

More like real life—Motivational methods of teaching in upper secondary school

*Ewa Ivarsson-Jansson, Karen Cooper, Harriet Augustén, Marie Frykland
(Department of Education, Mid Sweden University, Härnösand S-87188, Sweden)*

Abstract: Motivational methods of teaching are topical subjects and much discussed issues regarding schools and education. The first question of our study covers student motivation and students' perception of their own schools' teaching methods. The second question reflects on how upper secondary school teachers perceive their roles as teachers, their thoughts on acquirement of knowledge and how learning takes place. The third question treats the subject of how school and education is organized. The upper secondary school the authors chose for the case study is a school that recruits students on a national basis and is directed towards the education of fire and rescue service personnel. The programme follows the national science curriculum and gives qualification for further studies at most universities. The school started in the autumn of 1998 and is known for being successful at working with student involvement, responsibility and subject integration. The study which was conducted during the autumn of 2007 included 32 students from two of the learning groups from the same year and started on the day of introduction of a new theme and finished with their presentation of results. The authors made observations, interviewed and through questionnaires studied how students comprehended the schools' working methods. We also interviewed their teachers and headmaster. The theoretic standpoint is Activity Theory (Chaiklin, S. & Lave, J. 1996; Knutagård, H., 2002; Vygotsky, L. S., 1986). The conclusions are that the students are encultured into a school's activities that are similar to what students perceive as that of real life. It gives meaning and motivation to learning and makes it meaningful. They identify their own responsibility and cooperative learning as the most important parts. The teachers' own learning process and planning work is parallel to the work forms applicable to the students. They are all interdependent of each other since all the work areas are thematic. The school can be seen as an activity system where members interplay and communication develops a common culture.

Key words: motivational methods; teaching; cooperation; upper secondary school

1. A new knowledge movement required

The profession of the teacher has been an important feature in debates at local and national levels for many years in Sweden. At the national level, there has been a movement to raise the status of the teaching profession by

Ewa Ivarsson-Jansson, Ph.D., Department of Education, Mid Sweden University; research field: teachers learning and professional development.

Karen Cooper, M.Ed., Department of Education, Mid Sweden University; research field: teachers learning and professional development.

Harriet Augustén, M.Ed., Department of Education, Mid Sweden University; research field: teachers learning and professional development.

Marie Frykland, M.Ed., Department of Education, Mid Sweden University; research field: teachers learning and professional development.

increasing academic focus on teacher training, while employers of teachers have criticized teacher training for not providing teachers with the necessary practical requirements for teaching. They claim that researchers have not answered the questions posed by practicing teachers.

In the Swedish debate of today, it is apparent that there are discrepancies regarding the importance of working with the social development of students and that of subject knowledge.

The debate tends to be a polarization although the national curriculum does not express any opposition but rather, that both sides can be seen as two sides of the same coin.

Although generally speaking, every school political reform has aimed at minimizing the distance between different teacher groups, there still remains tension between them. When Ann Lytsy interviewed one of Sweden's most reputable professors of pedagogic (Lytsy, 2004, pp. 35-51), Ingrid Carlgren, she said that she found it necessary to provide for the future. Both the school and the working force of teachers need a new conception of what knowledge is Carlgren (Carlgren, I. & Marton, F., 2003) would like to see a new knowledge movement based on a way of viewing knowledge that "instead of knowledge being seen as a substance, is seen as a relationship between humanity and the world" (Lytsy, 2004, p. 195).

How can teacher training be a part of this new knowledge movement and provide the next generation of teachers with practical skills based on theoretic consciousness; can teachers who are participatory in creating a modern school that educates people participate in the forming of society? This requires an ability to live in and with different cultural contexts (Lytsy, 2004).

Teacher training at present is going through a phase of development where the present government in their political statements emphasizes the importance of knowledge of subjects in the school of the future. The patterns of communication found among the young of today influence teacher training and therefore teacher training must modernize to answer the needs of the younger generation.

2. Choice of work methods influence what knowledge means in school

At the two latest conferences of Asia-Pacific Educational Research Association (APERA), problem based learning (PBL) has attracted attention. Several lecturers highlighted the possibilities of developing this method to adapt young people learning to the modern society. In Sweden this method is used mainly in the training of doctors and other health care personnel.

The Mid Sweden University's teacher training department has tried to modernize the work methods of certain courses, e.g. PBL and cooperative learning, but the methods have not had much penetration in the courses as a whole which is essential for the methods to gain a stronghold and thus enabling an evaluation.

In this study we have examined the pedagogical work in an upper secondary school to enable us to reflect on the teaching and learning environments that our student teachers will, when qualified be working in. What will the consequences of our discoveries have on teacher training?

This study was carried out by teachers and researchers from the university and the research project Teachers' Learning (Lärares Lärande). Our intention was to procure a picture of how students and their teachers experience the work methods and organization of teaching and learning in a school that is known for its exciting and successful pedagogical methods. In the study we used a questionnaire, recorded interviews, filmed observations and conversation.

In the following part of the report, we start with a description of the school and then present how problem

based learning is carried out in the school. This part is followed by how students, teachers and headmaster experience the working methods. We conclude the paper with a theoretical analysis, findings and questions for the future.

3. The rescue service in upper secondary school—A school inspired by reality

The school we chose for our studies is a school in our region with a very good reputation that has chosen to work with active student participation. It is the only Swedish nationally recruiting school, specializing in preparing rescue personnel. It is closely linked to The Swedish Rescue Service Agency (SRSA). The school and SRSA share the same premises, facilities and to some extent the same teachers. This means that they have insight to the Rescue Services' work and are able to take part in some of their activities.

The programme is based on the National Programme for Sciences, which means that the students gain qualification for studies at university level in most subjects. The school started in the autumn term of 1998. Today the school has a total of 96 students divided into three-year classes. There are nine fulltime and five part-time teachers employed. The headmaster and the teachers are responsible for both the teaching and administration.

Each year course is divided into four learning groups of eight students who during the school year work in close cooperation. New learning groups are formed at the start of the new school year. This means that during the three years period every student at some time has worked in cooperation with every other student. New students are introduced to this work method by the older students who therefore take on a greater responsibility in the higher year classes.

An example of this is when we meet the second year course at their introduction to a new area. The first year course is also present to learn how the work methods are used and they also follow the learning group as observers to learn the work method. The first year class has just returned from a field trip where the third year class were responsible for the planning of the trip and the group dynamic exercises in teambuilding. The students are the resources for each other's learning.

The students of the learning group have been given different roles that vary between the learning group meetings. One student is the chairperson and is responsible for keeping to the structure and time of the process as well as summarizing what conclusions the group has come to. Another is the secretary who writes on the whiteboard what the students have said. The other learning group students are responsible for playing an active part in the process. The teacher acts as a coach by providing help if the students get stuck and by seeing that the framework of the project is adhered to.

4. Theme work *Sing Higher Little River*

The theme for the second year class is examining a water ecosystem. The theme is introduced in the auditorium to all the second year students. On the screen a film of beautiful water scenes is shown and at the same time music alluding to water is played. The theme has been named *Sing Higher Little River*¹.

When all have seen the film and heard the music one of the teachers presents the work area. The teacher explains that the aim of the theme is that the students should suggest measures to achieve a better water environment in a water ecosystem that is situated not far from the school. The assignment has been commissioned

¹ *Sing Higher Little River*, a free translation of the title of the music "Brusa högre lilla å", by Björn J: son-Lind.

by the County Administrative board in Västernorrland. The students will at a later date present their findings for a representative for the County Administrative Board's Department for the Environment, who will evaluate the results from different aspects. The material will also be used as a basis for further action by the County Administrative Board.

The first group meeting is started by the secretary who writes on the whiteboard the aims of the theme. The students together explain the group's interpretation of what the initial point of the theme is. There then follows a brainstorming session where the students freely share what they already know and can readily associate to, regarding the theme subject. During the next phase, the students systematize the inventory from the whiteboard into different problem areas and issues for questioning. They review and evaluate the group's combined knowledge of the areas in question before singling out one or more frame questions. Here the learning needs are defined in relation to the frame questions that the group have agreed on. Students survey the timetable and the resources available. Examples of what is available for this theme are: learning group meetings, lessons, excursions and laboratory experiments. What should be presented and what methods of presentation should be used for this theme? The next three weeks of work are then planned together by the group. The examination will consist of a report, cross-group presentations, presentation for the third year class, laboratory rapport and finally a seminar for the County Administrative Board.

5. Student cooperation and responsibility—It is more like real life

Through both the interviews and the questionnaire, it became apparent that the students were very positive to the school's work methods. What is often mentioned is that the students and the groups take responsibility for their own learning. Many state this as something very decisive even though they did not understand it at the start of the course.

When I first got into it I thought it was a little strange. I didn't really know what it was. Before I was so used to having the teacher standing in front of the class telling us everything and then we having to write it all down then having a test on it as well. (Boy interview learning group 22)

The students also mentioned that they practiced cooperation abilities, planning and structuralising of studies. One student thought that although she, during the first theme work, felt an uncertainty and did not understand that she had to take advantage of the time given found it different when she got into the swing of the work method.

Now one gets to grips with it from the beginning so that one gets into a pattern of planning. (Girl interview learning group 24)

Its useful learning to take responsibility like we do here ... because when one comes out into the real world you don't get homework. And then our way of working is also realistic in the way that we take responsibility for our own acquirement of knowledge. I mean we do not get all our knowledge from the teachers here ... but rather we get it by ourselves and that's what really happens in the real world. (Boy interview learning group 24)

The students say they acquire good subject knowledge. They emphasize that they have a deeper understanding of the subject when the subject is integrated through theme work.

Yes, I think that the integrated subjects also give one a deeper understanding of what one is doing, when one can put factual knowledge in a context I feel maybe most significant for this school, is that the knowledge that we acquire, we are then forced to put into practice ... and something that's enormously useful. Since the knowledge you cant utilize is not worth much. (Boy interview learning group 24)

The interviews and the questionnaire both emphasize that each student has as much responsibility for the combined learning of the group. Everyone is interdependent on each other. They say that they learn from and with each other.

I think it's really important that one takes enough space ... that is needed in ones working life as well. (Girl interview learning group 22)

I have as much responsibility as xxxx so that he is able to learn something so it is like not just me that has to learn but if the other seven haven't learnt, then the group has failed. (Girl interview learning group 22)

Working in the learning group provides many possibilities for personal development and just as in the working life to come one does not choose workmates but must learn to cooperate and respect one another irrespective of ones' feelings for each other. Working in the learning group can lead to conflicts and these are used to learn how conflicts can be resolved, and these become part of the course. A student writes that they are provided with the tools to resolve conflicts and this in turn gives them a useful experience for their future work life.

The students find that learning is made easier when theory and practical work are interwoven. At the beginning of the theme work, curiosity is awakened and they start to consider what they need to learn to reach their goal. They say that new questions arise motivate them to solve the tasks that are needed to reach the goal. The students feel that they, within the group, can choose ways themselves to reach the goals and this makes the studies more entertaining. They can influence the way in which they learn and this way become aware of their own learning and realize that they must think in new ways.

You come to a seminar with all your new knowledge—You come out with a wider knowledge since you've heard others arguments. (Boy questionnaire)

I learn best by talking and listening and a seminar is a mixture of this. One listens to others opinions and one develops the problems and discussions. (Girl questionnaire)

6. The teachers' cooperation and responsibilities—We are the thirteenth learning group

Most of the teachers have worked at the school since the start in 1998. They are experienced teachers who have developed their views on knowledge theory and their work methods together. They know the school curriculum and are used to working with many processes at the same time. They try to find topical events to use as starting points for the students learning. The topic could be Burma, the Katrina catastrophe, a war, the Tsunami or French political disturbance.

The challenge for us as teachers is to make sure the students understand the background and that they can put the events and topics into a wider perspective. (Adam)

Mark means that work method builds on the fact that the teachers themselves often do not know the answers and this demands a certain lack of prestige. It is impossible for teachers to give the right answer to questions that arise in a world which is changing at such a fast rate. Though the light of previous experiences, they can guide students in their quest for knowledge.

The teachers are particularly busy during the planning phase since this is the larger part of their work. During the process phase the students are more active. They have to find facts, form and pose questions and find the answers to their questions. In other words, they have to construct their own knowledge. The teachers are available and take on a position of coaching and service. Their work consists of running the resource lessons, answering

questions and being helpful when students need support. Students and teachers treat each other in a friendly and respectful manner. The personnel room for example is for both teachers and students.

During the planning of an area of work, the teachers work in the same way as the students. They describe themselves as the thirteenth learning group. One of the teachers takes on the main responsibility but all partake in the brainstorming and they all contribute to the coupling of ideas to the curriculum goals. When they planned *Sing Higher Little River* they needed a link with reality, so turned to the County Administrative Board for a suitable assignment.

The school tries, as much as possible, to integrate the work areas with aesthetical subjects like art and music and strives to learn through much practical work and to offer many different environments for learning (Carlgren, I., 1999). It is important that learning is pleasurable for the teachers too, for they need to refresh, choose new environments and not repeat the same themes again and again. At the same time, the reports and evaluations indicate to them what works well and what needs to be further developed or deleted. When the planning has started for real, it usually goes quite quickly since they have had ideas in the back of their minds for months and are well experienced in putting their theories into syllabus and timetables.

We try to start big, to get some new ways of thinking and it has to be fun for us and it rubs off on the students and they think its fun. So it's kind of important. (Magdalena)

7. The headmaster's cooperation and responsibility—Practice what you preach

The school has for ten years the same core body of teachers as it had when the school started and this has created a strong affinity and continuity. The headmaster emphasized that the closeness of colleagues is an important factor and that together they share common pedagogical theories and values. It can be stormy, there are different ideas but one is nevertheless comfortable in this mutual basic view. The school's vision must be kept alive so that what the school has achieved can be maintained. One cannot rest on ones laurels but must continue to develop and review the ideas the school was founded on.

The students don't just see what we say but also what we do.... So it's this here ... way of seeing people and knowledge and learning...

The headmaster says the same as we have heard from the students—You can both work and at the same time have fun together. The headmaster and staff go away at least once a term to plan, gain further competence and for recreation.

And then in a place where we sat all day and evening and nights ... there we could ventilate everything. It is not just about how you perform at school but the whole life situation.... Those who work here, students and staff should feel good about what they are doing and in the bargain there will be a lot more. You feel enthusiasm for your work and the students feel an enthusiasm to perform and learn when one feels secure, well and acknowledged.

The form of employment that the staff have means that they are at school from 08:00 until 16:30. Since the working day includes, administration, planning, coaching, lessons and practical work, the teachers no longer count lessons as a measure of their work contribution.

Everyone helps each other even with tasks that traditionally are those of the headmaster, assistants or caretakers. It is a question of “give” and “take” where everyone trusts they will not exploit or be exploited by the system. Time is made available so the headmaster can take part in the activities of the teachers and students. This demonstrates that he is living his vision.

The headmaster stresses the importance of making sure that newly employed are given the support and coaching they need to enter into the roles that are expected of them. The teacher must discard the traditional teacher role, take a step back, and observe the process in the learning group. The focus should be on the students' learning and not on the teachers' teaching.

8. Theoretical analysis

The first aspect of our research regarded the students' motivation and how they experienced the schools' work methods. The students were very proud of their school and were positive to the work methods. Many of the students had applied to the school because they had heard, through rumours, that the school had different and exciting work methods that in many ways were different from the traditional school's methods. There was a positive expectancy. Often the students' descriptions, in different contexts, came back to the fact that the school worked more like the way things work in real life. This must mean that they came from schools that did not work, according to the students' opinion, as in real life. What is the difference between the way life outside school demands and the way the schools they came from worked? Most often mentioned was their own and the groups' responsibility for the acquisition of knowledge as being something decisive, even though this had been something, the expanse of which, was difficult to comprehend at the beginning of the course. The first term could be seen as a preparatory course in the work methods. By participating in different situations the student is made aware of the set of values, norms and rules of the school. They are encultured (Roth, M. W., Hwang, S. W., Goulart, M. I. M & Lee, J. Y., 2005) in the schools social cultural field of activity. The students are influenced by the context while they are a part of it, create it and recreate it. They also mention that they train cooperational abilities, planning and structuralisation of work in a similar way, one would do in a real life situations where one does not get homework either.

The students emphasize that they acquire a deeper knowledge of the subject when the subjects are integrated in thematic learning process and they are challenged to apply their new knowledge. We have not examined subject knowledge or grades but have put our trust in what the students have told us. Rogoff, Vygotsky and others declare that knowledge develops in a social relationship and that a student's learning is challenged when cooperating with more experienced peers (Rogoff, B., 1990). Several such examples emerge during the interviews with the learning groups. One example is a boy who tells us that he is often helped with maths by a girl who is more proficient in the subject than he is. The person who helps also finds it educational.

This shows that students employ each other's help as a resource and that help is readily given when needed. Consideration for each other is reinforced through the cooperative learning that takes place everyday in the learning groups. It is an example of a social cultural learning environment (Vygotsky, L. S., 1986).

Johnson and Johnson (Johnson, D. W. & Johnson R. T., 1994) propose that a primary prerequisite for cooperative learning is that there is interdependence in the group and that a student embraces a conviction that they can not succeed unless everyone in the group succeeds. Working in groups provides a good opportunity for personal development. They describe positive conflict settlement as fundamental for cooperative learning and mention two types of conflicts in the learning groups. On the one hand, the purely academic, when students challenge each other's intellectual lines of thought, conclusions and arguments for and against different sides of a subject; On the other hand, when students negotiate the settlement of other general conflicts within the learning group. The theoretic aspects that Johnson and Johnson place on cooperative learning agree well with the picture

we have from the school we examined.

Real life and working life is characterized, according to the students, in terms of taking responsibility, participation, interdependence, personal development, conflict settlement, applicable knowledge and thematic work areas. Learning is facilitated when theoretic and practical work are interwoven and motivation for learning arises through curiosity, problem-solving, the possibility of choosing different ways of reaching ones goals and being able to make ones own learning discernible. The students' experiences reflect the accepted norms and values of Swedish society.

The second aspect reflects the upper secondary teachers' view of their teaching role, of knowledge and their thoughts on how learning takes place. What is interesting is that the headmaster and the teachers explain their working lives in almost the same terms as the students. They have taken part in the forming of the school's vision, view of knowledge and work methods. There is a common basic view among personnel that is visible in way the students work and learn. They share a mutual responsibility and are interdependent of each other for not falling back into the ways of the traditional school. The school's vision must at all times be kept alive and the personnel must continually recapture and develop ideas that the school is embraced by. The personnel are affected by the context at the same time as being part of it and creating and recreating it.

Both teachers and students can contribute with knowledge and experience. Both groups realize that what they say and do is significant for the general picture. When planning the learning themes for the students, the teacher's strategy is to make sure that the theme and its content is realistic.

The teaching culture contributes in giving substance, support and identity to the teachers' work. The teaching cultures consist of content, form, time and other conditions.

The content is decided by the teaching group's shared views of what knowledge is, their attitudes and their values, believes, patterns of relationships and their social life together in the school (Roth, M. W., Hwang, S.W., Goulart, M. I. M & Lee, J. Y., 2005). When the headmaster explains his school, he speaks mostly about the importance of a good collegial structure that embraces a joint view regarding content and form. The words often heard are trust, security, flexibility, responsibility and cooperation.

The absence of control of the students' hours of work is striking but at the same time school activities are steered by a rigid framework that makes it possible for the students to enjoy this privilege. Important parts of the framework are the content of the curriculum, the composition of the groups and the time made available. At the introduction of the theme area, not only stimulating music and pictures are presented but also the clear framework of goals, purpose, content, time, premises, excursions, laboratory experiments and forms of result presentation. Marton, et al (1999) refer to Urban Dahllöfs (1967) and Ulf P. Lundgrens (1972) extensive empirical studies which show that different combinations of frame factors influence the patterns of teamwork prevalent between teachers and students. There is an indirect connection between the administrative conditions of education and the results achieved. In the school studied, there were no personnel who worked solely with administration. The headmaster teaches and there is no secretary or caretaker. The personnel take care of all administration together and this certainly contributes to their directing the administrative conditions so as to support their vision and field of activity.

The headmaster and the teaching staff can, from a systems theory perspective, be seen as gatekeepers for what is allowed into their school system (Ståhle Pirjo, 1998). It is a continual challenge to find the right balance between continuity and innovation. In the same way that students are, in time, reared in and become part of the school culture, and it is also important to offer the newly employed teachers the same opportunity. They are given

support and coaching to enable them to grow into the roles they will be expected to have in the school. The teachers must release the hold of the traditional teacher role and take a step back to observe the process in the learning group. The emphasis should be on the students' learning and not on the teachers' teaching. This is one of the many skills that Pirjo Ståle states are decisive for a system's self-renewal; to trust in the power of the process and to lead with composure, to dare to be actively passive and let things happen without exercising control. Pirjo Ståle emphasizes the importance of having a pattern for feedback in the system that embraces empathetic meetings, to ability in giving positive or negative feedback, to be open to receive feedback and put it into context. These skills are all felt to be considerable important among the personnel at the school we studied.

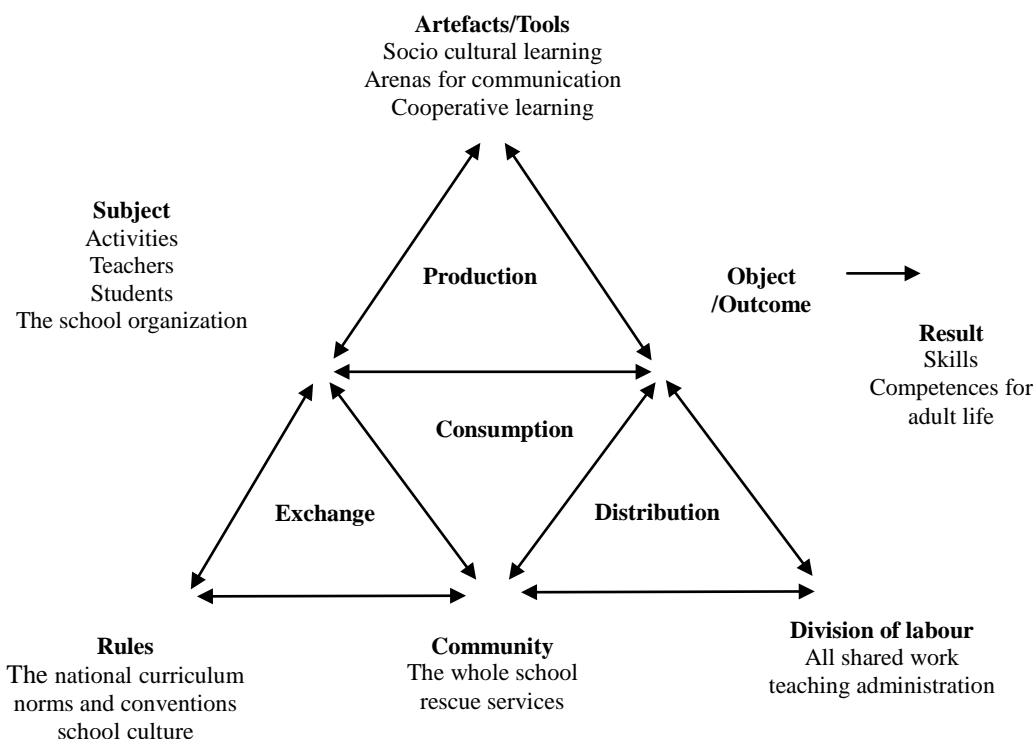


Figure 1 This shows the school reflected in Engeström's activity theoretical model

The third aspect deals with the organization of the school. The school can be seen as an activity system where member's interplay and communication develop a common culture (see Figure 1). Engeström's platform is the socio-cultural theory sphere (Engeström, Y., 1987). He claims that the rules and the distribution of work influence how the individuals can carry out their work and how they experience what is competent behaviour (Engeström, Y., 1996). It can be said that the process starts at an initial position where the work is comprehended, executed and organized in a certain way. In the activity system, there are models for how one shares the work load and which artifacts are to be used when the work is carried out. These tools constitute mediating artifacts that provide support for the existing collective knowledge and develop in the system.

In the system, tension or incongruity occurs, and this generates questions and proposals within the whole system. Engeström sees this inner tension or incongruities as something that should not be swept under the mat but in stead be illuminated because they provide a great source of developmental power. For a permanent change to take place, it requires that the whole system changes and not just individuals and groups. The personnel are

challenged every autumn by the new students who come to the school from a traditional school, with another student role and another school code. In those schools, cooperation is not encouraged, competition is an incentive for success, and presentation is judged individually. The youth at this school are, in an academic sense high achievers, but this does not mean that the same problems found in other schools are not to be found in this student group.

This modern school that we have studied has coordinated its changes both in the teachers' and the students' arenas. It is a continual challenge to keep and defend the school one has tried to develop and not to lean back and regard the development as complete. Tension and challenge are regarded as potentials for development.

The school we have studied has been chosen to leave the traditional pattern with regard to organizing teaching and learning. To be able to effect this change, they have had unique prerequisites to enable their success. The school is small and has many applicants but can only take a limited number of students, which means that the number of teachers is constant and the organization is of a manageable size. These prerequisites could also generate a passive and stationary school form.

9. Conclusion

When we analyze the material from an activity theory viewpoint, it becomes apparent that the school we studied has managed to change the whole activity system, both teachers and students use cooperative learning, integration of subjects and problem solving as mediating artefacts when they develop their learning and teaching. They divide the work within the group and all are aware of the rules that steer cooperation and the activity. Not only the teachers but also the students know the content of the national curriculum and can give an account of how the school puts the goals into practice.

In our collective picture of the school we examined, we see how the students' are encultured into a school's activities that, according to them, is characteristic of a work method similar to that of real life. They give evidence that it gives meaning and motivation to learning and makes it meaningful. They identify their own responsibility and cooperative learning as the most important parts but students also find these areas the most difficult to get to grips with during the initiation phase. The students develop their learning skills by not only getting feedback for their knowledge but also for the abilities they will be able to take advantage of in their adult lives.

The teachers give evidence of their own learning process and planning work as a parallel to the work forms applicable to the students. They are the thirteenth learning group. They are all interdependent of each other since all the work areas are thematic and embrace aesthetic subjects too. It is a continual challenge to retain and defend the school they have chosen to develop and at the same not lean back and regard the development as complete.

In this study, we have observed the pedagogical work in an upper secondary school to be able to reflect on the learning environment where our teaching students will be working in when having finished teacher training.

- (1) What consequences of that we have discovered on the future of teacher training?
- (2) What shape would teacher training take on if it was planned and carried out using Engeström's activity theory as a model?
- (3) What is the problem area that needs to be developed—the object in Engeström's figure?
- (4) What tools are required—what artefacts?
- (5) What does the distribution of the work look like: horizontal and vertical?
- (6) What explicit and what implicit norms and conventions steer—what rules?

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