hand to affect their position in the cultural and social game. (Holland 2003, 279). Individual narrations and the use of discursive resources for the construction of these narrations represent important means for practising individual agency in work organisations, as has also been shown in this study. One might also ask why the features in the professional fields examined in this study seem not to be as diverged as may be expected (note e.g. gendered nature of the two work settings). Evidently the circumstances and constraints of learning are constructed contextually in different work communities and organisations. However, our findings seem to support the general tendency of increased fixed-term contracts and boundaryless work in contemporary working life (see e.g. Fenwick 2006; Sennett 2006) which represent the importance of new kinds of local communities. For the future research, various methods, such as ethnography, will be needed to more explicitly reveal the ways of how this "weness" is built in the workplaces. By ethnographic methods it is possible to grasp, for instance, the gendered practices of work cultures.

Consequently, much remains to investigate regarding how workplace learning and the constraints included in it are related to the identity construction of employees. In our study one of the most important means for linking learning and identity construction is to retain in part the traditional collectivity, but in modern and relevant ways. The ways used to fight back against the constraints on learning, creating a sense of meaningfulness in one's work and constructing one's professional identity seem to be very traditional, as is our finding about the importance of local working communities. Due to the growing importance of local communities in the workplace an individual needs to negotiate a place for himself as an important actor in his community. This can be achieved with the help of personal relations, a sense of "weness" or on professional grounds, manifested as a high quality of performance at work. For this reason, the groups working abreast and competing with each other prefer to distinguish themselves from other working teams.

One interesting question that requires further examination is why workers commit to and remain in their working organizations despite the many constraints on individual and social learning. The individualization of the post modern worker described by many critical authors (e.g. Casey 2006; Castells 2004; Beck & Beck-Gernsheim 2002) does not

very clearly emerge in our findings. On the contrary, there seems to be a strong endeavor to build new kind of “weness” and togetherness in order to survive in the rough and tumble of bigger structural changes in working life. It seems to be, however, that the ingredients for creating this kind of identification are rather traditional.

**Acknowledgement:** The present paper is part of larger research projects of “*Professional identity in working life communities – The challenges, constraints and dilemmas encountered in learning, and in the construction of professional subjectivities in creative and human-centered work*” (111184) coordinated by Professor Anneli Eteläpelto and “*Innovative learning space – The intermediate processes of individual and social learning in the workplace*” (117089) coordinated by Doctor Kaija Collin. Both are funded by The Academy of Finland.

## References

Alasoini, T. (2005). Haasteellinen työ auttaa jaksamaan pidempään [Challenging work helps to continue longer at work]. *Helsingin Sanomat*, Vieraskynä. 30.4.2005.

Baruch Y. & Cohen, A. (2007). The dynamics between organizational commitment and professional identity formation at work. In A. Brown, S. Kirpal, & F. Rauner (Eds.), *Identities at Work* (pp. 241-260). Dordrecht: Springer.

Beck, U. & Beck-Gernsheim, E. (2002). *Individualization: institutionalized individualism and its social and political consequences*. London: Sage.

Billett, S. (2002). Workplace pedagogic practices: Co-operation and learning. *British Journal of Educational Studies*, 50(4), 457-483.

Billett, S. (2006). Relational interdependence between social and individual agency in work and working life. *Mind, Culture and Activity*, 13 (1), 53-69.

Billett, S. (2007). Exercising self through working life: learning, work and identity. In A. Brown, S. Kirpal & F. Rauner (Eds.), *Identities at Work* (pp.183-210). Dordrecht: Springer.

Billett, S. & Somerville, M. (2004). Transformations at work: identity and learning. *Studies in Continuing Education*, 26(2), 309–326.

Blåka, G. & Filstad, C. (2007). How does a newcomer construct identity? A socio-cultural approach to workplace learning. *International Journal of Lifelong Education*, 26(1), 59-73.

Boreham, N. (2004). A theory of collective competence: Challenging the neo-liberal individualization of performance at work. *British Journal of Educational Studies*, 52 (1), 5-17.

Brown, A. (2004). Engineering identities. *Career Development International*, 9(3), 245-273.

Casey, C. (2006). Workers' subjectivity and decent work. In S. Billett, T. Fenwick & M. Somerville (Eds.) *Work, Subjectivity and Learning. Understanding Learning through Working Life* (pp. 229-245). Unesco – Unevoc Book Series. AA Dordrecht, The Netherlands: Springer.

Castells, M. (2004). *The power of identity*. Malden, MA: Blackwell.

Collin, K. (2005). Experience and shared practice – Design engineers' learning at work. *University of Jyväskylä. Jyväskylä Studies in Education, Psychology and Social Research*, 261.

Collin, K. (in press). Development engineers' work and learning as shared practice. *International Journal of Lifelong Education*.

Dauer Keller, H. (2005). A context of learning in the workplace. In E. Antonacopoulou, P. Jarvis, V. Anderssen, B. Elkajer & S. Høyurup, S. (Eds.), *Learning, Working and Living. Mapping the Terrain of Working Life Learning* (pp. 202-218). New York: Palgrave Macmillan.

Eteläpelto, A., Littleton, K., Lahti, J. & Wirtanen, S. (2005). Students' accounts of their participation in an intensive long-term learning community. *International Journal of Educational Research*, 43(3), 183–207.

Eteläpelto, A. & Saarinen, J. (2006). Developing subjective identities through collective participation. In S. Billett, T. Fenwick, M. Somerville (Eds.), *Work, Subjectivity and Learning. Understanding Learning through Working Life* (pp. 157-177). Dordrecht: Springer.

Fenwick, T. (2006). Escaping/becoming subjects: Learning to work the boundaries in boundaryless work. In S. Billett, T. Fenwick & M. Somerville (Eds.) *Work, Subjectivity and Learning. Understanding Learning through Working Life* (pp. 21-36). Unesco – Unevoc Book Series. AA Dordrecht, The Netherlands: Springer.

Fenwick, T. (2008). Womens' learning in contract work: Practicing contradictions in boundaryless conditions. *Vocations and Learning*, 1 (1), 11-26.

Harré, R. (1983). *Personal Being. A Theory for Individual Psychology*. Oxford: Basil Blackwell.

Hodkinson, P., Biesta, G. & James, D. (2008). Understanding learning Culturally: Overcoming the dualism between social and individual views of learning. *Vocations and Learning*, 1(1), 27-47.

Hodkinson, P. & Hodkinson, H. (2004). The significance of individuals' dispositions in workplace learning: a case study of two teachers. *Journal of Education and Work* 17(2), 167-182.

Holland, D., Lachicotte, W., Skinner, D. & Cain, C. (2003). *Identity and agency in cultural worlds*. Cambridge, Massachusetts: Harvard University Press.

Jensen, K. & Lahn L. (2005). The binding role of knowledge: an analysis of nursing students' knowledge ties. *Journal of Education and Work*, 18 (3), 305-320.

Julkunen, R., Nätti, J. & Anttila, T. (2004). *Aikanyrjähdys: keskiluokka tietotyön puristuksessa [Timetwist: white collar workers under stress]*. Tampere: Vastapaino.

Kalimo, R. & Toppinen, S. (1997). *Työuupumus Suomen työikäisellä väestöllä [Burnout among Finnish employees]*. Helsinki: Työterveyslaitos.

Kirpal, S. (2004a). Work identities of nurses: Between caring and efficiency demands. *Career Development International* 9(3), 274-304.

Kirpal, S. (2004b). Researching work identities in a European context. *Career Development International* 9(3), 199-221.

Kirpal, S., Brown, A. & Dif, M. (2007). The individualisation of identification with work in a European perspective. In A. Brown, S. Kirpal & F. Rauner (Eds.) *Identities at Work* (pp. 285-313). Dordrecht: Springer,.

Korvajärvi, P. (2004). Gender and Work-related Inequalities. In F. Devine & M. Waters (Eds.) *Social Inequalities in Comparative Perspective* (pp. 283-306). Blackwell: Malden (MA).

Lasonen, J. (2001). *Työpaikat oppimisympäristöinä: työpaikkajohtajien, opiskelijoiden, työpaikkaohjaajien ja opettajien arviot Silta-hankkeen (2+1) kokeilun kokemuksista. [Workplaces as learning environments. Impact of on-the-job training on networking and students' learning in the Bridge project (2+1 Experiment)]*. Helsinki: Opetushallitus.

Mulder, R., Kahmann, K., Laubenbacher, S. & Messmann, G. (2006). Characteristics of learning environments in secondary vocational education and the relation with work identity. Paper presented at the EARLI SIG Professional Learning and Development Conference. 11.-13.10.2006 Netherlands, Heerlen.

Rhodes, C. & Scheeres, H. (2004). Developing people in organizations: working (on) identity. *Studies in Continuing Education* 26(2), 175-193.

Riege, A. (2005). Three-dozen knowledge-sharing barriers management must consider. *Journal of Knowledge Management* 9(3), 18-35.

Schuetze, H. G. & Sweet, R. (2003). Integrating school and workplace learning in Canada: An introduction to alternation education concepts and issues. In H. G. Schuetze (Ed.), *Integrating school and workplace learning in Canada: Principles and practices of alternation education and training* (pp. 3-21). Montreal: McGill-Queen's University Press.

Sennett, R. (2006). *Culture of the new capitalism*. New Haven: Yale University Press.

Sharrock, W. & Button, G. (1997). Engineering investigations: practical sociological reasoning in the work of engineers. In G. C. Bowker, S. Leigh Star, W. Turner & L. Gasser (Eds.), *Social Science, Technical Systems and Cooperative Work. Beyond the Great Divide* (pp. 79–104). London: LEA.

Siltala, J. (2004). Työelämän huonontumisen lyhyt historia: muutokset hyvinvointivalttioiden ajasta globaaliin hyperkilpailuun [The short history of worsened working life: changes from welfare state to the global competition]. Helsinki: Otava.

Streumer, J. N. & Kho, M. (2006). The world of work-related learning. In J. N. Streumer (Ed.), *Work-related Learning* (pp. 3-49). Dordrecht: Springer.

Tynjälä, P. & Virtanen, A. (2005). Skill learning at work: Investigations into student experiences of on-the-job learning. *Learning the Skills*. Special edition of the Finnish Journal of Vocational and Professional Education, 106-116.

Virtanen, A., Tynjälä, P. & Stenström, M-L. (in press) Field-specific educational practices as a source for students' vocational identity formation. In S. Billett, C. Harteis & A. Eteläpelto (Eds.), *Emerging Perspectives on Learning through Work*. Sense Publications.

Yang, J-T. (2004) Job-related knowledge sharing: comparative case studies. *Journal of Knowledge Management* 8(3), 188-126.

## Appendixes

Table 3. Correlations between students' experiences of work communities and students' learning outcomes and outcomes related to vocational identity formation at work (Pearson's correlation coefficient)

Aggregate scales	Social and interactive support	Availability of individual guidance	Active membership
Learning outcomes	n =640	n = 644	n = 638
Independence	.22**	.41**	.34**
Vocational skills	.22**	.37**	.34**
Team work skills	.18**	.30**	.36**
Learning skills	.18**	.36**	.39**
Self-assessment skills	.08*	.23**	.29**

Thinking skills	-.02	.11**	.30**
Communications skills	-.10*	.09*	.36**
Negative learning results	-.52**	-.28**	.09*
Outcomes related to vocational identity formation	n = 641	n = 645	n = 630
Developmental orientation	.17**	.32**	.36**
Critical reflection	.16**	.28**	.26**
Strengthening of vocational identity	.05	.25**	.40**
Negative attitude towards work	-.45**	-.29**	-.13**

\*\* Correlation is significant at the 0.01 level (2-tailed)

\* Correlation is significant at the 0.05 level (2-tailed)

Table 4. Results of the regression analysis<sup>5</sup> for some dimensions of students' learning and vocational identity formation at work

Variables	Learning outcomes				Outcomes of vocational development
	Independence	Vocational skills	Learning skills	Negative learning results	Negative attitude towards work
R <sup>2</sup>	.21**	.19**	.20*	.28**	.21**
Social and interactive support	.13**	.12**	.11*	-.71***	-.48***
Availability of individual guidance	.32***	.23***	.21***		
Active membership	.24***	.24***	.31***	.12**	-.11**

\* p < .05. \*\* p < .01. \*\*\* p < .001.

<sup>5</sup>The degree of explanation is not very big but it is rather typical in this type of study. The studied phenomenon is quite complex because it is affected by many different factors and these factors are connected to each other by very complex ways. Therefore, in these kinds of studies the high degrees of explanation are rarely discovered.