



**Continuous Examination
with
Increased Student Participation
in the
Medical School in Uppsala**

Persson E, Ander F*, Hoppe A, Nyström K*, Birgegård G

Educational Unit for the Study Programme in Medicine
(administratively under the Dept of Medical Sciences),
Faculty of Medicine, Uppsala University, Sweden

*Medical students when working with the project

ABSTRACT

The Study Programme in Medicine in Uppsala is in a process of radical change. The traditional curriculum is currently being changed into an integrated case-based one. This project has focused on developing a proposal for formative as well as summative assessment methods increasing the involvement of students in the educational activities. Small-group discussions, peer and self assessments, MEQ-construction, log books and other activities have been tested in the old curriculum in order to find activating methods promoting understanding and long-term retention of knowledge. Values important to the project are the assumptions that students learn with more joy and with better retention when actively involved in the learning and assessment situation in ways that also promote increased awareness of their own learning process as well as how others handle their studies.

Keywords

Higher Education, Classroom Research, Instructional Innovation, Medical Students, Problem Based Learning, Group Discussions, Formative and Summative Evaluation

Teaching and learning is not the same thing. Educational activities will give an opportunity for learning but a presentation by a teacher, e.g. a lecture, does not guarantee learning to occur in the recipient students. Several areas of research have provided an increasing amount of evidence on the need of the learner to actively deal with the subject content. Using more than one method in the learning of a specific concept may improve understanding and thereby enhance retention of the knowledge.

The learner will construct his/her own knowledge, starting from individual experiences and preconceptions that will be challenged in interactions with the environment, i.e. teachers, other students, patients, practical situations etc. The learner actively uses these different resources in a process of developing perceptions and concepts through reasoning, analysis, reflection and association, i.e. integrating new insights with preexisting. This view is inspired by the concept of “experiential learning” as presented by David Kolb (1984) who, together with Roger Fry, in turn were influenced by the work of e.g. John Dewey, Kurt Lewin, Jean Piaget and J. P. Guilford.

The aims of all educational activities are to reach this integration of gained knowledge into an understanding and thereby ability to use it in different situations. To reach this, the view on learning among both students and teachers have to be considered and dealt with. The importance of this approach, and how to support it, is presented by D.P. Newton (2000) in his book “Teaching for understanding”.

In a sociocultural perspective, the institutionalized educational systems have a difficult task in trying to provide realistic, fascinating and challenging learning environments (Säljö, 2000). Medical education has a slightly better situation than many other subjects as health care systems are integrated with the activities included in the study programme.

The Study Programme in Medicine in Uppsala is in a process of radical change. The traditional curriculum is currently being changed into an integrated problem-based model with small groups of students working with cases built on real-life situations. The assessment activities, including formative as well as summative evaluations, will be important tools in order to direct student learning towards long-term retention of knowledge, in-depth understanding, critical thinking and self-evaluation.

The previous curriculum has been dominated by lectures in the first years and little integration between clinical and preclinical subjects. In a lecture-based set-up, the performance of students is usually controlled mainly through final written exams in addition to compulsory participation in some parts of the course content, but without much feedback or reflection on neither the knowledge gained nor the learning process. In practical or medical study programmes, also practical and/or oral tests are commonly used, sometimes with individual feedback.

An assessment format with focus on summative evaluations allows the students to refrain from continuous studies and mainly “cram” before the exam. This is likely to be associated with a low level of long term retention of the knowledge gained. In addition, many students just barely pass the exam requirements, maintaining a number of misconceptions and gaps in their knowledge. Alternatives to this are to introduce formative activities like compulsory small group, case based activities (like PBL) as well as activities in association with written exams like group discussions, peer and self evaluations etc. giving the student a chance to gain increased awareness on his/her own performance in relation to the content of a test as well as enhancing the learning outcome e.g. increasing understanding and thereby retention of knowledge.

It is crucial that the assessment methods of an educational programme are congruent with the educational set-up and pedagogical principles of the programme. The objectives for the new medical curriculum in Uppsala state that the assessment methods should be integrated, based on real-life situations and focus on understanding of fundamental concepts and mechanisms rather than asking for reproduction of facts.

The assessment methods should also have a considerable formative component, i.e. being continuous throughout the education. The rationale for this approach is to stimulate studies throughout a course, enhancing reflection and retention. In addition, both students and teachers will get improved possibilities to follow the knowledge build-up and increasing level of understanding within the student, in relation to both educational learning goals and the performance by other students.

The assessment format can give the students a more active role and considerable responsibility through different methods for student involvement, e.g. actively deciding learning goals, performing peer/self assessments and reviewing/scrutinizing or constructing exam tasks/questions as well as cases for small-group work. In relation to an increased level of student involvement in educational activities, the degree of individual feedback should increase for the expected outcome to be fulfilled. Methods including feedback as an integrated component are portfolios and log books, where the students are stimulated to reflect on their own performance and learning as well as discussing this with teachers/mentors.

A variation in assessment methods is of value based on both the need to be interesting and activating for the students and suiting different learning styles, as well as stimulating and testing development of the different abilities that a university student by law (Higher Education Act, 1992) is expected to develop.

Two different views, performative respectively focused on development of competence, on the educational culture/discourse, are discussed by Åsa Lindberg-Sand (2003) based on theories by Bernstein (1996). The performative view represents a standardized way of communication, mainly lectures, with clearly defined goals for student performance as a response to requirements set by the teacher. An advantage is that the degree of goal fulfilment easily can be evaluated. On the other hand, the approach focusing on competence is harder to evaluate but more related to the general capabilities described in the Higher Education Act. In this view, the individual learner is the “owner” of the educational situation and the knowledge build-up is based on communicative processes rather than presentations by the teacher. In most educational programmes, both models appear at the same time, fulfilling different roles and including various levels of performance. In medical education, where professional development is a crucial component in addition to the subject-based components, the approach focusing on competencies has an obvious place and it is important to find relevant ways to train and evaluate student development in this respect.

An important and crucial factor in curriculum development is the involvement of teachers in the process of working in new ways, e.g. involving students more actively compared to more “passively” in mainly lecture based teaching, as well as introducing new roles for the teachers as facilitators and mentors.

Along with a new medical curriculum being planned in Uppsala, the aims of the present project were

- to increase knowledge and awareness among teachers about assessment matters, and
- to develop both formative and summative assessment methods leading to increased student involvement and enhanced learning outcomes.

Values important to the project are the assumptions that students learn with more joy and with better retention when actively involved in the learning situation in ways that also promote increased awareness of their own learning process as well as how others handle their studies.

METHOD

This project involved teachers and medical students in Uppsala, at different semesters and courses of the Study Programme in Medicine at Uppsala University. There are 75-80 medical students in each cohort, admitted per semester. During the clinical years they are sometimes divided into two halves, with alternating educational content, as well as often working in small groups of 8-9 students. During clinical rotations, they are placed in smaller groups at different clinics and hospitals.

Present and future assessment methods

The project started with an inventory of assessment methods in the on-going curriculum. Course plans and schedules were studied and course directors were visited for interviews.

Related to the curriculum reform, one part of the project activities became focused on development of a proposal for assessment methods in the new curriculum.

Organization of seminars and participation in “Teacher’s days” (Faculty development days) on assessment issues were planned, in order to present the inventory of assessment methods as well as proposals for the new curriculum.

Group discussions, peer/self assessment and follow-up with teachers

In association with assessment activities of the old curriculum, the project group, together with interested teachers, planned a number of pilot activities, focusing on activities that would increase student activity and enhance learning outcome. An action-oriented approach was implemented, with adjustments made from one semester to another based on experience and evaluations.

1. Cell biology (CBB)

The education in cell biology lasts 36 weeks, divided into five periods of four to six weeks each. Lectures, laboratory practical activities and seminars occupy the schedule, with the lectures being the main source of educational content. Following *a written exam* after the fourth period, the assessment methods were implemented as follows during two consecutive semesters (spring and autumn 2004):

- *Self evaluation:* Each student got a copy their individually written exam, after which the student could take the copy home and complete the answers.
- *Small-group discussions* were held a couple of days later, during which possible answers for the exam questions were discussed. Unclear aspects, so called “muddy points” were

identified and handed in to the teachers who presented the responses to the students when the exam papers were returned or on the course web site.

- The improved exam was then handed in. A student with a border-line no-pass on the original exam could achieve a pass grade if improvements were substantial.
- A *follow-up* with teachers was planned but could not be performed.

2. Clinical chemistry (CC)

The clinical chemistry course spans two full-time weeks for the full cohort of students, during the beginning of the year of internal medicine (semesters 6-7). It comprises lectures, case studies and laboratory practicals week one. In the middle of week two, the assessment is introduced in the format of a *case-based home assignment*. During five consecutive semesters (from the spring of 2004 until the spring of 2006) the following was carried out:

- Answers to the home assignment were handed in individually via e-mail and marked by teachers.
- During the first two semesters, the answers were also sent for *peer review*. That component was then abandoned due to technical constraints.
- *Small-group discussions* were held on the case and the questions in the home assignment. Questions as well as “muddy points” were identified to be presented at the follow-up.
- A *follow-up* concluded the assessment. The teachers reviewed the case study and interacted with the student groups presenting their questions from the preceding discussions.

3. Oto-rhino-laryngology (ORL)

As a part of the tenth semester, half of the cohort, i.e. about 40 students at a time, follows this four week course consisting of two weeks with lectures and practical training on ORL-examination techniques, followed by two weeks at the wards. At the end of the course, a *written exam* is held. The students were assessed as follows at two occasions (March of 2004 and 2005):

- Some of the questions of the written exam were presented as *images or video clips*, making this assessment simulate real clinical situations to a higher degree.
- After the exam, *small-group discussions* were held. Every student randomly received an exam paper (anonymous) from one of the other students, for reference and *peer-review* during the group discussion. Remaining questions were brought to the follow-up.
- A *follow-up* with a teacher ensued, reviewing important aspects and discussing questions raised by the students.

4. Construction of MEQ-questions

During the year of internal medicine (semesters 6-7), problem based learning (PBL) has been used in the medical curriculum for several years. A mid-course test as well as the final written exam of that year has the Modified- Essay Question (MEQ)-format. Using all the *PBL-groups* (9 groups, totally about 75 students) and the subject of the latest case worked upon by each group, the students were assigned to construct MEQs, complete with answers. The trials were designed as follows:

- Autumn 2004 – the subject for the MEQ was not influenced in advance. The MEQs were handed in and made available for all students to use as study stimuli when preparing for the final exam.
- Spring 2005 – the week before the MEQ-construction was to start, the facilitators were asked to choose a case on a subject of which they had good knowledge. The student group then constructed a MEQ on that subject, and handed it over to the facilitator for review. After feed-back and adjustments by the groups, the questions were handed in for use in the mid-course test.

5. Log book

In the spring of 2005, 31 students on the 6th semester, i.e. the beginning of the year of internal medicine, were introduced to the use of a log book during some of their clinical rotations. The students were assigned a mentor for a follow-up discussion on the notes in the log book.

Problem-based learning

The intentions of the new curriculum in Uppsala were to introduce problembased learning through out the curriculum. The project group therefore developed outlines and preparatory activities for implementation of the method.

Evaluation methods

The above activities were evaluated in several different ways:

- The aim of increasing knowledge and awareness among teachers on assessment matters was not formally evaluated but assessed through continuous contacts with the teachers.
- The activities related to assessment in the old curriculum were evaluated by questionnaires (see example in Appendix 1) to the students, observations by project staff and follow-up discussions with the involved teachers. For the log book project, also the mentors were given questionnaires.
- The PBL activities in the new curriculum were evaluated in writing by the students regarding the specific PBL-cases as well as the whole course. In addition, follow-up meetings were held with the facilitators and focus groups meetings with the students.

RESULTS

Involvement of the teachers in a process of change

The inventory of the assesement methods in the old curriculum confirmed the previous view on mainly written exams in the preclinical part and a combination of written tests and practical skills exams during the clinical years. A report on the inventory including ideas from teachers presented during interviews and seminars can be found on the faculty website (Pedagogiska enheten, 2003).

The project group organized several seminars on assessment issues, including the above on the inventory and on MEQ-construction as well as with invited speakers; Göran Thomé from Lund

on portfolios, and Widar Henriksson from Umeå on assessment methodology. The group also participated in several faculty development activities organized by the Committee for the Study Programme in Medicine. In addition, members of the project group participated in locally arranged seminars on assessment and curriculum development as well as in international educational conferences like AMEE (Association of Medical Education in Europe) where results from the project has been presented twice (Persson et al., 2005, 2006). The experience gained at the above occasions were continuously used in communication with teachers in Uppsala.

Along with the development of the new curriculum and inspired by insights from local meetings and discussions, together with impressions from international development, the project group designed a proposal for assessment methods in the new curriculum. This proposal (see Appendix 2) was presented at different meetings and adjusted during a couple of years.

Value of group discussions in association with assessment activities

Evaluations of the projects' assessment activities in the old curriculum showed that group discussions were well valued by the students. Both results from questionnaires, observations by the project group and impressions from the involved teachers, confirmed this view.

A few of the questions in the questionnaires are presented in Table 1.

Table 1: Comparative mean scores from students participating in trials with group discussions. The scores represent overall means for all semesters the respective trial was carried out. CBB = Cell biology, twice; CC = Clinical Chemistry, five times; ORL = Oto-rhino-laryngology, twice

	CBB	CC	ORL
a) When you were informed that the assessment would include peer review, group discussion and teacher follow-up, how did you feel then? (negative – 1, positive – 5)	3,5	3,5	3,1
b) What was your experience of the group discussion regarding the exam questions? (negative – 1, positive – 5)	3,6	3,7	3,8
c) Were muddy points and alternative answers identified during the group discussion? (no, not at all – 1; yes, to a high degree – 5)	3,2	3,9	3,8
d) Did the group discussion mean that you made new insights and developed your understanding in this subject? (no, not at all – 1; yes, to a high degree – 5)	3,0	3,5	3,3
e) What was your experience of the teacher follow-up? (negative – 1, positive – 5)	-	3,6	3,6
f) Did the teacher follow-up mean that you made new insights and developed your understanding in this subject? (no, not at all – 1; yes, to a high degree – 5)	-	3,6	3,2
g) Were the muddy points and alternative answers identified during the group discussion presented to the teachers at the teacher follow-up? (no, not at all – 1; yes, to a high degree – 5)	-	3,4	3,1
h) What is your experience of participating in this trial assessment? (negative – 1, positive – 5)	4,0	4,0	3,8

Some notes on Table 1:

- Comparing a) with h), the overall result shows that the students were more positive after the activity than before.
- The relatively high scores on b), e) and h) shows an appreciation by the students to the set-up.
- Comparing c) and g) for CC and ORL, suggests that questions and muddy points were identified during the group discussions to a higher degree than finally presented to the teachers. That finding is supported by observations from the project staff that listened to both group discussions and follow-up sessions.
- The results on d) and f) was lower than expected.

From the results of the five trials in clinical chemistry, mean scores are presented in Table 2 on selected questions, specifically for students scoring one or two on the question "When you were informed that the assessment would include peer review, group discussion, teacher follow-up, how did you feel then?". The rationale for this approach was to investigate whether initially negative students maintained their view throughout the activity or not. The results show that they did not. Instead, they increased their appreciation considerably more than the average student.

Table 2: Clinical chemistry students giving score one or two on the question "When you were informed that the assessment would include..., how did you feel then?", compared to the mean of the whole class (in brackets) for each of the five implementations (A-E).

	A	B	C	D	E
When you were informed that the assessment would include peer review, group discussion, teacher follow-up, how did you feel then? (negative – 1, positive – 5)	1,6 (3,3)	1,8 (3,2)	1,8 (3,5)	1,9 (3,7)	2,0 (3,7)
What was your experience of the group discussion regarding the exam questions? (negative – 1, positive – 5)	4,1 (4,4)	3,1 (3,4)	2,6 (3,5)	3,3 (3,8)	4,4 (4,3)
What was your experience of the teacher follow-up? (negative – 1, positive – 5)	3,3 (3,8)	3,3 (3,6)	2,9 (3,2)	3,6 (3,9)	3,0 (4,0)
What is your experience of participating in this trial assessment? (negative – 1, positive – 5)	3,0 (3,8)	3,6 (3,9)	3,0 (3,7)	4,4 (4,2)	4,3 (4,2)

Constraints to self and peer assessment

Self assessment as included in CBB were appreciated by the students on the border to pass as they could influence their result which also a few did during each of the two trials on this course. The students that were sure of either passing or failing did not value the self assessment highly. The practical constraints with copying all the exam papers directly after the exam excluded the set-up from being continued by the ordinary staff handling the exam. However, the course director found it very valuable to stimulate the weak students to increased efforts.

Peer assessment was used in the first two implementations of CC and during both implementations of ORL. The set-up was abandoned for CC due to technical problems in sending several e-mails during a couple of hours. For ORL, the appreciation of the peer assessment was limited. Based on comments by the students, the time to scrutinize was too short and did not give the expected outcome of insights into the learning of other students.

Activities during the year of Internal Medicine

Construction of Modified Essay Questions

Student answers on selected questions are presented in Table 3. The students were only slightly more positive after the activity than before and the scoring was generally lower than for other activities within the project. A high score was given for question e) on review by a teacher being important which was also an impression from the involved teachers.

Table 3: Comparative mean scores from students in Internal Medicine participating in MEQ construction activities during two different semesters; A = autumn 2004; B = spring 2005.

	A	B
a) When you were informed that your group would construct a MEQ in conjunction with a PBL group meeting, how did you feel then? (negative – 1, positive – 5)	2,1	3,0
b) Did you use the MEQs constructed by other groups as study stimuli? (no, not at all – 1; yes, to a high degree – 5)	1,6	-
c) Did the construction of a MEQ mean that you made new insights and developed your understanding in this subject? (no, not at all – 1; yes, to a high degree – 5)	3,0	3,7
d) Was the tutor a support during the MEQ construction? (no, not at all – 1; yes, to a high degree – 5)	-	3,8
e) Is it important that MEQs which has been constructed by student groups are reviewed before they are used as study stimuli (A) or in exams (B)? (no, not at all – 1; yes, to a high degree – 5)	4,6	4,7
f) What is your experience of participating in this trial assessment? (negative – 1, positive – 5)	2,4	3,2

Log book

One out of 31 students handed in a completed log book with detailed and enlightening responses. Three students and five mentors answered the follow-up questionnaire. The answers received indicated a potential value of a log book for students during clinical rotations. However, both the introduction of the method to students and mentors, as well as the log book questions in relation to other educational activities, would require further development in order to be meaningful and thereby used. It was difficult to recruit mentors and for the mentors and students to find suitable times to meet. The introduction of a method like a log book, or possibly portfolio, is considered as very important by the course directors and adjustments in the set-up are planned. Due to organizational and staff constraints, these efforts could not be continued during the period of the present project.

Introduction of and preparations for Problem Based Learning (PBL)

Activities established in relation to the start of PBL in the new curriculum included:

- presentations of the method as a formative assessment tool at seminars and meetings, as well as to the Committee for the Study Programme in Medicine,
- courses on case construction,
- facilitator training courses,

- support to course design and case construction,
- case testing with older students,
- development of instructions for facilitators respectively students,
- introduction to new students on the PBL-method by use of older students demonstrating,
- meetings with student focus groups,
- follow-up meetings and individual support to facilitators, and
- summaries of impressions on the outcome of the method, based on input from written case and course evaluations as well as from other sources, presented to course directors and the Committee for the Study Programme in Medicine.

A finding during the introduction of PBL was that both case construction and course design was difficult for the teachers to handle without prior experience of the method. Courses on case construction were given early in the process but that was not enough. The teachers were reluctant to participate in courses for facilitators until the new curriculum was very close to start. Then it was revealed that the experience from facilitating groups illustrated implications of the method for both case construction and course design.

Assessment methods in the new curriculum

The new curriculum started in January 2006 and focus has been on implementing the PBL-method. The summative assessments have received less attention but the project group has supported the course directors in developing MEQ-inspired assessments.

The process of implementing several of the assessment methods suggested by the proposal (Appendix 2) from the project group will continue.

DISCUSSION

Both the implementation of new methods to carry out specific educational activities, as well as the introduction of a new curriculum requires a lot of changes for the teachers concerned. The results of this project shows that solutions to technical and course administrative aspects as well as positive involvement by concerned teachers are crucial components for success. In addition, when changes involve a whole study programme, also support by and relevant decisions from the Undergraduate Committee of the Faculty are crucial.

The most striking result of the activities in association with written exams was that peer-group interaction with discussion of muddy points was considered to be of highest value. The ideal preference by the students would be to have small group discussions after the exam about muddy points in their understanding, followed by teacher feed-back in the same small group, or, if the latter could not be offered, a whole-group feed-back.

The project group has presented a proposal on both formative and summative evaluation activities for the new medical curriculum in Uppsala. Introduction of the PBL set-up in the course design and a new role, as facilitators, for the teachers has been in focus during the initial phase of the new curriculum. As this formative method becomes established in the educational system, more focus can be given to supplementing activities as well as the summative assessments.

The experience from the trials presented in this project gives support to small-group based activities, like the PBL set-up as well as in association with summative assessments. The positive evaluation of the learning climate during the group sessions, implies that the method does not have any social, or other types of dynamics, working against it in the process of knowledge/information processing. What this means for the amount of gathered and incorporated knowledge is not known, but we can suspect that it has a positive influence on the level of understanding.

Some difficulties were experienced in finding ways to handle self assessment and peer reviews, as well as the log book, without administrative and practical constraints. These methods are still believed to be very valuable for the students personal development and understanding. Therefore, in order to be successful, they need to be further developed and introduced in the course schedules with better preconditions. Also the construction of MEQs would have the potential to contribute to the learning process but also that set-up requires another format than the way it was tested in the present project.

The change of attitude (see Table 2) amongst the “negative” students during the implementations was an interesting finding. It shows how preconceptions are not firmly set in students when it comes to assessment methods, and also that negative attitudes from students, and/or others involved in a reform, should not be taken too seriously. These students might represent a subgroup feeling insecure in new situations. In this case, they had never experienced activities like these before, and they did not know exactly what was expected of them. During the trial the insecurity faded, and so did the negative attitude.

Another interesting finding was that the question “Were muddy points and alternative answers identified during the group discussion?” tended to receive quite high scores from the students. This implies that a very important part of our expectations when introducing group discussions, were realized. The high scores, especially in relation to the lower scores on what was actually presented to the teachers as well as on the degree of gaining new insights, indicate a potential to be utilized for further knowledge build-up. Maybe another form of teacher support than the follow-up in whole class, or more detailed instructions for the group discussions, would aid the process of getting muddy points clarified.

In conclusion, the present project has been carried out during a faculty process of curriculum change which has complicated some activities but mainly given a chance to in-depth involvement in the process. Alternative methods to assess and support learning and understanding among students have been tested and valuable experience has been gained. The implementation of the new curriculum will continue and the proposals resulting from the project activities will be an integrated part of future development of the new Study Programme in Medicine in Uppsala.

Utvärdering av gruppdiskussioner i klinisk kemi i samband med granskning av studiekamrats skrivning 22 oktober 2004

Är du Kvinna Man

1. När du fick information om att duggan skulle omfatta granskning av en kamrats skrivning, gruppdiskussion och uppföljande skrivningsgenomgång – hur upplevde du det?

Negativt	1	2	3	4	5	Positivt
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Kommentarer

2. Hur fungerade det praktiskt sett att byta skrivning med en kamrat?

Dåligt	1	2	3	4	5	Bra
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Kommentarer

3. Hur upplevde du granskandet av en kamrats skrivning?

Negativt	1	2	3	4	5	Positivt
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Kommentarer

4. Innebar granskningen av en annan students svar att du gjorde nya insikter och utvecklade din förståelse inom det ämnesområde som skrivningen omfattade?

Nej, inte alls	1	2	3	4	5	Ja, i hög grad
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Kommentarer

5. Hur upplevde du gruppdiskussionen om skrivningsfrågorna?

Negativt	1	2	3	4	5	Positivt
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Kommentarer

6. Hur var diskussionsklimatet i gruppen?

Negativt	1	2	3	4	5	Positivt
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Kommentarer

7. Respekterades alla i gruppen och fick alla komma till tals?

Nej, inte alls	1	2	3	4	5	Ja, i hög grad
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Kommentarer

8. Under gruppdiskussionen - Identifierades oklarheter och alternativa svarsvarianter för skrivningens frågor?

Nej, inte alls	1	2	3	4	5	Ja, i hög grad
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Kommentarer

9. Följde din grupp instruktionerna för gruppdiskussionen?

Nej, inte alls	1	2	3	4	5	Ja, i hög grad
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Kommentarer

10. Innebar gruppdiskussionen att du gjorde nya insikter och utvecklade din förståelse inom det ämnesområde som skrivningen omfattade?

Nej, inte alls	1	2	3	4	5	Ja, i hög grad
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Kommentarer

11. Om det fanns en observatör i din grupp – störde det gruppens arbete?

Ja, i hög grad	1	2	3	4	5	Nej, inte alls
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Kommentarer

12. Fick du återkoppling från den student som granskade din skrivning?

Nej, inte alls	1	2	3	4	5	Ja, i hög grad
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Kommentarer

13. Gav du återkoppling till den student vars skrivning du granskade?

Nej, inte alls	1	2	3	4	5	Ja, i hög grad
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Kommentarer

14. Hur upplevde du skrivningsgenomgången?

Negativt	1	2	3	4	5	Positivt
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Kommentarer

15. Framfördes de oklarheter och alternativa svar som din grupp identifierat vid skrivningsgenomgången?

Nej, inte alls	1	2	3	4	5	Ja, i hög grad
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Kommentarer

16. Innebar skrivningsgenomgången att du gjorde nya insikter och utvecklade din förståelse inom det ämnesområde som skrivningen omfattade?

Nej, inte alls	1	2	3	4	5	Ja, i hög grad
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Kommentarer

17. Vilken är din upplevelse av att medverka i detta pilotprojekt om examinationer?

Negativt	1	2	3	4	5	Positivt
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Kommentarer

18. Övriga kommentarer

Methods of assessment suggested for the medical programme in Uppsala

1. Integrated summative assessment for a full semester or major part of a semester

- 1.1 Written: Essays, e.g. MEQ (modified essay question) or similar. Duration from shorter (2-3 h) to longer (5-6 h) depending on subject content and period covered.
- 1.2 Oral: Several evaluators assessing; individual or groupbased performance (always individual judgement), with or without combination with written or practical test components.
- 1.3 Tests on practical skills, e.g. OSCEs.

2. Formative assessment

- 2.1 Written test covering a part of a course (MEQ, SAQ, MCQ etc)
- 2.2 Oral test covering a part of a course
- 2.3 Practical skills test on part of a course or on progress of performance
- 2.4 Activities related to case-based work in small groups (collaborative or Problem Based Learning, PBL)

Problem based work in small groups is an important component in the design of the new medical curriculum. Therefore, thoroughly introducing the students to the set up and properly preparing the teachers for the role as facilitators are crucial steps for the method to function according to the intention. Compulsory presence at the PBL-group meetings was therefore suggested and absence should be compensated with a written PM.

2.4.1 Requirements for satisfactory participation in the PBL-group work includes that each student

- is present (absence should be substituted with a written memo).
- follows the group agreement on respect/attitudes within the group, to be in time etc.
- shows active involvement in the discussion when the group starts to work on a case.
- is personally responsible for his/hers independent studies and preparation for the in-depth discussion at the second meeting on a case.
- actively contributes when identifying "muddy points", i.e. unclarities and aspects/phenomena that are difficult to grasp, as well as in identifying the limits for current scientific knowledge related to the case. "Muddy points" are to be handed in to the responsible teacher who gives a follow-up lecture.
- participates in an active and constructive way in evaluations of the group work at the end of each group meeting.

2.4.2 Application of gained knowledge on a new case

Directly after, or in relation to, the final discussion on a problem, the group is given the task to use their recently gained knowledge in dealing with a new problem within the same subject area as for the previous problem.

2.4.3 Case construction

Directly after the final discussion on a problem, the group is given the task to use their recently gained knowledge to construct a problem within the same subject area as the previous problem, or for a related area earlier in the curriculum.

2.4.4 Construction of Modified Essay Questions

Directly after the final discussion on a problem, the group is given the task to use their recently gained knowledge to construct the core (several steps with questions and answers) of a question for a MEQ-test to be used for assessment of the subject area of the present studies of the group, alternatively for a related subject earlier in the curriculum.

3. Oral and written presentation

3.1 Writing PM/memos

3.2 Project/thesis work, written and oral presentation

3.3 Oral presentation with feedback

4. Supplementary methods

- in order to improve the conditions for individual/personal development, learning and taking on responsibilities.
- to promote learning during the assessment situation/occasion.

4.1 Peer-review/evaluation (the student marks or scrutinizes the work by another student)

4.2 Self-evaluation (the student marks or scrutinizes his/her own work)

4.3 Portfolio (a collection of proof on the performance by the student including continuous feedback reports)

4.4 Group discussions on different issues (either fresh to the group or previously prepared individually) in relation to an exam or at other relevant occasions during a course

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Address to author: Elisabeth Persson, Educational Unit for the Study Programme in Medicine, Kunskapscentrum, Entrance 61 1st floor, Akademiska Hospital, SE-751 85 Uppsala