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## Reformed firefighter training program in Sweden: conflicting instructor conceptions of professional learning

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### Abstract

In 2003, the content and form of Swedish firefighter training were reformed. New curricula and guidelines were implemented, instructors from different fields of knowledge were recruited and the training program was extended. In this study, 29 instructors were interviewed with a view to identifying and analyzing the salient conceptions of professional learning among them and how their conceptions have been affected by, and have affected, the implementation of the new training program. The results show that the dominant conception among fire and rescue instructors continues to be adaptation-oriented, and that it has not changed significantly, despite revised training goals and challenges from the development-oriented attitude prevalent among the risk and safety instructors. It is also shown that this fundamental contradiction between instructor conceptions is manifested in several dilemmas and conflicts during the negotiation and implementation phases of the new training program.

### Introduction

In connection with the enactment of the Civil Protection Act (Swedish Code of Statutes 2003:778), with its focus on increasing civil protection against accidents as well as preventive action, Swedish firefighter training was also reformed in line with the new legislation. The goals, contents and guidelines of the earlier basic training program were broadened in the new Accident Prevention Training Program (SMO) with the aim to increase the competence of the rescue services' personnel and also to qualify students for other professions in the risk and safety field. Briefly, the increased remit meant that the earlier rescue and operative orientation towards fire and rescue (R) was supplemented with a proactive risk and safety (S) component, and that these two primary components were to be considered equally important (Swedish Rescue Services Agency, 2001a).

The firefighter training reform also meant that the training program was extended from 15 weeks to 2 years and was given post-secondary education status. Furthermore, the changes in the SMO training objectives and guidelines clearly indicated a desire to supplement the previous experience-based knowledge orientation with science-based approaches and knowledge. Despite this development towards increased academization, the new program cannot be classified in terms of professional, semiprofessional or pre-professional, but rather as a professional training program that has taken a few steps towards being able to prepare students for professions

...that, in any respect, are organized, relatively autonomous carriers and mediators of societally sanctioned abstract knowledge systems which provide the ability to perform duties that are perceived as difficult, skilled and valuable to the public/client (*Brante, 2009:28. Author's translation*).

Given these changes and based on the concepts of adaptation-oriented and development-oriented learning (Ellström, 2006, 2010) and activity theory (Engeström, 1987,

2001), this article draws attention to the firefighter training instructors' conceptions of professional learning and how these have been affected by, and have affected, the implementation of the new training program.

A review of the research literature shows that there are very few studies on firefighter training compared to other vocational training fields. It appears that instructor and teacher conceptions of professional learning have mainly been studied in the fields of teacher education (eg Hammerness et al., 2005) and medical education (eg Bleakley, 2006), whereas such research into firefighter training seems to be more or less lacking. However, work-related learning has been studied among students (Göransson, 2004) and among firefighters (Sommer & Njå, 2011). Furthermore, the conceptions of professional firefighters (Baigent, 2001; Ericsson, 2010), as well as opportunities and barriers to professional development, have been addressed (Kobziar et al., 2007 and Butler & Goldstein, 2010). Finally, the need for changes in the rescue services is emphasized in international research. The one-sided focus on operational orientation and prescriptive approaches is not considered to meet contemporary safety and preparedness requirements in societies undergoing rapid change in several areas (Baigent et al., 2003; Childs, 2005).

Given these starting points and the identified gap in the research literature, this study intends to answer the following questions: i) What conceptions of professional learning is prominent among firefighter training instructors? and ii) In what ways have these conceptions affected and been affected by, the negotiation and implementation of the SMO training program?

#### *SMO training course in brief*

The SMO training program is a two-year basic tertiary program which qualifies students for work in the Swedish rescue services, but also for risk and safety work in municipal administration, government authorities and industry.

The general objectives of the SMO training program (Swedish Rescue Services Agency, 2002) include the requirement to develop students' cooperation and problem-solving and increase their ability for independent decision-making and conscious actions. It is further emphasized that, alongside knowledge based on proven experience, students should also acquire knowledge about current research. In addition, the educational guidelines (Swedish Rescue Services Agency, 2001b) stress the importance of an exploring and cooperative attitude in order to promote reflection and dialogue about education-related knowledge and values.

The introduction of the SMO training program meant increasing and diversifying the training staff with regard to professional and educational background, age and gender. While the R area recruited mainly male instructors with experience from rescue services, the introduction of the S area meant that academically-oriented professionals like fire engineers and social workers were employed, and that more women and younger instructors were recruited.

Within each college some 20 regular instructors are involved in the training program together with a number of rescue instructors hired from the rescue services. Finally, current education statistics reveal that a large majority of the instructors are male and that most students seek employment in the rescue services after completing their training.

#### **Previous research**

##### *The professional firefighter*

The firefighter profession is described in the literature by many firemen as a calling and a profession with strong team spirit and loyalty (Baigent, 2001, Ericsson, 2010).

The internal image of the competent firefighter is largely tied to practical experience, a well-trained body (Ericson, 2010, 2011) and to someone of concrete use to society through damage-limiting initiatives (Baigent, 2001). The association between working as a firefighter and a heroic status is illustrated in several studies (Baigent, 2001; Göransson, 2004), and Baigent (2001) claims that this ideal image still sets its mark on the profession. Mastering dangerous work elements like smoke diving is considered to provide a higher status than caring for or communicating with people (Baigent, 2001; Tracy & Scott, 2006). In line with this, Tracy & Scott (2006) point out the clear link that couples firefighting with hetero-normative masculinity, while Baigent (2001) maintains that these masculinity ideals can also be related to working-class values. Baigent (2001) further shows that theoretical work is regarded as a more feminine approach, which is also touched upon by Ericson (2010), which show how these attitudes contribute to the lower status enjoyed by instructors who work with theory-oriented teaching than by those who can refer to practical knowledge.

#### *Professional learning in rescue services and firefighter training*

Several studies, chiefly within the rescue services, deal with firefighter's professional learning. Within these, four themes can be identified, of which the three first may be termed *learning in practice* and the fourth as training-based *learning about practices*: i) Personal experience of exercises and rescue initiatives may embody knowledge and skills as "fire sense" (Lloyd & Somerville, 2006; Sommer & Njå, 2011), ii) Through accounts by experienced firefighters about problem-solving during rescue initiatives, inexperienced firefighters can take part of a joint experience base consisting of interpretation and assessment frameworks (Joung & Hesketh, 2006; Lloyd & Somerville, 2006; Sommer & Njå, 2011), iii) By participating in daily activities the less experienced can partake of the collective and silent knowledge manifested in the work methods, procedures and equipment of the workplace (Lloyd & Somerville, 2006; Sommer & Njå, 2011; Taber et al., 2008) and iv) Training including textual sources like training manuals and safety prescriptions can provide knowledge about practices. What is common to these studies is that professional learning is highly related to working life, where *real learning* is supposed to take place (Lloyd & Somerville, 2006; Taber et al., 2008).

Göransson's (2004) study on language-based learning in Swedish firefighter training shows that similar conceptions about professional learning prevail among firefighter students. Their view of themselves as practitioners with limited language skills is here contrasted with the aim of the training to theoretically base and verbalize the professional knowledge. The study defines, for instance, practical exercises, ready-made recipes and narratives as important development agents for student learning, while theory-oriented and problem-based teaching as well as literature studies are perceived as meaningless activities. Göransson's conclusion is that neither the rescue services nor the educational environment contains a tradition of reading, writing and critical examination. The instructors' role is described as vague and she asserts that they lack the educational tools to support students in text-based learning.

Baigent et al., (2003), who have studied educational cultures in fire prevention in England and their approach to changes in society, show that there exists a multitude of conceptions about professional learning, ranging from primarily developing a professional discipline and joint team behavior to strengthening personal development by providing more space for dialogue and individual responsibility.

#### *Professional learning for the future – development needs and barriers*

National and international research points to the needs and obstacles of development in training oriented towards the rescue services. In Persson's (2010) study of

interorganizational cooperation in organizations for crisis preparedness great deficiencies are observed in both organizations' and individual actors' familiarity with knowledge acquisition and learning processes, which leads to fragmentation and neglect of the societal perspective. Persson's conclusions are that an increased awareness of knowledge acquisition and learning about cooperation is needed within the organizations and that learning through dialogue, adopting perspectives and reflection should be prioritized. Studies by Kobziar et al. (2007) and Butler & Goldstein (2010) about American firefighter training highlight the prevailing opposition against changing the direction of traditional firefighting. Despite directives about broadening the mission to include proactive risk and safety work as well as organically sustainable development, the old orientation is still given priority. The authors indicate, for instance, how established structures and professional practice concur in curbing the necessary development of these educations.

### **Theoretical starting points**

#### *Adaptive and/or developmental learning*

Against the background of the study's aim to describe and analyze instructors' conceptions about professional learning, the concepts of adaptive learning and developmental learning are applied (Ellström, 2001, 2006, 2010). These concepts, which are primarily used to analyze learning in working life, are also considered relevant to this study, as instructors' conceptions about professional learning are supposed to have substantial bearing on both profession and working life. Moreover, these concepts should not be regarded as mutually exclusive, but rather as complementary aspects which can together create preparedness in individuals, groups and organizations for everyday expected tasks as well as for unexpected situations and problems (Ellström, 2001).

Adaptive learning emphasizes individual and group adaptation to and mastering of extant conditions. It may concern institutional demands on following directives that have been set up and on routinely learning to master tasks and methods. The basis of adaptive learning is the logic of implementation whose endeavor is to reduce variation, diversity and uncertainty in favor of promoting consensus, standardization and reliability in performing one's tasks. This form of learning may be salient also when individuals are socialized into an organization, which is a matter of adopting the code for how one should or must think and act in various situations. When unexpected problems occur there is a risk, however, that adaptive learning and routinized acting are not sufficient to understand the origin of the problems and offer guidance about future action. Ellström (2001, 2006) therefore underlines the importance of providing space within an organization for developmental learning, whose aim is to understand and handle complex situations and problems. Asking "What?" and "Why?" focuses not only on the solution to problems but rather on the use of increased knowledge and reflection to identify and define the situation, task or problem. One important prerequisite for facilitating developmental learning is, according to Ellström (2010), the creation of action space for experimenting and practically exercising alternative actions.

#### *Activity theory*

In order to analyze instructors' conceptions of learning and changes in these over time Engeström's (1987) activity theory model has been used. In this theory, man's consciousness as inseparably bound with the activity and the human mind's social nature is emphasized (Engeström, 1987). In other words, the instructors' conceptions are regarded as existing and evolving in a specific training activity and this activity is not seen as an externally influencing context, but rather as a creative power which is directly involved in the creation of the instructors' conceptions. Based on this theory, the study's interest is directed

towards change and development in firefighter training as an object-oriented and mediated activity in order to understand how instructors' conceptions are constructed and how they change through participation in this activity, but also how their conceptions affect and change the implementation of the new training program. Figure 1 shows Engeström's (1999) model adapted for an analysis of SMO training as an activity.

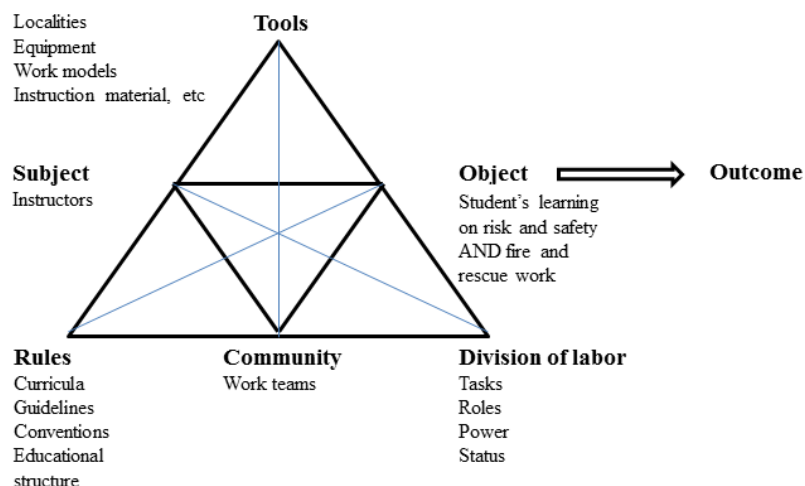


Figure 1. AT as a model adapted for analyzing SMO instructors conceptions and how they have been affected by, and have affected, the implementation of the new training program.

In this analysis model, the SMO training program under study is viewed as an *activity* where the R- and S-instructors (*subjects*) individually and collectively (*community*) perform various actions targeting the students' learning about preventive and operational action (*object*). The activity is mediated by teaching methods, physical tools etc. (*tools*), by curricula, guidelines and resource allocation (*rules*), and by the allocation of tasks, roles, power and status (*division of labor*). The object of the firefighter training has both a defining and motivating function in relation to society and provide the overarching motive for firefighter instructors' goal-driven actions (Engeström & Sannino, 2010). In other words, tensions may arise between instructors' goal-driven actions and the educational activity's overall object (Engeström, 1999).

The historical basis of the activity, and changes caused by contradictions within an element of the triangle, between elements and/or between different activity systems are aspects which according to activity theory are significant for activity systems (Engeström, 2001). In this study, this means that the firefighter training has its own history, which has characterized the elements of the activity and their relationships, and that internal contradictions between different elements can be driving forces for changes in instructors' conceptions and actions, and in the training activity.

The theory also points out that contradictions are often accentuated during periods of transition, when instability may occur due to changes in the elements and their relationships (Engeström et al., 1999). Thus, in this study the firefighter training reform is regarded as a transition from one activity to a partially new activity where changes have occurred in the overall aim (object), guidelines and structure (rules), staff composition (community) and task-allocation (division of labor).

Since the historical and systemic aspects of contradictions are not directly accessible in empirical material but only their manifestations, Engeström & Sanninos (2011) conceptual model, visualized in Table 1, has guided the analysis.

*Table 1. Manifestations of contradictions and their features (Engeström & Sannino, 2011:375).*

**Contradictions in change efforts**

<b>Manifestations</b>	<b>Features</b>
<b>Double bind</b>	Facing pressing and unacceptable alternatives in an activity system Resolution: practical transformation (going beyond words)
<b>Critical conflict</b>	Facing contradictory motives in social interaction, feeling violated or guilty Resolution: finding new personal sense and negotiating a new meaning
<b>Conflict</b>	Arguing, criticizing Resolution: finding a compromise, submitting to authority or majority
<b>Dilemma</b>	Expression or exchange of incompatible evaluations. Resolution: denial, reformulation

Even though contradictions can be driving forces for change, change does not always occur. Contradictions can both be difficult to define (Engeström, 1993) and be invisible and indisputable (Murphy & Rodriguez-Manzanares, 2008); invisible because culturally established views and actions can be seen as taken for granted by the participants, and indisputable as they may be considered difficult to confront.

*Study implementation*

This article is based on two interview studies conducted in 2010 and 2012 with a total of 29 interviewees, 7 women and 22 men. The second study was carried out in order to extend the data collection with more informants. The first study consists of interviews with 22 instructors from the two firefighter training colleges. The instructors were active in the R area, the S area or in both areas and their instructor experience varied from 8 months to 26 years. The selection of informants was made in accordance with the training management's recommendations, which were based on an ambition to achieve a representative distribution of instructor categories, gender and age.

The interviews, which lasted between 60 and 90 minutes, were made at the two colleges and were recorded with a digital recorder. Inspired by activity theory, an open-ended and thematically organized interview guide was designed for these studies which consisted of the following themes: i) The instructors' conceptions of professional learning - i.e. their views of what students should learn and why and when they believe that learning occurs ii) whether and how their conceptions have been affected during the implementation of the SMO training program and iii) whether and how their views have had an impact on the implementation of the SMO training program.

The analysis of the interviews was carried out in four steps: i) transcribing and reading the entire interview material, ii) a systematic categorization and empirical coding of all interviews, based on Hjerm & Lindgren's (2011) recommendations for the analysis of qualitative interviews, and iii) a compilation of codes in empirical themes through a comparative re-reading and interpretation process. This process continued until saturation occurred and no new themes could be defined (Kvale & Brinkmann, 2009). The fourth step

was iv) an analysis of these themes in relation to Ellström's concepts of adaptation and development-oriented learning and Engeström's model of activity systems.

The respondents behind the quotations in the results section were categorized on the basis of each person's teaching area: R/S, gender and instructor experience (0-3 years = less experienced (l.e.) and 3 years' or more experience = experienced (e.)). The latter borderline is motivated by the 2-year duration of the training program.

#### *Instructor conceptions about professional learning*

Two dominant conceptions of professional learning are prominent among the instructors. One is widely shared by the R-instructors while the other is most prevalent among the S-instructors.

#### *Professional learning: learning of specific practical skills for work in emergency services*

In this view, which dominates among fire instructors (R), the education should primarily contribute to developing students' practical professional skills in the form of familiarity with equipment, methods and techniques to enable them to operatively handle various kinds of accidents in a confident and safe manner. The practice and criteria of the rescue services are often stated as the yardstick for these skills, to which training and teaching should relate. The training should, in other words, be stamped by the endeavor to educate for and adapt to the norms and criteria attributed to the professional practice of the rescue services.

*This is practical training program, you must feel the stuff, test, instruct, exercise. It's a question of getting a feeling of control, that you are confident in yourself and how things and routines work (R, l.e., male).*

*We must spend more time on exercises to reach the same level as firefighters who work in the rescue services (R, e., male).*

To enable such learning, the emphasis is on teaching dominated by quantitative training and drill-type exercises, which are considered to turn knowledge and skills into second nature and part of the muscle memory. The instructors' expert judgment of what is supposed to be right and wrong is further regarded as a much debated but nevertheless established and efficient way of speeding up the learning of the "right skills". Hence, learning is supposed to be best served by a combination of frequently recurring exercises and instructor corrections, which may finally attain so-called embodied learning, adapted and related by students to the rescue services.

*Train something until it becomes second nature that is what they must do to learn something (R, e., male)*

*We are very drill-minded here. We run an exercise and then – this was OK and that was bad and then we go home. But it's also important, I guess, that we take in more of the students' reflections about things they are doing (R, l.e., male).*

#### *Professional learning: learning as reflection and understanding of complexity and diversity*

Among the instructors within the risk and safety area (S) the conception is that knowledge oriented towards the understanding of both actions and situations should be the education endeavor. Ready-made routines and checklists are thus discarded in favor of subject-integrated learning which can facilitate the understanding of the complexity and the circumstances prevailing in risk and injury situations and in relation to the resources available. Prioritizing cognitively oriented knowledge is further considered decisive for promoting developmental learning with individuals taking their own responsibility.

*We must create thinking individuals and that is individuals who have a basic knowledge that they are then helped to develop further (S, l.e., male).*

*We can't teach from a list of steps 1,2,3. That's what we can do if we are starting an engine. But in our job we must adapt to the situation all the time. It depends on the damage and what the accident looks like. That's why we have to train thinking people (RS, e., male).*

Within this conception, student learning is primarily linked to follow-up reflection talks, where implemented actions and exercises can be processed, taking their pre-understanding, training experience and questions as a starting point. The emphasis on the exchange of experience and the space provided for students' own analyses are considered to help students develop a broader, deeper and verbalized understanding.

*The most important thing in learning is to make room for reflection and critical thinking, to make students analyze themselves and the idea that things are not guided by rights and wrongs. It is also important that everyone gets a chance to share their thoughts (S, l.e., female).*

### **Instructor conceptions in negotiation and practice implementation**

#### *Fire services vs academia – an encounter between different practices*

Earlier firefighter training is described in the interviews as a practice with clear norms and established teaching routines. Professionally experienced men, often with a background in the army and a starting point in well-trying and qualified professional experience instructed and took charge to help young men from the rescue services to acquire the relevant operative knowledge and skills. There was thus a direct link between the content and work forms of the training and profession and a distinct hierarchy. In the current training program, most instructors in the R area are men with experience of the rescue services and the previous training program, and the area is described as clearly founded in the exercise-related norms and routines of the earlier training program. Parallel with this area runs the S area, developed by academically trained instructors whose experience derives from other professional practices. Many of them are women, several of whom are young and have relatively recently completed their education. The design of the S area is described as something new created within the training program at the introduction of academic teaching forms.

*Within the S area they had no history to fall back on so they created quite a lot of new things. It was fire engineers and academics that started and we probably ended up closer to a university-like approach. Within the R area we inherited the 15-week training program, which was more of a controlling nature. Due to this we keep using the same exercises and concepts even though they should have been adapted to a new group of students (SR, e., male).*

#### *Negotiations about training design and resource allocation*

It further emerges from the interviews that the implementation of the training program has been characterized by continual negotiating between the R and S instructors with respect to which conception should have interpretative privilege in the design of the training program and how resources should be allocated. It also seems clear that this negotiation has been dominated by the R instructors, for example in discussions about the aim and direction of the program. Among R instructors the transformation of the educational direction is



described in terms of misleading professional preparation, and it is claimed that the present allocation of time and resources is at the expense of the necessary proficiency training. Among the S instructors, who advocate more integrated and science-based understanding, this negotiating is rather described as a subordination of the minority, which has to adapt itself to the R instructors' needs of educational space and resources.

*I think that in SMO they overshoot the mark in the theoretical modules. Excuse my expression, but there are a lot of academics sitting there demanding academic reports, but the students are not supposed to become academics. They lose training on the practical side – it is supposed to become second nature and produce instinctive reaction. (R, e., male).*

*There is an enormous focus on rescue, so the risk perspective comes second all the time. Maybe it's because our voices are fewer. (S, l.e., female).*

What the interviews also illustrate is that the dominance of the R-instructors' conception and goal-driven actions can be maintained through stable structures that promote rescue-oriented resource allocation as well as through recruitment profiles that give chief priority to professional experience and subject competence. The opportunities for the S instructors to place the S area on a par with the R area, as well as the transition of the entire training program towards a more integrated and process-oriented approach, are thus limited in favor of continued stability in line with current norms.

*The S parts demand less resources, an instructor can manage a 4-week course on his own, while an R course may require 8 instructors per day for 4 weeks. To stitch together these courses is pretty hard and complex (R, e., male).*

*If there's something that should be taken away, it is the S parts and not the R parts. But society develops fast and we lack resources to develop the S area. (S, l.e., female).*

*When instructors are recruited it is above all professional experience and technical knowledge that is asked for, rather than pedagogical knowledge. Then they add a little pedagogy and you suddenly become an instructor (S, e, female).*

#### *Historically rooted conceptions about the profession*

The R instructors' high status and continued dominance in the training program can be further related to an established image of the firefighter as primarily an experienced man who actively fights fires and saves lives. It emerges from the interviews that this image is still looked upon as characterizing professionally related conceptions both in municipality rescue services and in the current firefighter training program. This image is, for example, described as being reproduced in educational films and in the interaction between teacher instructors and affirming students as well as in the heteronormative assessment to which women instructors and students are exposed.

*It is so established in municipalities and in the rescue services that you wait for something to happen before you act, and to change this attitude is a tough deal. Most rescue operation heads and municipal representatives probably realize this, but at the firefighter level they think that their operative work is neglected (SR, e., male).*

*The image presented about the training program in advertising films is totally wrong. Students see a surrealist picture in a film about a strong fireman who is made into a hero (S, e., male).*

*Since I have been around as a rescue team leader for a number of years I am raised to the skies by the students. They swallow whatever I say. Because most of them want to become firefighters they think that this is a person who really knows the job (SR, m. e., male).*

*To be a woman instructor in a male-dominated profession like this means that I have to be ten times as good as a male colleague. It's much easier to criticize me and question my competence, something nobody would dream about telling a man. It's the same for our women students, too (S, e. female).*

### *Change ambitions and change resistance*

It is mainly among the S instructors that voices are raised about the necessity of changing the training program in line with reform intentions and legal changes. At the same time there is evidence of a strong resistance to change, based on established conceptions about professional learning as well as on teaching tradition and training program structure, all of which is considered to contribute to the very slow transformation progress in the program. What is specifically mentioned is the strong propensity among the R-instructors to stick to well-tried concepts and routines as well as structural obstacles such as increased division of labor, subject specialization and a heavier workload, which taken together contribute to limiting the opportunities for dialogue and development initiatives in the training program.

*The SMO program with its orientation towards preventive action is exactly what is requested in society today and this was also the intention of the law. But it is hard to break with the tradition that has developed for so long within fire services. The firefighter program basically looks the same as it did in 1986, when the Rescue Services Agency started it. (S, e., male).*

*Within R they trust to their tried-out concepts and routines and are not that keen on bringing in anything new. More than pointing out concepts that are good and not diversity. Within S people are looking more for new research that can enrich the teaching and suggest alternative approaches. (SR, e., male).*

*Even if you find ambitions here and there it's so easy to fall back on old-fashioned whole-group teaching and communication in the field, with the instructor showing everything and just keeps talking. There's a feeling that there is no time for changing teaching. Some instructors have upwards of 35-36 classes a week (S, e, male).*

*It tends to become more and more subject-based. We used to be generalists, but now everything is split, I'm afraid. We don't cooperate and we don't know what the others are doing (SR, e., male).*

### **Analysis**

The analysis of the results shows that the conception of professional learning that is dominant among the R instructors, i.e. extensive skills training following the recipes and instructions and embodied learning, largely appears to be oriented toward what Ellström, (2001, 2006, 2010) defines as 'adaptation-oriented learning'. Although some R instructors express a need to combine adaptation-oriented learning with reflection and understanding, it

seems that the dominant view remains and continues to be reproduced by new, younger instructors. Furthermore, it appears that this orientation is reinforced by their argument that the training should primarily be focused on the demands of the emergency services. Hence, the driving motive seems to be to train students for a taken-for-granted professional practice and, by adapting the training program to this practice, maintaining the historical link between training and profession. The findings regarding this dominant conception also touch upon results from previous research in rescue services and firefighter training, for example the importance of being able to operate safely in hazardous rescue operations (cf. Baigent, 2001), actions based on ready-made recipes and instructions (cf. Lloyd & Somerville, 2006), that learning largely is about embodied learning (cf. Sommer & Njå, 2011) and that it is practical experience with the support of experienced male experts that form the basis of the development of the firefighter's professional competence (cf. Ericson, 2010, 2011; Tracy & Scott 2006).

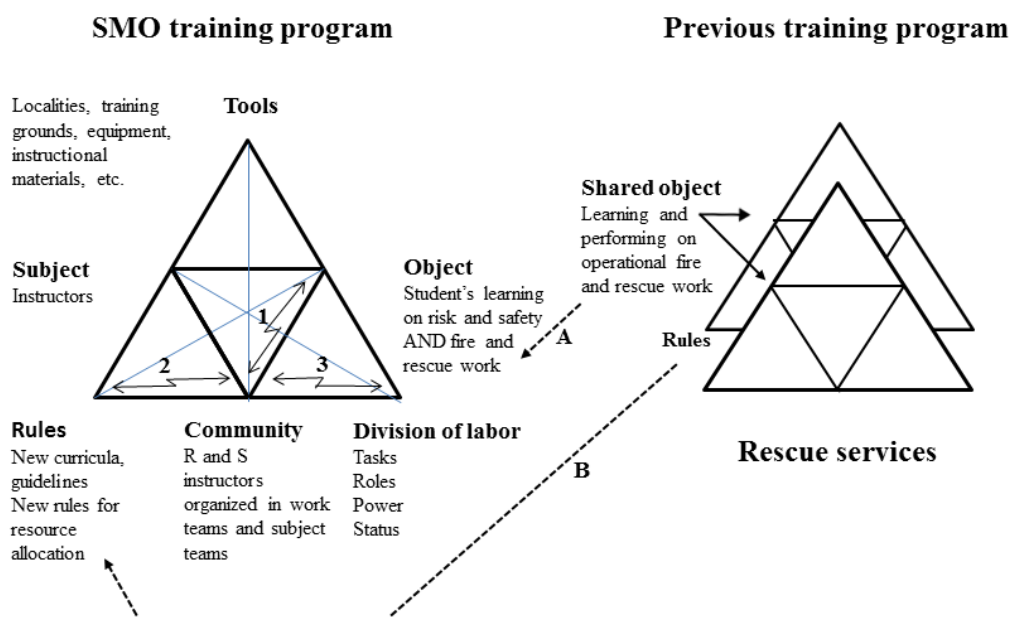
The S-instructors' conception, however, can be seen as being more oriented towards developmental learning with the emphasis on declarative and developmental knowledge that can prepare students to handle complexity and diversity. They believe that an important aspect in the students' acquisition of an understanding of complexity is to involve the integration of subject knowledge of various kinds and to point to alternative approaches based both on proven experience and research-based knowledge. Part of this approach concerns talking about learning in connection with actions where students are allowed to try and fail, but especially during subsequent reflections where the participants' different experiences and interpretations of situations and actions can be verbalized and problematized. This notion of learning may thus be said to be in line with the conclusions presented by Baigent (2001), Göransson, (2004) and Persson, (2010), who all highlight the necessity of dialogue and reflection in order to develop learning within rescue training and teaching.

A further analysis of the results, based on the activity theory model (Engeström, 1987, 2001) and visualized in Figure 2, shows that the R instructors' conception of professional learning can be traced to the prevailing views in the previous training program and to approaches attributed to firefighters working in the rescue services. A consistent picture is given of how their conception is reproduced over time and that this conception is rooted in the operational orientation of the previous training program and the rescue services. The R-instructors' efforts to focus the program on work in the rescue services thus suggest that the object of the previous training program and the rescue services, which is chiefly operational, still has a great impact on how they respond to the new twofold training object (preventive and operational orientation). The fact that both the firefighter training and the rescue services have had an expanded object for many years and that the training qualifies students for other professions are thus aspects which do not seem to affect the consensus view of the R instructors. A comparison of the R instructors' conception and that of the S instructors', which is more oriented towards the new educational goals, also strengthens the impression that the differences in conceptions are fundamentally about how these instructor groups view the new training object.

For the R instructors, this object can be described as *students' professional learning for operational fire and rescue work*. This view of the object can also be seen as being heavily influenced by the object (A) and the rules (B) of the previous training program and by the rescue services, namely that professional learning and professional practice are primarily all about operational work. Among the S-instructors, the object can be seen as *students' professional learning about preventive risk and safety work as well as operational fire and rescue work*. This broader view of the object means that training can be related to a broader labor market but it might also be said to contain an ambition to make the training a driving force for development in the firefighter profession. In this analysis, the relationship

between these different conceptions of the object is seen as a fundamental contradiction (1), which means that the object of the firefighter training cannot be regarded as being collectively shared by the instructor community.

The analysis further shows how this contradiction has had an impact on the negotiations about how the training program should be designed and implemented. As the results show, there appears to be an interaction with several tensions, where the R instructors seem to have a strong interpretative privilege compared to the S instructors when it comes to how training elements should be prioritized, planned and executed and how resources should be distributed. The fundamental contradiction is manifested in this interaction as dilemmas and conflicts within the working teams (community), as it seems that their opinions differ on how training guidelines should be interpreted and resources allocated (2) and on the distribution of power and status (3) that prevail in the training program.



Using Engeström & Sannino's (2011) conceptual model, the way in which the R instructors criticize and argue about the twofold object of the training, the academization of professional learning and the reallocation of resources can be described as an indication that they perceive these changes as a *conflict*. Given their effort to maintain their conception of professional learning and the "old" object of the training, the results show that they have successfully managed to affect the design and structure of the training program in the direction they desire (cf Kobziar et al., 2007; Butler & Goldstein, 2010). By arguing for the need for extensive practical exercises, additional experience and subject-based expertise, earlier structures for resource allocation and recruitment appears to continue to be reproduced in the new training program. The S instructors, by contrast, who describe the twofold object of the training as necessary in view of developments in society, point to several *dilemmas* that arose during the negotiation and implementation of the new training program. Despite their intentions to develop and integrate the S area in line with the new curricula and training guidelines, they point to limited opportunities to do so due to inadequate resources and their having only a marginal influence due to the existing power and status distribution (cf Baigent, 2001, Ericson, 2010). The analysis thus indicates that the S-instructors' conception of professional learning has not had any significant impact on the implementation of the training program.

## Conclusions

Instructors' conceptions of professional learning can be studied in many different ways. In this study, the use of the concepts of adaptation and development-oriented learning and activity theory have enabled an analysis from a practice and change perspective. By viewing the instructor' conceptions as being historically and socio-culturally based in an educational activity, and education reform as a potential driving force for change in an activity, it has been possible to analyze not just the instructors' conceptions as separate phenomena, but also how they affect, and are affected by, the educational reforms.

The reformation of the firefighter program can be seen as a radical change of the aim, content and form of the training program where the intention was to enhance the competence in the rescue services and to enable new professional careers. As the study shows, this change has contributed to the emergence of a fundamental contradiction between the instructor groups' different conceptions of professional learning and of the object of the training. The fire and rescue instructors' operational and adaptation-oriented conception seems to be continually reproduced with reference to a taken-for-granted and stable professional practice. It is also evidenced that it has affected the negotiation and implementation of the new training program. However, the risk and safety instructors' conception, which in view of developments in society is oriented towards an integrated and development-oriented learning, appears to have been marginalized. In this respect, the established distribution of power and status within the training program seems to have been an important aspect that has contributed to their ideas not being considered in the negotiation and implementation.

Finally, it can be concluded that the defined contradictions in firefighter training have so far not been sufficient driving forces for change, either in the dominant adaptation oriented conception or in training practice in general. Rather, the design and structure of the new training program can be described as a mere costume change, as the driving conception of professional learning and training purposes in many respects is the same as before. In light of the discrepancy that seems to exist between the reform intentions and the dominant instructors' conception, it would seem that active and long-term efforts are required to achieve the necessary balance between the twofold object of the training and between adaptation and development-oriented learning. Such a "balanced" firefighter training may likely be a major driving force in the development of the firefighter profession. If this change is not achieved, there is a risk that various stakeholders will demand that the training program be divided into two separate parts.

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