STUDYING AND ENHANCING PROFESSIONAL LEARNING COMMUNITY FOR SCHOOL EFFECTIVENESS IN ICELAND[*]

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1. INTRODUCTION

Improving school towards more effectiveness in terms of students learning is a complex task, influenced by contextual and cultural factors. Characteristics of effective schools are relatively well known in the literature, but the relationship of those is still controversial. Many questions are still unanswered on effective ways of improving schools. Even though Hopkins (2001) claims that "we know enough about the theory and practice of educational change to successfully improve schools" (16), educationalists all over the world are dealing with this task with different success.

This study is conducted in three schools in Reykjavik school district, which includes 38 schools at compulsory level with about 15.500 students. The schools in Iceland follow the Scandinavian tradition in education, where there have been considered to be fewer differences between schools than e.g. among schools in UK and USA. However, the traditional grammar of schools is very similar all over the western world; a group of 20 – 30 students, one teacher in a closed classroom which leads to teachers' isolation and might hinder collaboration. As a practitioner in the field of school improvement over the last decades, I faced the challenge of supporting some schools that seemed to be unable to improve themselves in spite of efforts to implement many different programmes. While other seemed to easily be able to learn and improve. The theories of the professional learning community related very well with my experience and helped me to gain a deeper understanding of this challenge.

Professional learning community is now a crucial concept in many current studies of school improvement as a way of building up the capacity (Hopkins & Reynolds, 2001). It is not necessarily something new, it rather represents different context of known factors that are now put together with emphasis on learning. As McLaughlin and Talbert (2001:140) describe it:

> *Educators and researcher advance promising proposals for reform that move away from models, programs, or top-down solutions to centre on increased support for teachers learning and adaptation. We extend these propositions to locate the medium and foundation for that learning in teachers' professional communities.*

The concept of a professional learning community is relatively new in the literature about school effectiveness and school improvement. The discussion is therefore still in its early stages and different words are used to express the same or a very similar meaning. The notion of a professional

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learning community is strongly related to theories about professional development (Little, 1990; Liebermann, 1998) and the development of learning organisations (Senge, 1990; Leithwood & Louis, 1998). Mainly, however, it has developed from previous studies in the field of school improvement and school effectiveness, grounded in the opinion that many educational reforms have not succeeded for two main reasons; they did not affect schools' capacity to improve and they were not focused on students' outcomes (Hopkins & Reynolds, 2001; MacBeath & Mortimore, 2001). Coherent with that, many researchers in the field are now focusing on ways to strengthen schools' capacity for improvement and a strong professional learning community is considered to be a crucial factor in that sense, consisting of collaborative learning among the staff.

The concept of learning organisations developed within the field of business and management and has been adapted to schools by educationalist over the last decade or so. It became popular in the context of increasing complexity and rapid changes (Morgan, 1997), which brought out the necessity for each organisation to learn in order to survive. It is now viewed by many scholars as the most promising approach for organisations that constantly face new challenges (Leithwood & Louis, 1998; Robinson, 2001; Senge, 1990). A learning organisation is:

> *an organization where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and people are continually learning how to learn together (Senge, 1990;3).*

The theories of a learning organisation became popular with Peter Senges' book *The fifth discipline*, published 1990. Although, it had already been brought into the forefront of the field of management, by the work of Argyris and Schön in the late seventies. Their work focused not only on how organisations learn but also on how to intervene in order to improve the quality of organisational learning (Robinson, 2001). At similar time Rozenholtz (1989, as cited in Murphy & Lick, 2001), brought the idea about teachers' workplace into the discussion. She distinguished between *moving* and *stuck* schools. In the moving schools teachers worked together, there was a high level of student achievement and the teachers had a spirit of continuous improving where every teacher did not stop learning how to teach. While stuck schools were the opposite, teachers worked in isolation, there was a low level of student achievement and not a shared definition for the work. Following Rozenholtz a number of studies on the professional community or professional learning for increasing student achievement took place.

Currently, one of the most challenging issues in studies on organisational learning is the process of learning; how do organisations learn or what is even more important the challenge of learning how to learn (Morgan, 1997; Robinson, 2001). Different perspectives on this appear in the literature that all "involve learning from experience by interpretation of feedback from prior action" (Robinson, 2001:60). However, none of these perspectives has managed to expose the mystery of the processes of organisational learning, which is not only how they learn rather how to direct their learning towards more effectiveness.

1.1. Professional learning community

The whole idea about a professional learning community is constantly building new knowledge within the organisation and bringing it into practice by using collaborative enquiry and reflection (Hord, 1997; Leithwood & Louis, 1998; Miller, 1998). The framework of this study is highly influenced by the work of Shirley Hord (1997, 1999 and 2004) that has studied professional learning communities in schools in the USA fore some time. She offers a wide perspective on professional learning community including five main dimensions; supportive and shared leadership, shared values and vision focusing

on student learning, collective learning, supportive conditions, and shared personal practice (Hord, 1997). The wide range in Hords perspective on professional learning community puts it close to the concept of learning organisation and provides the big picture of the phenomen.

Many others have contributed to this field and influenced the framework of this study. Those are for example Mulford, Leithwood and Silins (2004) and Louis, Marks and Kruse (1996) that emphasise reflective dialogue and depravities practice beside shared norms and values and collaboration. The work of McLaughlin and Talbert (2001) on the professional communities in 16 high schools in the USA is in line with that of Hord's. Their findings suggest more differences within schools than between them in terms of professional community.

To describe the nature of the professional learning community, I prefer to use the term characteristics, not distinguishing between possible causes or supportive conditions for the professional learning community or possible effects of it. These are simply characteristics that might be causes or effects. Different studies categorised them differently but in this study they are grouped together into six main categories;

- *Shared values and vision* that focus on students' learning as well as high expectation for students' academic achievement (Hord, 1997 and 1999; Louis *et al*., 1996; MacLaughlin & Talbert, 2001; Leithwood & Louis, 1998; Senge 1990).

- *Shared leadership* that values teachers' participation in making decisions (Hord, 1997 and 1999, Leithwood, Jantzi and Steinbach, 1998).

- A perception of *mutual support* among staff (Louis *et al*., 1996; Hord,1997; Hargreaves, 2001; McLaughlin & Talbert, 2001).

- *Collaborative learning* among professional staff that addresses students' needs (Hord, 1997 and 1999; Louis *et al*., 1996; McLaughlin & Talbert, 2001; Little, 1990; Senge, 1990).

- *Organisational arrangement and habits of work* that encourage collaborative learning (Hord, 1997 and 1999; Arbucle, 2000; Louis *et al*., 1996)

- *Social climate* that supports collaboration and learning and satisfaction and commitment to the job (Hord, 1997 and 1999; Arbucle, 2000;.Louis *et al*., 1996).

The characteristics are more or less interdependent and embedded into one another all of which foster the continuous cycle or are a result of it. This is what Michell and Sackney's (2000) call a "wholeness worldview", that assumes that everything is intimately connected with and embedded in everything else, and change in a one element will lead to changes in many other elements. It is also in coherence with Senge (1990) that claims that "if creating learning organisation people must deny the illusion of a world that is created of "separated, unrelated forces"(3).

Collaboration or collegiality is now well established as one of the key characteristics of an effective school (Hargreaves, D., 1994; McBeath & Mortimore, 2001; Teddlie and Reynolds, 2000, Hopkins, 2001) as well as support a professional development (Sergiovanni, 1998; McLaughlin & Talbert, 2001) and strengthen teachers' identity as professionals (Emihovich & Battaglia, 2000). However, some people are though sceptical that collaboration outside the classroom will lead to changes within it (Holmes, 1998).

Collaboration is also essential for learning within the community or the organization (Smylie & Perry, 1998). Furthermore collaboration is an answer to increasing demands and expectations in a

world where problems are unpredictable and solutions are not clear (Hargreaves, D., 1994). Collaboration might be an essential condition for collective learning but it does not ensure it. Collective learning is not the sum of individual learning it is rather:

> *..a process of mutual influences and mutual learning that transpires in a group context and that is shaped by group norms, expectations, interactions, knowledge bases, communication patterns and so on (Michell & Sackney 2000:46).*

In a professional learning community teachers see one another as a resource for their improved practice with the students (McLaughlin & Talbert, 2001). Because there is no formula for how teachers can ensure high quality learning for their students, peer feedback is very important to improve understanding of one's own practice (Louis & Leithwood, 1998; Hord, 1999). In order to develop a strong professional learning community the learning must include inquiry into students' learning. McLaughlin and Talbert (2001) points out that weak collaboration is always ineffective but strong collaboration could be even worse if it is not about the right things. Colleagues might strengthen each other in doing the wrong things; therefore, it does not ensure a quality of the work. Neither does collaboration ensure learning or improvement in classroom practice. In order to do that it must involve reflective dialogue (Louis & Leithwood, 1998) and address students needs (Hord, 1997). For Stoll, Fink and Earl (2003) a learning community is a state of mind where people knows how they can create knowledge, it is not linear, it is bigger than the sum of its parts and it is about learning as a community where everything people do, is underpinned by a sense of collective commitment to each other's learning for improving the school.

For the purpose of this study a following definition, based on previous writings, is used:

> *A professional learning community consists of a group of professionals, sharing common goals and purpose, constantly gaining new knowledge through interaction with one another aiming to improve the practice. It is a cycle where learning is normally embedded into daily work; teachers gain new knowledge, try it out in their practice and from that gain still more knowledge. They do that in interaction with one another by working collaboratively. This cycle is strongly influenced by structural factors that can foster collaboration or hinder it; cultural factors that are people's beliefs and values; and the leadership that strongly affects both culture within the school and the structure. All these factors or characteristics are embedded into one another and interdependent.*

1.2. School effectiveness and school improvement

Defining what counts as a desirable outcome in an effective school is one of the most controversial issues in discussions among educationalists who do not agree whether it should focus on different aspects of students' outcomes or on the process (Hopkins, 2001). According to Teddlie and Stringfield (1993) outcomes of school effectiveness should be limited to student achievement on criterion-referenced tests and norm-referenced tests. Others argue this by saying that academic tests do not say anything about the quality of student learning and suggest that student attendance, student attitude towards school and other outcomes should be measured as well. One of those are Pring (2000), who claims that tests ignore the qualities of education, which are attitudes, skills, knowledge and understanding that help developing an "educated person". Leithwood and Jantzi (2000) used students' engagement in school work as an outcome in their large scale study in schools in Canada. The LOSLO project defined four indicators on student outcome; pupils' perception of teachers work, academic self concept, students' participation and engagement (Mulford *et al*, 2004). Nevertheless, how important these non-academic criteria are, it can not be avoided that the practice of teaching can never be good unless the students learn (Deal & Peterson, 1999),

For the purpose of this study, I looked for several non-academic criteria for school effectiveness in Reykjavik, such as parents' satisfaction, students' wellbeing and the local school district staff's opinions. These criteria contradicted each other to a large extent which made them difficult to work with in this study even thought they are indeed important as outcomes. The outcomes on national tests turned out to be the most reliable data on school effectiveness after taking into account parents' level of education and the income (outcome in grade 4). The relationship between students' academic outcome and parents' level of education has been established internationally in previous studies and recently in Icelandic schools as well (E. Reimarsdóttir & H. Svavarsdóttir, 1999).

> *In this study the level of effectiveness is represented as the difference between real outcome on national tests in Icelandic and Mathematics in grade 10 and predicted outcome taking into account parents' level of education and outcome in grade 4 in same subjects.*

General acknowledgement of the effects of the schools paved the way to school improvement as an "effort to make schools better places for pupils and students to learn in" (Hopkins, 2001:11). However, in spite of a huge effort in the school improvement field over the last decades, the impact of school reform on students' achievement is still very small (Hopkins & Reynolds, 2001), in fact school improvement programmes rarely measured the impact on students outcome (Teddlie & Reynolds, 2000; Mulford *et al*., 2004). The current approach, emphasising collaborative learning as authentic improvement (Hopkins, 2001), may therefore be considered as a consequence of the continuous search for strategy in school improvement that will lead to a more positive outcome on students' achievement as well as provide equal opportunity for all children to learn. (MacBeath & Mortimore, 2001). Increasing awareness appears in the literature, of the importance of focusing on students' outcome, staff development and collaboration as a part of cultural changes meant to support school improvement. A strong professional learning community is considered to be the best condition to improve students' academic outcome (King & Newmann, 2001; Hopkins & Reynolds, 2001). When implementing a strong professional learning community it is important to note that:

> *the creation of a professional learning community is not an end in itself. It is, rather, an infrastructure for supporting school improvement so that, ultimately, the level of student learning increases (Huffman & Hipp, 2003:82).*
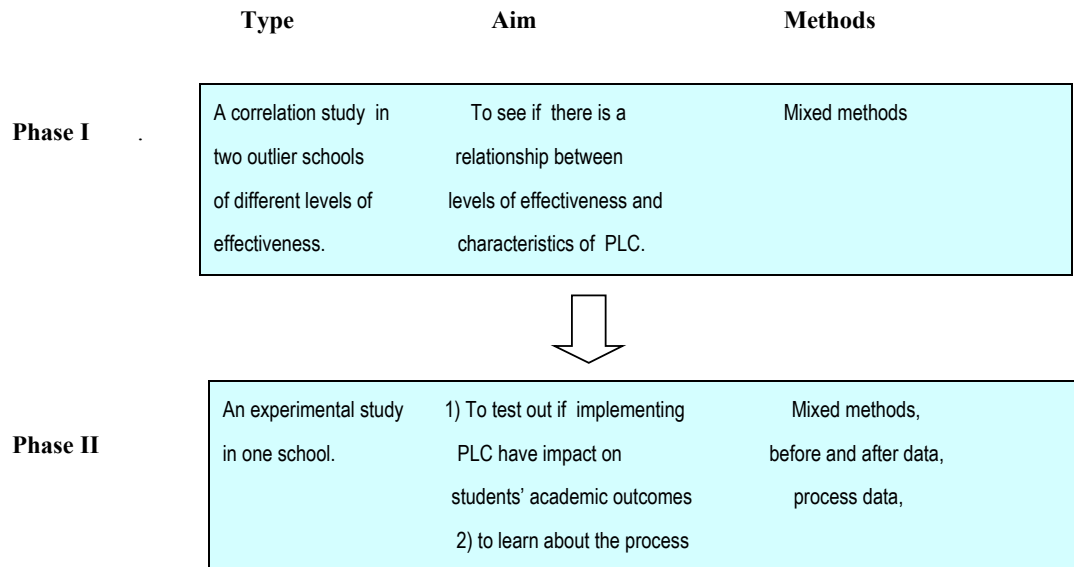
The main purpose of this study was to investigate if there is a relationship between schools' levels of effectiveness and their characteristics in terms of the professional learning community and if so, investigate if implementation of a professional learning community improves the schools' level of effectiveness.

In this paper a few emerging findings are reported, after a short description on the methodology.

2. METHODOLOGY

This study is defined as a mixed model research (Thashakkori & Teddlie, 2003), conducted in two separate phases (figure 1). The former phase is a correlation study, investigating the relationship between the characteristics of a professional learning community and the levels of effectiveness while the second phase is an experimental study aiming to investigate if an improvement of a professional learning community has an impact on students' academic outcomes as well as gain insight into the process of implementation (figure 1).

Figure 1. The design of the study.

	Type	Aim	Methods
Phase I	A correlation study in two outlier schools of different levels of effectiveness.	To see if there is a relationship between levels of effectiveness and characteristics of PLC.	Mixed methods
Phase II	An experimental study in one school.	1) To test out if implementing PLC have impact on students' academic outcomes 2) to learn about the process	Mixed methods, before and after data, process data,

A purposive sampling strategy was used to choose schools. Schools of different levels of effectiveness were needed and the sample of schools was chosen in two steps. The first step aimed to find schools at different level of effectiveness and the second one to find schools that might also have differences in the structure of collaboration.

In the first step, four outlier schools at different level of effectiveness were selected out of 19 schools. Multiple regressions was used to predict the schools' academic outcomes in grade 10 from outcomes in grade 4 and parents' level of education. To avoid the effects of different groups from one year to another an averaged outcome over three years period of time was counted. The value of standardised residual represents the level of effectiveness.

Two of the schools had better outcomes on national tests in Icelandic and Maths in grade 10 than predicted; the other two had lower outcomes. After a pilot observation in the four schools, three of them were chosen, school A, B and C.

The two outlier schools in the sample for phase I, were the following:

School A: This school had many signs of a structure that supports a strong professional learning community and it scored above prediction on national tests. There was a long tradition of collaboration among the staff. The number of students was approximately 600. The administrative team consisted of the principal and two vice principals.

School B: This was a relatively new school where there were many signs of a lack of structure to support and encourage collaboration and the scores on national tests were lower than predicted. The number of students was approximately 800. The administrative team consisted of the principal and two vice principals.

The intervention school for phase II was:

School C: In this school the scores on national tests were lower than predicted. The current principal had been in this school for three years and the administration team was in the beginning phase of improving collaboration and mutual learning among the professional staff which made it suitable for an intervention. There were approximately 400 students in the school. The administrative team consisted of the principal, one vice principal and three heads of department.

Multiple methods were used for collecting data, with the intention of supporting each other in order to increase depth and validity. Qualitative and quantitative methods were used equally and in parallel.

Three methods were used in phase I; non-participating observation was made in teachers' collaborative preparation work, in staff lounges and in classrooms; Semi structured interviews were conducted with the principals and vice principals in both schools, the head of special education and beginning teachers; and finally all professional staff responded to an attitude scale questionnaire in both schools (see Appendix II for categories and items).

The intervention (in phase II) period, including the data collection, lasted for about 17 months, from October 2002 until May 2004. It mainly consisted of four strands beside the preparation stage:

- the administrative team joined a study-group on the professional learning community,

- all the professional staff engaged into teamwork focusing on students learning,

- effort was made to define a clear vision for the school,

- a three months in-service training on differentiated learning was offered for all professional staff.

Data were collected before, during and after the intervention. The same attitude scale questionnaire survey, as in phase I, was conducted before and after; non-participating observation was made in teachers team work; participating observation in the administrative study group; and document data were collected from teachers' team work and individual teachers such as reports about changes in classroom practice during the intervention period.

Changes in the level of effectiveness were measured after the intervention with multiple regressions as before, and also in the two schools in phase I, that in this case served the role of control groups.

In both phases, the quantitative data and qualitative data were analysed separately. However, to be able to interpret the data together the variables from the quantitative analysis became the topics, and were coded as so in the observation and interview data. But, to fully use the advantages of having qualitative data, they were also analysed qualitatively and new topics were defined from the data.

The quantitative data were coded into SPSS and items grouped together into variables. Mean scores were counted by averaging the score on all items within each variable and overall. Several test were used; Kolmogorov – Smirnov test for distribution; independent t-test to compare means; Pearson product moment correlation for relationship of each variable with the level of effectiveness and multiple regressions to define predictors for the professional learning community. The qualitative data were transcribed and analysed in five steps according to Radnor (2001) suggestions including coding topics and categories.

3. RESULTS

The questionnaire data from phase I, indicated a strong relationship between level of effectiveness and the professional learning community (r = .52**), that was supported by findings from the observation and interview data. There were differences between school A and school B in eight out of nine defined variables of the professional learning community (table 2). School A scored higher both on the national tests and the data also indicated higher level of the professional learning community than in school B. As displayed in figure 2 below, the difference between the schools is clear. The largest difference appeared in shared values and vision, shared leadership and habits of work. The confidence interval marks show again that there is significant difference between schools concerning all variables except expectation for students' achievement.

Table 2. Comparison of the mean scores in school A and school B

| variable		school	N	M	sd	r	t
Shared values and vision that focus on students' learning		A	49	3,27	.398	.63**	7,65***
		B	43	2,43	.643		
Shared leadership		A	49	3,18	.452	.53**	6,00***
		B	43	2,55	.563		
Mutual support among administrators and staff		A	49	3,04	.370	.40**	4,13**
		B	43	2,66	.510		
Collaborative learning to address students needs		A	49	3,08	.322	.34**	3,46**
		B	43	2,78	.505		
Organisational arrangements support collaboration.		A	49	2,88	.318	.40**	4,12***
		B	43	2,54	.470		
Habits of work support collaboration		A	49	3,26	.418	.56**	6,41***
		B	43	2,68	.451		
Social climate		A	49	3,19	.378	.41**	4,28***
		B	43	2,75	.582		
Expectation for students achievement		A	49	3,16	.435	ns	ns
		B	43	3,03	.620		
Satisfaction with working in the school		A	49	3,77	.434	.32**	3,21**
		B	43	3,41	.629		
	Total	A	49	3,19	.264	. 52**	5,71***
		B	43	2,79	.408		

Mean range from 1 to 4, higher value expresses stronger agreement.
r = Pearson correlation coefficient (2-tailed)
t = t value, independent t -test
 * Significant at .05 level, ** significant at .01 level, *** significant at .00 level

Figure 2. Mean scores and confidence interval for all variables in school A and school B
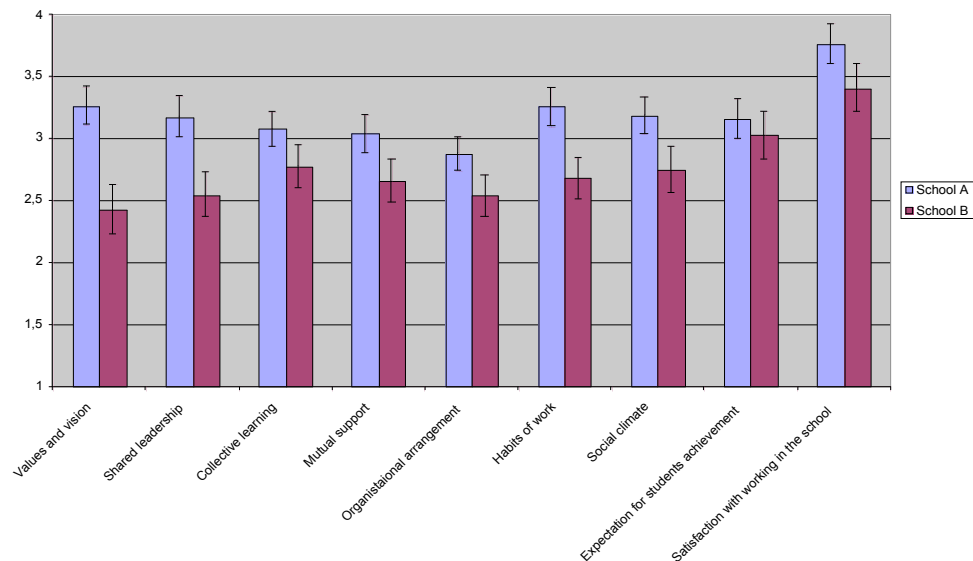
In the more effective school (school A), the values and vision for the school were clearer. They focused on students and became shared through discussions and recruiting of teachers and administrators. While in the other school (school B), the administrators and teachers expressed uncertainty of the school's vision. In both schools, the values seemed to be strongly influenced by two things; the context of the school and the principal's special interests, what she or he chose to focus on. The administrators in the more effective school had clear ideas on how to empower the teachers for school improvement as well as help the ambitious teachers to "flourish" within the school. The members of the administrative teams in both schools had different opinions and emphasis on methods for school improvement. However, in the effective school, they agreed on fundamental goals concerning values and vision, which was not the case in the other school. Teachers' expectation for students' academic achievement was the only variable that did not relate with level of effectiveness in this study.

Organisational arrangements of collaboration differed significantly between schools (r = .40**) and the same counts for habits of work that encourage learning (r = .56**). There was more structured collaborative work in the effective school than in the other one and also more formalities around the arrangement of meetings such as staff meetings.

The teachers in both schools perceived collaborative learning up to a certain level. It was though at significantly higher level in the more effective school (r = .34**) the same counts for teachers' perception of mutual support (r = .40**). The difference between schools was confirmed during the observation on staff meetings but not so much in collaborative preparation time, where the difference was more between groups than schools. Professional learning seemed to take place on staff meetings of different level, in organised teamwork and through peer consultation.

A significant relationship appeared concerning a social climate that supports collaboration (r = .41**), which was also confirmed in the observation and interviews. Satisfaction and commitment for the job in general did not relate to the level of effectiveness. However, the teachers in the effective school expressed significantly higher satisfaction with working in this particular school than the

teachers in the other school. Some balkanisation and lack of willingness appeared in the school of low level of effectiveness.

Concerning the collaboration preparation, in both schools most of the time was used to share practical information such as on textbooks and worksheets. Discussions were rarely on different methods in teaching, students' learning and possible ways for better outcome. Very few signs of collective learning appeared in the discussion. Teachers did not challenge each other by questioning teaching methods or bringing up ethical issues. No example was found of praise being given directly to colleagues and teachers criticism was directed towards general issues, not their own teaching. New ideas on doing things differently were not always appreciated by colleagues. Teachers sometimes consulted each other on how to manage students' behaviour and gained sympathy or solidarity from their colleagues rather than some guidance on methods to manage the problem.
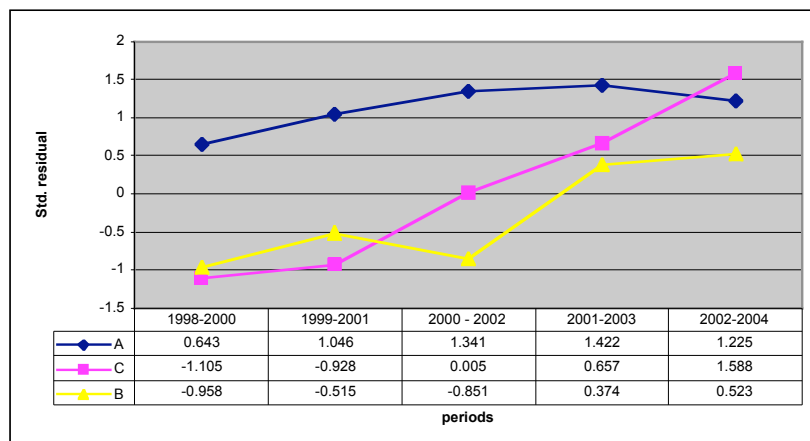
During the intervention in the experimental phase the level of effectiveness did improve in school C, (the third school in the study). Table 3 displays how the school ranked among the 19 schools. In the first period (1998 – 2000) the school had the lowest std. residual value of all the 19 schools in the population. Since then it gradually improved from one period to another. The fourth period the outcome was above prediction and this time number 9 from above among the 19 schools. The improvement continued and in the last period the school was among the three highest in the district.

Table 3. Std. Residual in school C in Icelandic and Math in grade 10 for five periods of time

Period	Years	Std. Residual for Icelandic and Mathematics	Ranked from above among 19 schools
1	1998 – 2000	- 1.777	19
2	1999 – 2001	- 0.729	16
3	2000 – 2002	- 0.659	14
4	2001 – 2003	0.02	9
5	2002 - 2004	0.778	3

To get more detailed information on the outcomes it is useful to look at each subject separately and compare it with the outcomes in the two other schools in the study (figures 3 and 4). There was a dramatic improvement in Mathematics in school C (figure 3.) The first period it had the lowest outcome of all the schools but the last period it was among the best.
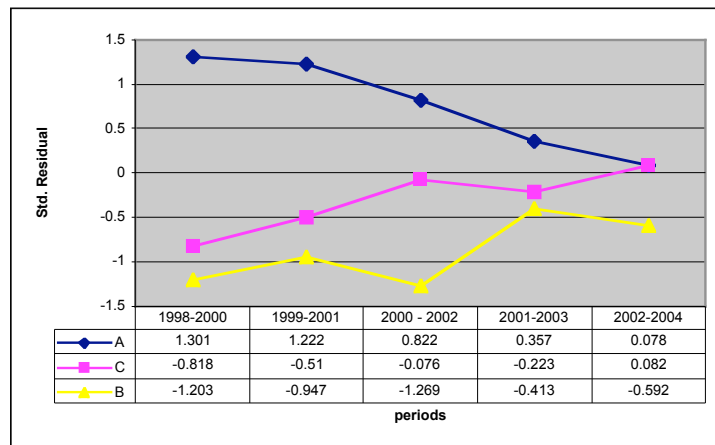
Figure 3. Std. Residual for Mathematics in the researched schools for five periods of time

	1998-2000	1999-2001	2000 - 2002	2001-2003	2002-2004
A	0.643	1.046	1.341	1.422	1.225
C	-1.105	-0.928	0.005	0.657	1.588
B	-0.958	-0.515	-0.851	0.374	0.523

However, there was also improvement in school B, the less effective school, although it was not as gradual as in school C, but in the fourth and fifth periods the outcome was over prediction. The outcome in school A had not changed much during this period of time.

On the other hand, the outcomes in Icelandic over the same periods were different (figure 4). There were indeed improvements in school C, but not to the same extent as in Mathematics. During the last period it was just above predicted outcome, while the outcome in school B was still below predicted and in school A the outcome had decreased dramatically, even though it was still above prediction.

Figure 4. Std. Residual for Icelandic in the researched schools for five periods of time

	1998-2000	1999-2001	2000 - 2002	2001-2003	2002-2004
A	1.301	1.222	0.822	0.357	0.078
C	-0.818	-0.51	-0.076	-0.223	0.082
B	-1.203	-0.947	-1.269	-0.413	-0.592

In summary, there were great improvements in the level of effectiveness in school C during the intervention time, especially in Mathematics. Now the interesting question is what else had changed in the school over the same period of time.

Figure 5. Mean scores for all variables in school A and B, compared with mean scores in school C, before the intervention and after.
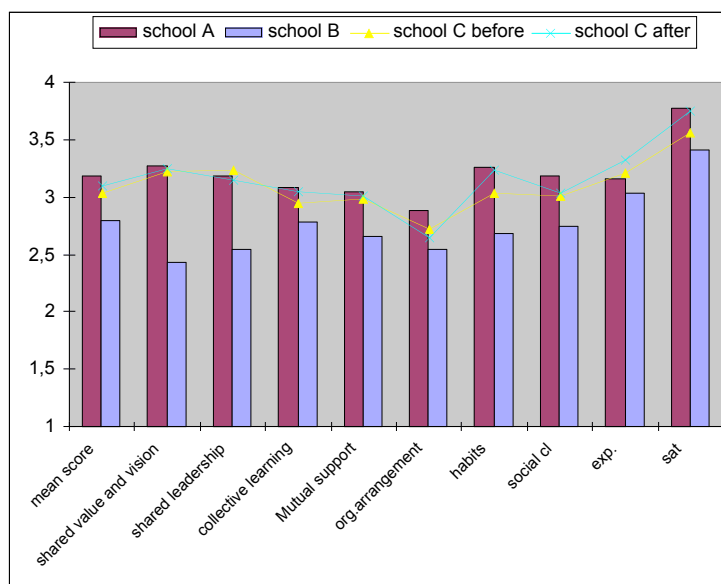
As already have been discussed, there were improvements in the level of effectiveness in school C during the intervention time, especially in Mathematics. On the other hand, evidences for improvement of the professional learning community were not so strong according the responses to the questionnaire (figure 5). There was no measured improvement in teachers' perception concerning all variables except habits of work. However, there were observed improvements in shared values and vision for the school over the intervention period even though the teachers did not perceive it. The same appeared concerning arranged time for collaboration. More time was allocated for collaboration after the intervention than before (2 – 3 hours before and 5-6 hours per week after), even though the teachers did not perceive more collaboration according to responses to the questionnaire.

As in phase I, a few signs of collaborative learning appeared in teams or group discussions. Most of the teams focused on task and management issues. However, the teams that discussed Mathematics had more premises for collaborative learning than those that worked on other issues such as Icelandic. They were more challenging in the discussions and had more radical ideas in their teaching. At same time outcome in Mathematics rose dramatically.

After the intervention period, all teachers but one reported changes in their classroom practice over the last two years. More than half of them were changing into more individualised learning according to the school's policy and organising more students' cooperation and group work. This confirmed the improvements in creating shared vision for the school. About 30% of them claimed that they now acted more democratically towards their students by giving them more choice and responsibility for their own learning.

4. CONCLUDING NOTES

Two of the main aspects of the results are presented in this paper. Firstly, the relationship between the professional learning community and level of effectiveness is rather well established in both phases of this study. This kind of relationship has not been established directly in previous studies on the professional learning community, as far as I know. However, many of the variables have been identified as characteristics of effective schools as well as being recognised in successful professional development. More investigation is needed on the nature of different categories of the professional learning community, how they affect students' outcome and the relative size of each of them. Furthermore, much more information is needed on the process of improving the professional learning community. If educationalists are convinced that strengthening the professional learning community will improve students' outcome, efforts should be made to do so. However, this study does not provide much evidence on effective ways to strengthen the professional learning community as was though one of the intentions by conducting it. It is obviously not enough to have scheduled time for collaboration, it is more about the content of the collaboration and how teachers discuss professional matters; if they share ideas and challenge each other's opinions on the teaching practice.

The second aspect of the results concerned the lack of collective learning among teachers, in the studied schools. This is rather worrying for future of school improvement. The physical isolation in teachers work situations, classroom surrounded by walls and closed doors, seems also to lead to emotional isolation. It hinders collaboration and prevents the interdependency that is essential for collective learning. In the traditional school, the teachers can, if they choose to do so, complete their work successfully and fulfill their needs for their own professional development with none or very limited collaboration with their colleagues. This is though not to say that people choosing to work

alone are not doing a good job. It only becomes a problem when it leads to disharmony, different purpose or miscommunication (Michell & Sackney, 2000), and meanwhile they are neither developing the whole school's capacity nor creating a learning community.

The overall findings indicate that collaborative learning, based on interdependency where the success depends on people working together, contributes largely towards building a strong professional learning community. However, interdependency is not enough, as Hord (1997) points at: if collaboration does not involve learning and focus on students' needs it is for no use in school development. It seems reasonable to conclude that it is essential to break teachers' physical isolation at least to some extent, to give them a chance to see their colleagues in their daily practice and thus provide an opportunity to discuss and share responsibility.

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APPENDIX I

Categories and items in the questionnaire

<u>Shared values and vision</u>

They are visible in day to day practice.

They emphasis high quality learning for all students.

Values and vision are discussed and consensus.

<u>Expectation for students' academic achievement</u>

Teachers perceive they can influence students' learning.

Student's background is not an obstacle for their learning.

Students are motivated for learning and achievement.

<u>Leadership</u>

The principal is interest in teaching and the students.

There are perceived opportunities to participate in decision making.

The principals seek staff's opinion before taking decisions.

The principals respect teachers' opinions on teaching practice.

The administrative team agrees on operational goals.

<u>Mutual support</u>

The principals have time to listen and discuss with teachers.

Teachers on their first year are supported.

Colleagues support each other in implement new practice.

The principal supports teachers when implement new practice.

The principal is visible in the classrooms.

Teachers support colleagues that have problems in their practice.

Teachers perceive that they can count on each other support.

Teachers come forward to support their colleagues.

Support from principal in dealing with student behaviour.

Colleagues support in dealing with student behaviour.

The principal notices good job and expresses satisfaction.

Collaborative learning

Teachers share example of a good practice.

Teachers share ideas of how to deal with student behaviour.

Teachers are continuously learning and seeking new ideas.

Teachers perceive ample opportunities for learning.

The job provides continuing simulation for learning.

Colleagues show appreciation for contribution in teamwork.

Teachers try in their practice what they learn from colleagues.

Teachers perceive they gain useful knowledge from their colleagues.

Teachers know each others practice.

Teachers discuss the effectiveness of their teaching with each other.

Organisational arrangement

Special methods are used to encourage effective communication.

Time is arranged every week for collaborative preparation.

Teachers are provided with resources for improve themselves as professionals.

Teachers only work with those that teach same subject or age group as they do.

Teachers prepare weekly with colleagues.

Teachers perceive great deal of co operative efforts in the school.

Habits of work

Principal respect arranged time for collaboration.

Teachers are encouraged to experiment in their teaching.

Teachers perceive discussions on staff meetings effective.

Teachers perceive discussions on collaborative meetings successful.

Teachers respect arranged time for collaboration.

Social climate

Teachers perceive open and honest relationship among staff.

Teachers are good in handling and solving disagreements.

Principal encourages collaboration.

Colleagues show appreciation for contribution in teamwork.

Teachers are ready to collaborate with any teacher in the school.

Satisfaction and commitment to the job

Teachers would leave teaching if they got a better paid job.

Teachers are proud of being a member of the staff in the school.

Teachers like working in the school.

Teachers love the subject /age group they teach most frequently.