Enhanced Democratic Learning within the Aalborg Model

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Abstract. *The Aalborg PBL Model [Kjersdam & Enemark, 1997; Kolmos et al., 2004] is an example of a democratic learning system [Qvist, 2008]. Writing one project each semester in teams is an important element in the model. Medicine with Industrial Specialisation - a study at the Faculties of Engineering, Science and Medicine at Aalborg University - has combined the Aalborg Model with solving cases as used by other models. A questionnaire survey related to democratic learning indicates that the democratic learning has been enhanced. This paper presents the results.*

1. Introduction

The Aalborg PBL Model [Kjersdam & Enemark 1997; Kolmos et al., 2004] is an example of a democratic learning system [Qvist 2008]. A democratic learning system can be defined as a system where decisions, processes and behaviour related to learning are established through argumentation (discussion) or negotiation (dialog), voting or consensus (alone or in combination) between those affected by the decision simultaneously reaching the learning outcomes, the technical and professional knowledge and insight. Principally the participants must be equal with equal rights and feel committed to the values of rationality and impartiality (Qvist, 2005).

The learning system at Aalborg University is not 100 percent democratic. The students influence in relation to their own learning is not extended to the teaching in courses which equalise about 50 percent of the study time. The distribution between courses and project work is often visualised as in Figure 1. It shows the distribution of courses and project within a project unit (1 semester, 15 weeks) in the Aalborg Model as practised at The Schools of Basic Studies of Engineering, Science and Medicine [Basisåret Studieordning 2009]

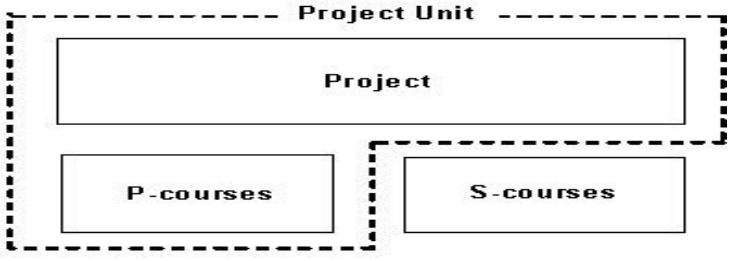

Figure 1. Model of the classic Aalborg Model

Half of the learning hours the students are involved in course activities while the other half is used in project groups writing a common academic problem based project. P-courses are courses which are related to the subject of the Project Unit while S-courses are related to general disciplines relevant for the study. Courses are taught in classrooms and project work takes place in group rooms. Each group has their own room, next to the professors office.

The model is in its classic form mainly implemented at the Faculties of Engineering, Science and Medicine. Not all study boards practise the model in similar ways. The distribution between courses and the project might be otherwise. The Schools of Basic Studies of Engineering, Science, and Medicine (with an intake of more than 1000 students a year) which house the first years of studies for all programmes offered by the Faculties of Engineering, Science, and Medicine practise the model in campus Aalborg, campus Ballerup (Copenhagen) and campus Esbjerg.

Medicine with Industrial Specialisation (MIS) has combined the classic Aalborg Model with the Hull York Medical School Model. Solving cases has replaced the S-courses. This means that writing one project each semester in teams is an important element together with solving cases.

At The Schools of Basic Studies of Engineering, Science, and Medicine the MIS programme has (up to 2009) practised a model as shown in Figure 2 [Basisåret Studieordning, Medicin 2008].

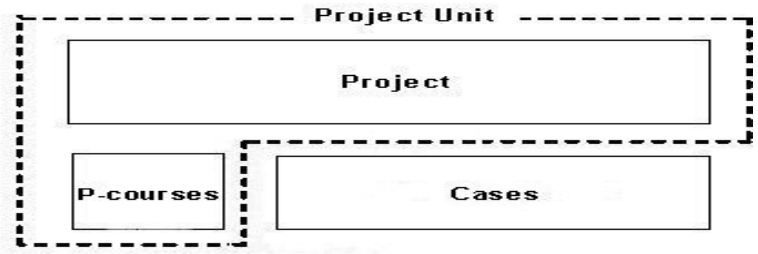

Figure 2. Model of MIS programme

Disciplines are in the model taught as cases. The distribution between project work and courses in the main program of The Schools of Basic Studies of Engineering, Science, and Medicine expressed in ECTS (European Credit Transfer and Accumulation System) and in the MIS program is seen in Table 1 [Basisåret Studieordning, Medicin 2008, Basisåret Studieordning 2009].

Table 1. Distribution of ECTS

		ECTS				
Programme	**Semester**	**Project work**	**P-courses**	**S-courses**	**Cases**	**Total**
Main	1st	15	6	5	0	26
	2nd	17	6	7	0	30
MIS	1st	3	7	0	16	26
	2nd	11	1	0	18	30

The first students who used the case model from the Hull York Medical School in Great Britain were enrolled in Aalborg in 2006. As in the ordinary Aalborg Model students are in groups. They work with a number of cases during the semester. A case is a predefined and realistic description of a problem related to a patient, a medical history of a patient. In the first place the aim is not to solve the problem but to identify and search for the knowledge which is needed to approach the problem [Staal et al. 2006, HYMS 2004-05].

The problem is approached through steps. The first of seven steps is to read out the problem and clarify unfamiliar terms. The aim of this step is among others to engage all members of the group and focus on the task. The second step is to define and clarify the problem(s) understood as anything relevant to the care of the patient. The result is a list of problem(s) to be discussed within the group. The problem(s) list is used for brainstorming – the third step. The aim is to pool the existing knowledge which the group members already have, and to analyse and synthesise the recalled knowledge. Step four, the possible explanations are arranged into tentative solutions and the aim is to define learning objectives. Here the gaps in knowledge and understanding are identified. The aim in the next step – step five – is in general to define the learning objectives to test the validity of explanations and define which resources are needed for a self directed learning process. If possible the learning outcomes should be formulated as specific questions addressing the problem(s) and relate to the lack of knowledge within the group. Step six is for private study. The aim is to develop individual ability to research, clarify individual lack of knowledge and learning needs, and contribute with literature for the common good of the group. The last and seventh step the results of each individual student are shared with the other group members, discussed, reflected on and corrected.

The learning objectives are predefined for each case. But they are known only by the facilitator. The intention is that the group members through discussions will reach the same objectives as known by the facilitator. If not, it is the job of the facilitator to motivate and guide the students in the right direction e.g. by questioning and addressing the knowledge obtained by the group members giving feedback and feed forward. Although the facilitator is present in the group it is run as a self directed learning unit. It is headed by

a chairperson supported by a scribe. The role of the chairperson could be to ensure that all group members agree on the process, introduce the case and subjects for discussion, invite participation, stimulate, motivate and summarise, elaborate and formulate themes for discussion and secure that conclusions are reached etc. [HYMS 2004-05].

Learning in the case groups are in the ideal form practised at IMS (and HYMS) in some degree democratic. The case group can be defined as a democratic communication community, although not totally free and without supremacy. The case group is relative autonomic and not unlimited in relation to planning of its learning (it has to go through the seven steps). It is also limited by the fact that it has to reach the predefined leaning objectives. Selections and decisions during the learning process can be corrected (and even dictated) by the facilitator. But the group members make decisions about learning, learning objectives, learning process and behaviour after argumentation (discussion) or negotiation (dialog), voting or consensus (alone or in combination). In principle the group members are equal with equal rights. The decisions may be corrected or guided in the "right" direction by the facilitator. The facilitator acts as a supremacy or judge and has the power to change decisions reached by the case group.

A possibility for discussions before scientific, professional or academic decisions and decisions in relation to the process or behaviour where the students may express them freely is an indication of a democratic learning system [Qvist 2006].

When it comes to the project work in the MIS program it is the group members who make decisions about the problem to settle and how to settle it. As project groups in the classic Aalborg Model the MIS project groups are an independent and autonomic unit. In principle it is a communication community, free and without supremacy. The community is free to follow the advice from the facilitator and to decide the objectives for the project work in cooperation with the facilitator within the study board frames. In relation to planning of learning is it unlimited within the study board frames and determined in the curriculum. But it is limited to the fact that the groups at the exam are confronted with and made responsible for selections and decisions during the learning process.

In its ideal form the learning is democratic. The students decide and plan their own learning in a communication community in the group room, free and without restrictions. They make decisions about learning, learning outcomes, learning process and behaviour after argumentation (discussion) or negotiation (dialog), voting or consensus (alone or in combination) between the group members. In principle they are equal with equal rights. It is presumed that the students are committed to the values of rationality and impartiality when they ague, negotiate and make deals feel themselves. [Qvist 2006, Qvist 2008, Basisåret Studieordning, Medicin 2008, Basisåret Studieordning 2009, Rammestudieordning 2008].

In the classic Aalborg Model courses are professor centred. The professor controls the teaching. Typically it is one way communication, the professor represent the knowledge and insight in the subject area. The professor has chosen what to teach within the given frames. The student is often seen as an object. Not an arguing, searching, selecting and acting subject with influence or responsibility for own learning. The student is more or less passive, sitting in a classroom listening. The learning comes from the professor to the student, it is authoritarian or elitist. (Qvist 2006).

The relation between elitist or authoritarian and democratic learning in the classic Aalborg Model and the MIS program is illustrated in Figure 3.

Figure 3. Elitist and democratic learning

A rough indication of the distribution between elitist and democratic learning in the two models when using ECTS is illustrated in Table 3. There may be professors who run courses in a less elitist way than others and facilitation can be elitist, democratic or have many forms in between. The table indicates that the democratic leaning in the MIS program as practised at The Schools of Basic Studies of Engineering, Science, and Medicine is enhanced.

Table 2. Distribution of elitist and democratic learning

Programme	Semester	ECTS % elitist learning	ECTS % democratic learning
Main	1st	42	58
	2nd	43	57
MIS	1st	27	73
	2nd	3	97

In theory and at model level the MIS program has enhanced democratic learning within the Aalborg Model. Two questionnaire surveys were carried out between the students in the first year of the MIS program to see if it was a perception shared by them as well.

2. Methodology of Research

The questionnaires were distributed to the students in the second semester of the MIS program, spring 2009. At that time 52 students followed the program. The students were asked to agree or disagree to statements related to project work and to case work. The aim

was to get an impression of how democratic the group was managed in the two situations. The students were asked if they used discussions to reach technical decisions as well as decisions related to project work and case work. They were asked if their group was dominated by one or a few when taking technical decisions or decisions related to project or case work. They were also asked about the role of the facilitator. Did the facilitator make the technical decisions and the decisions related to project work or case work? Also 3 general questions were posed where 2 were related to the control of the group. Was the group controlled by the participants or was it controlled by the facilitator when the group worked with the project report and when it worked with cases? And was the group democratic in their opinion – were decisions discussed and could everybody participate?

Of the 52 students 38 responded to the questionnaires, which equalise 73%. The data was processed with help of SurveyXact [Rambøll 2009]. The results of an average analysis are at the end of the paper.

3. Results of Research

As shown in Diagram 1 it is the respondents' opinion that it is not the facilitator who makes technical decisions when the group work with projects; and if so only to a small degree.

When doing case work more than 3 out of 4 of the respondents' - 84% - are of the opinion that the facilitator makes technical decisions in a small or in some degree. 13% say that it is not the facilitator who makes technical decisions.

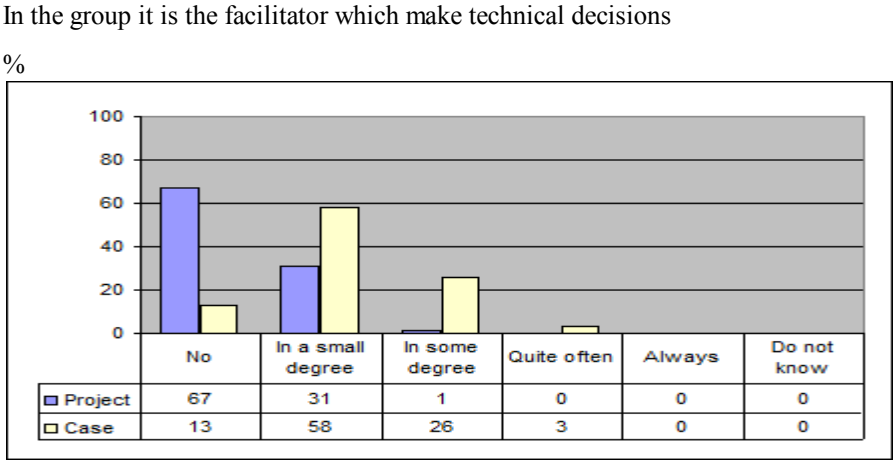

Diagram 1.

The same picture is seen in diagram 2, but even stronger. Decisions related to project work are not a subject area for the facilitator according to the respondent. When students do project work the facilitator do not (77%) or only to a small degree (23%) make the decisions. Doing case work the facilitator do not participate in decisions according to 21% of the respondents while 76% answer that it happens to a small degree (58%) or to some degree (18%).

In the group it is the facilitator which make decisions related to project work/case management and work

%

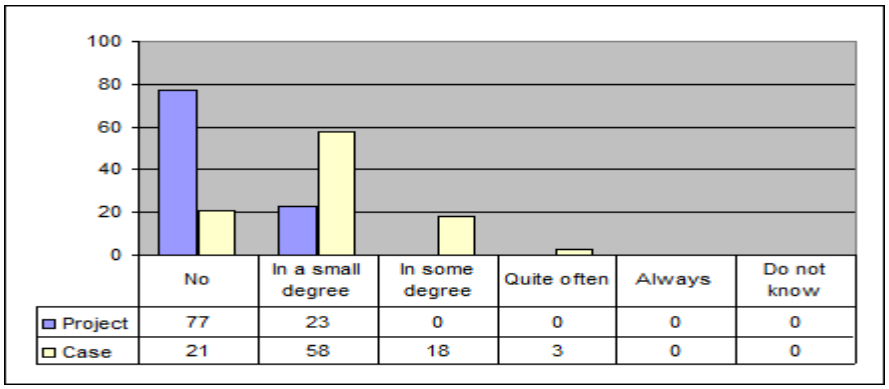

Diagram 2.

The conclusion related to the questions in diagram 1 and 2 could be that the facilitator only to a limited degree controls the group when they work with project and more often when working with cases. Asked directly if the facilitator controls or directs the group the respondents answers as shown in diagram 3. Doing project work more than half the students (58%) answers blank no to the question. It is less than 2 out of 10 (18%) which gives this answer when the group does case work. The conclusion is that the control from the facilitator is stronger when students work with cases compared to project work.

The group is directed/controlled by the facilitator

%

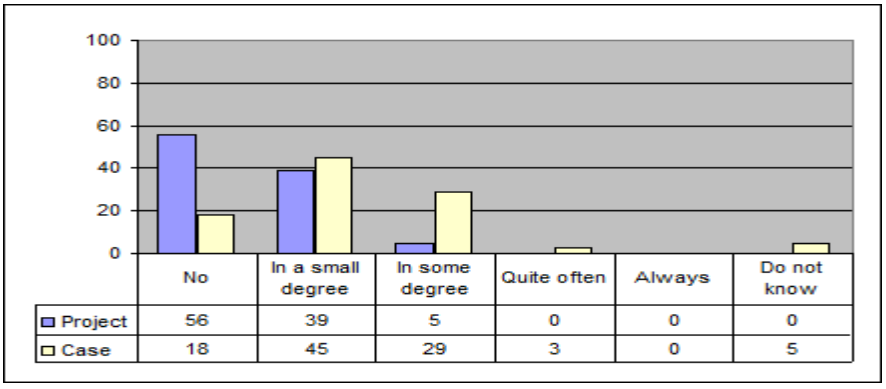

Diagram 3.

That the group is participant controlled is confirmed when asked directly. Diagram 4 shows the answers from the students to that question. 9 out of 10 (90%) responds always or quite often when they do project work and 3 out of 4 (76%) when they do case work. So even if the facilitator to some extension influence (control/direct) the group the main part of the respondent think that they are in control – more when doing project work than case work.

The group is participant controlled/directed

%

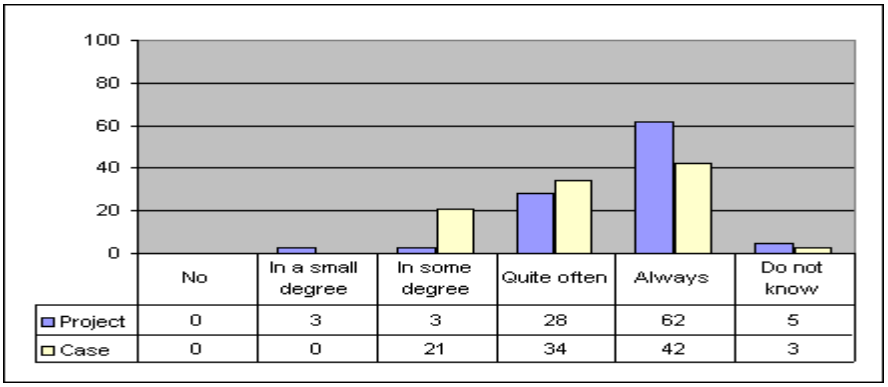

Diagram 4.

Even when most of the students are of the opinion that their group is directed by themselves it does not mean that it is managed in a democratic way. It could be managed by one or more strong students who take important decisions without much discussion. But it seems not to be so. Asked if their group uses discussions to reach technical decisions and decisions related to project and case work – diagram 5 and 6 – a big majority of the respondents answer that they always or quite often reach technical and process decisions after discussions. As seen in diagram 5 and 6 the frequency is almost the same for decisions related to technical issues and decisions related to project management issues when the student do project work. 93% and 89% respond that they use discussions quite often or always. When doing case work 69% and 61% respectively give this answer.

In the group we use discussions to reach technical decisions/case-decisions

%

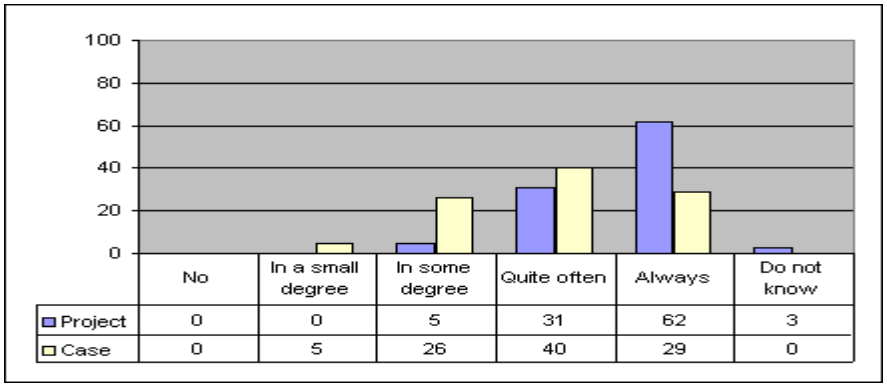

Diagram 5.

In the group we use discussions to reach decisions related to project work/case management and work

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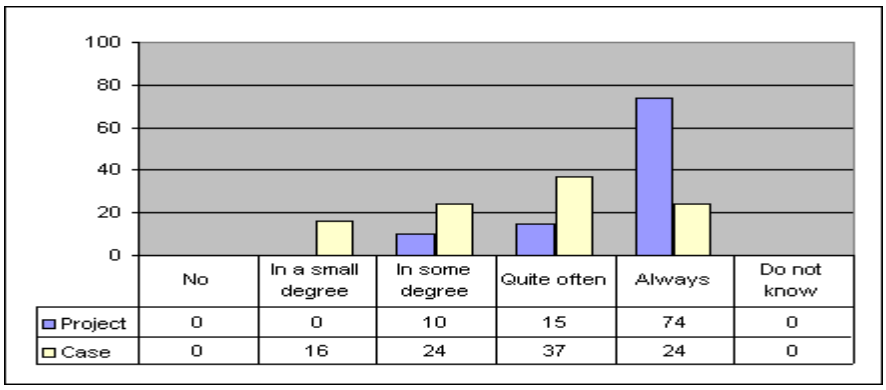

	No	In a small degree	In some degree	Quite often	Always	Do not know
Project	0	0	10	15	74	0
Case	0	16	24	37	24	0

Diagram 6.

Asked if it is one or a few who dominates and make technical decisions or decisions related to project or case management the respondents answer – diagram 7 - that it happens in a small degree or not at all (77%). It seems easier for the few to dominate in case work. 45% answers that it happens so quite often or always. This trend is also obvious when decisions are related to managing the processes related to the project or the case – diagram 8. Every second of the students (56%) respond that it happens in a small degree that one or a few take the lead, while 2 out of 3 (66%) respond that it happens in some degree or quite often.

In the group it is one or a few which dominates and make technical decisions/case-decisions

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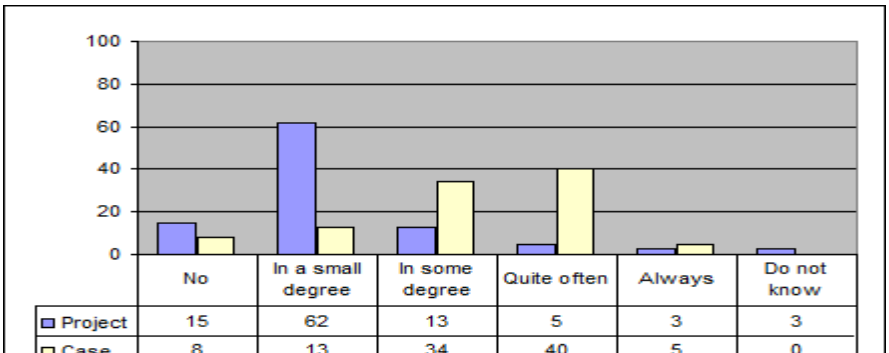

	No	In a small degree	In some degree	Quite often	Always	Do not know
Project	15	62	13	5	3	3
Case	8	13	34	40	5	0

Diagram 7.

In the group it is one or a few which dominates and make decisions related to project work/case management and work

%

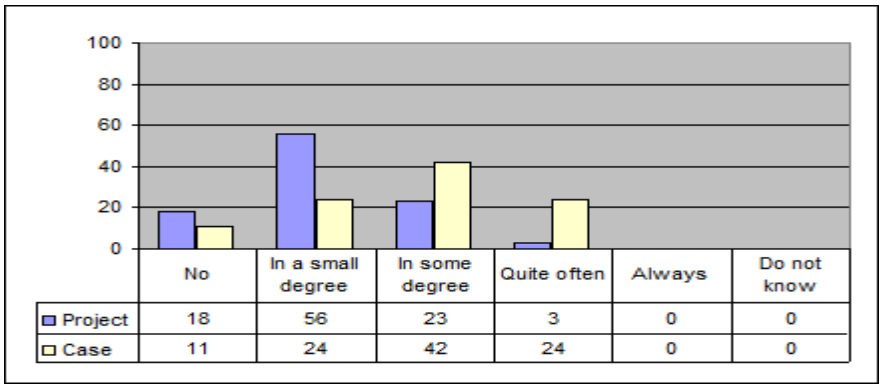

Diagram 8.

Nearly all the respondents see their group as a democratic study unit – always or quite often - when they are working with the project – diagram 9. 95% of the students respond so. 68% of the students give the same answer when they are solving cases. It is 30% less compared to project work.

The group is democratic (decisions are discussed and everybody

can participate)

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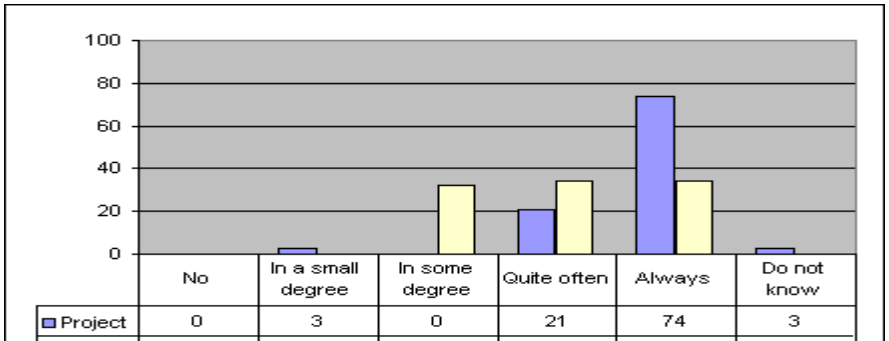

Diagram 9.

4. Conclusion

Discussions can help students to develop competences necessary for participatory citizenship in a multicultural society. It enhances critical thinking and deepens understanding of democratic concepts and issues, it develops a more democratic study environment and it influences future political participation (Marri, 2003).

A learning system where the students have the possibility to discuss technical or professional decisions or decisions related to the processes they are involved in indicates a democratic learning system (Qvist 2008). The Aalborg Model in its classic form is a democratic learning system although not a 100% democratic. Learning in courses is typical conventional and one way communication. The courses constitute an elitarian subsystem within the model. The MIS program at The Faculties of Engineering, Science and Medicine - has combined the classic Aalborg Model with the Hull York Medical School Model and built a model where cases substitute learning in courses. This new model has enhanced the room for democratic learning. Roughly measured as ECTS it is 27% in the first semester and 71% in the second semester – totally enhancing the room for democratic learning from 32 ECTS to 48 ECTS – or 50% - during the first year.

Going from the model level to the students daily life in groups at the first year of the MIS program the students have responded that the learning system of the MIS program is experienced as democratic by most of the students. And even more when the learning is project-based in groups compared to solving cases in group. But some students think that the facilitator or strong students influence the decisions. Most when the group works with cases and less when working with a project,

5. Discussion

Not all democratic learning systems are equal. Some are more democratic than others. Both at model level as well as in reality. It seems difficult to measure and rank different democratic learning systems. But it is possible to discuss and compare them and raise the question: Are all democratic learning systems equal? Does it matter which one is practised when it comes to help students to develop competences necessary for participatory citizenship in a multicultural society, enhance critical thinking and deepen understanding

of democratic concepts and issues, influence more democratic study environment and future political participation?

There are not any easy answers to such questions. More research is needed. But this study shows that groups doing project work are more democratic than groups doing case work. But does this also mean that groups doing project work develop more democratic competences than student engaged in solving predefined cases?

It is also reasonable to raise the question: Can a learning system – or in this case – a subsystem within the Aalborg Model – be classified as a democratic system when one result of the discussion – the learning outcomes – is predefines. Is it rather an elitist system with the facilitator as the final authority knowing the right answer? It is not the students themselves who are responsible for the results of the discussion and the discussion does not seem to be without supremacy. Also when it comes to the process management it seems to be a deficit in the fact that the 7 steps is not for discussion. It seems reasonable to conclude that a case based PBL curriculum is less democratic than a project based system but still more democratic than a conventional learning system with conventional classroom courses. Some would perhaps classify the case based model as a semi or pseudo democratic learning system, it looks like a democratic system but it is rather elitist. Discussions are pseudo-democratic activities with the facilitator or moderator in control partly unrecognized by the students.

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Appendix

Table 3. Average analysis, project work

Question	Observed minimum	Observed maximum	Average	Respondents
1. In the group its the facilitator which make technical decisions	1,00	3,00	1,37	38

2. In the group its the facilitator which make decisions related to project work	1,00	2,00	1,24	38
3. The group is directed/controlled by the facilitator	1,00	3,00	1,47	38
4. The group is participant controlled/directed	3,00	6,00	4,71	38
5. In the group we use discussions to reach technical decisions	3,00	6,00	4,63	38
6. In the group we use discussions to reach decisions related to project work	3,00	5,00	4,66	38
7. In the group it is one or a few which dominates and make the technical decisions	1,00	6,00	2,24	38
8. In the group it is one or a few which dominates and make the decisions related to the project work	1,00	4,00	2,08	38
9. The group is democratic (decisions are discussed and everybody can participate)	2,00	6,00	4,74	38

Table 4. Average analysis, case work

Question	Observed minimum	Observed maximum	Average	Respondents
1. In the group its the facilitator which make technical decisions	1,00	4,00	2,18	38

2. In the group it's the facilitator which make decisions related to case management and work	1,00	4,00	2,03	38
3. The group is directed/controlled by the facilitator	1,00	6,00	2,37	38
4. The group is participant controlled/directed	3,00	6,00	4,26	38
5. In the group we use discussions to reach technical case-decisions	2,00	5,00	3,92	38
6. In the group we use discussions to reach decisions related to case management and work	2,00	5,00	3,68	38
7. In the group it is one or a few which dominates and make the technical case-decisions	1,00	5,00	3,21	38
8. In the group it is one or a few which dominates and make the decisions related to case management and work	1,00	4,00	2,79	38
9. The group is democratic (decisions are discussed and everybody can participate)	3,00	5,00	4,03	38