

Skills Training in Laboratory and Clerkship: Connections, Similarities, and Differences

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Abstract: Context: During the third semester of a 6-year long curriculum medical students train clinical skills in the skills laboratory (2 hours per week for 9 weeks) as well as in an early, 8-week clinical clerkship at county hospitals.

Objectives: to study students' expectations and attitudes towards skills training in the skills laboratory and clerkship.

Subjects: 126 medical students in their 3rd semester.

Methods: During the fall of 2001 three consecutive, constructed questionnaires were distributed prior to laboratory training, following laboratory training but prior to clerkships, and following clerkships respectively.

Results: Almost all (98%) respondents found that training in skills laboratory improved the outcome of the early clerkship and 70% believed in transferability of skills from the laboratory setting to clerkship. Still, a majority (93%) of students thought that the clerkship provided students with a better opportunity to learn clinical skills when compared to the skills laboratory. Skills training in laboratory as well as in clerkship motivated students for becoming doctors. Teachers in both settings were perceived as being committed to their teaching jobs, to demonstrate skills prior to practice, and to give students feedback with a small but significant more positive rating of the laboratory. Of the 22 skills that students had trained in the laboratory, a majority of students tried out skills associated with physical examination in the clerkship, whereas only a minority of students tried out more intimate skills. Female medical students tried significantly fewer skills during their clerkship compared to male students.

Conclusions: Students believe that skills laboratory training prepare them for their subsequent early clerkship but favor the clerkship over the laboratory.

Key words: clinical skills, education, undergraduate, clinical clerkship

Changes in work routines at hospitals potentially limit learning opportunities during clerkships for medical students, because fewer patients are admitted for a shorter time, and because work routines take time away from teaching.^{1,2} Remmen *et al.* showed that students perform basic clinical skills poorly in traditional medical curricula, and that medical schools cannot rely on clerkship experiences alone to offer students adequate basic clinical skills training.^{3,4}

Medical schools throughout the world have established skills laboratories to supplement skills training in clerkships.^{5,6} It is assumed that skills laboratories have a potential to "bridge the gap between the classroom and the clinical setting", ease the learning of practical clinical skills⁷, and assure that medical students achieve an adequate level of clinical competence.¹ In addition, students evaluate skills laboratories highly.^{5,6} However, a skills laboratory is an expensive facility to establish and run.⁷ Therefore, it would be valuable to have evidence for the widespread assumptions of the benefits of skills laboratories. Furthermore, literature is sparse on the

connection between skills training in the laboratory and the authentic skills training with real patient in the hospital setting. The overall aim of this study was to reveal the characteristics of learning in skills laboratory and clerkships from a student perspective. The specific aims were to examine which expectations students have towards skills training, what they think characterize learning in skills laboratory and clerkship, and whether they find any benefits from skills training, when they attend their first clerkship.

Method

Context: Early clinical practice has one of the cornerstones when the Faculty of Health Sciences at the University of Aarhus introduced a new medical curriculum in 1998. The six-year long traditional curriculum remained discipline based, but clinical training was increased and emphasized. Following one year of anatomy and cell biology, the third semester includes a nine-week pre-clinical course, two weeks of social medicine, and an eight-week long clerkship (Figure 1). The pre-clinical course com-

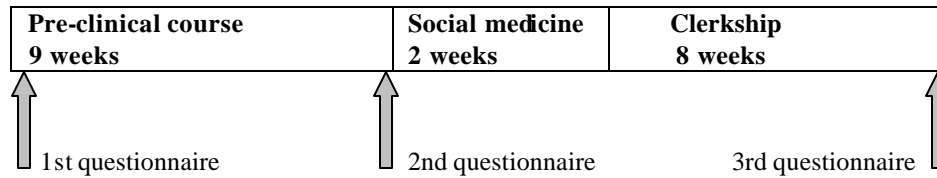


Figure 1: Context of study and time of questionnaire delivery

prises classes on physiology, psychology, communication skills, and clinical medicine including skills training. During the pre-clinical course students spend one 2-hour session per week in the skills laboratory. Senior doctors teach two to four basic clinical skills during each skills laboratory session. A total of 22 skills are taught and trained with all students using manikins, fellow students, computer simulations, and in one training session real patients (Table 1). The early clinical clerkship is the first of three clerkships. The two other clerkships each last 20 weeks and take place at university hospitals at the 8th and 10th semester respectively. The 8-week early clerkship is equally divided between surgery and internal medicine, and takes place at 10 county hospitals with a capacity of 125 to 330 beds. It is mandatory for students to participate in the skills laboratory training as well as in the clerkships. There is no assessment of students' performance, neither in the skills laboratory, nor in the clerkships.

Subjects: The study included 126 second-year students at the University of Aarhus in the fall of 2001.

Questionnaire: We used a descriptive research approach and collected data using three self-constructed questionnaires (Appendix). The first step of questionnaire construction was to identify key concepts. The key concepts included were: students' expectations towards skills training in the skills laboratory; fulfillment of expectations; characteristics of learning in skills laboratory and clerkship and self-evaluation of skills levels. The key concepts were further developed into operational concepts.⁸ The key concept of students' expectations towards skills training in the skills laboratory as an example was transformed into: quality of teaching; ethics; repetitions; organization; feedback; student activity; and teaching format. The draft questionnaires were reviewed and revised by the authors and

piloted with four to six medical students. The final first questionnaire contained 17 items exploring students' expectations and attitudes towards clinical skills training in a skills laboratory before starting the course. The second 42-item questionnaire investigated students' perceptions of skills training after completion of skills laboratory training. The third and final 41-item questionnaire enquired about students' perceived benefits of skills training during clerkship and the attitudes held by students towards skills laboratory training compared to learning clinical skills in clerkship. The responses were rated on a four point Likert scale ranging from *strongly disagree* to *strongly agree* whereas students self-assessed their skills level on a five point scale.

Procedure: During the fall of 2001 three consecutive questionnaires were distributed prior to laboratory training, following laboratory training but prior to clerkships, and following clerkships respectively (Figure 1). Students were asked to provide their student identity number, but were promised complete anonymity in the final report. Students who

Table 1
The 22 skills practiced in skills laboratory prior to clerkship

Mouth examination
Lymph node palpation
Heart auscultation
Pulse count
Blood pressure measurement
ECG
Lung auscultation
Spirometry
Neurological examination
Breast examination
Abdominal palpation
Ankle examination
Knee examination
Suturing
Venipuncture
Urethral catheterization
Gynaecological examination
Microscopic examination of urine
Urine strip test
Blood glucose examination
Microscopic examination of blood
Preparation of blood sample for microscopy

Table 2

Students' attitudes towards skills laboratory training before and after skills laboratory training (n = 99)

Statements	Before skills training (<i>strongly agree or agree</i>)	After skills training (<i>strongly agree or agree</i>)
Training increased my motivation for becoming a doctor	98%	97%
Teachers in the skills laboratory are committed to teaching	98%	98%
All students try all stations	98%	99%
Training increased my motivation for learning other subjects this semester	98%	74%
Teachers gave me feedback	98%	75%
I can try each procedure as much as I need	85%	19%

Responses were rated on a four-point Likert scale

had not filled out the questionnaire received a copy of the questionnaire by mail and were asked to return it in an enclosed pre-stamped envelope. A second and final postal reminder was sent to non-responders.

Analysis: We only included questionnaires in the analysis that were returned within set time frames in order to prevent validity problems. Frequency distributions were used to describe the respondents' attitudes prior to and following skills laboratory training. We used a student's t-test when we compared attitudes to skills training in skills laboratory and clerkship, and for gender comparison. Student's t-test

was used once it had been ensured that variance was not significantly different between groups compared. We used analysis of variance (ANOVA) to examine differences between hospitals in the number of skills tried by students.

Results

The response rates were 90% (114), 93% (118) and 96% (121), respectively, for the first, second and third questionnaire.

Table 3

Students' attitudes towards skills training in skills laboratory and clerkship (n = 111)

Statement	Following training in skills laboratory (mean ± SD)	Following training in clerkship (mean ± SD)
I am more motivated for becoming a doctor	3.5±0.5	3.7±0.6
Teachers were committed to teaching	3.5±0.6*	3.2±0.5
There was an informal relationship between students and teachers	3.5±0.6*	3.3±0.6
Teachers observed if I learned what I was supposed to learn	2.7±0.6*	2.5±0.7
I was not afraid to hurt patients	3.3±0.8*	3.0±0.7
Teachers went through the procedure with me before I had to perform it myself	3.5±0.6*	3.1±0.7
Teachers provided me with feedback	2.9±0.7	3.0±0.6

Responses were rated on a four point Likert scale ranging from 1= *strongly disagree* to 4= *strongly agree*

* = p<0.05

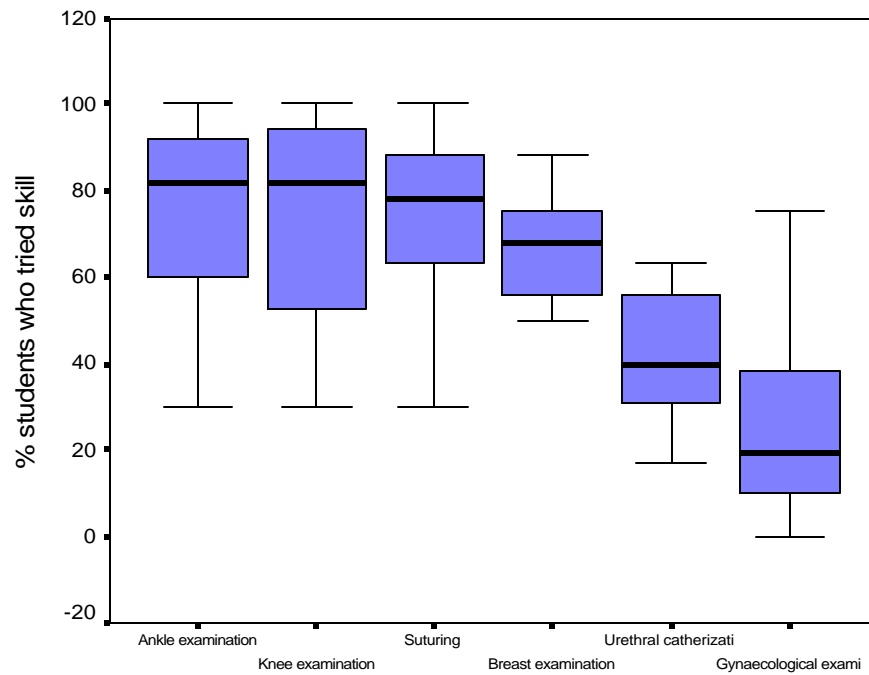


Figure 2: The percentage of students across 10 clerkship sites who tried a particular skill during their clerkship (bars are medians, boxes interquartile ranges, and whiskers the full range).

Expectations to skills laboratory training: Seventy-eight per cent (99) entered their student identity number on the first and second questionnaire and their responses prior to - and following - training in the skills laboratory could be compared (Table 2). Students expressed high prior positive expectations

towards training in skills laboratory. These expectations were met with the exception that students were not given as much time to practice skills in the skills laboratory as they expected.

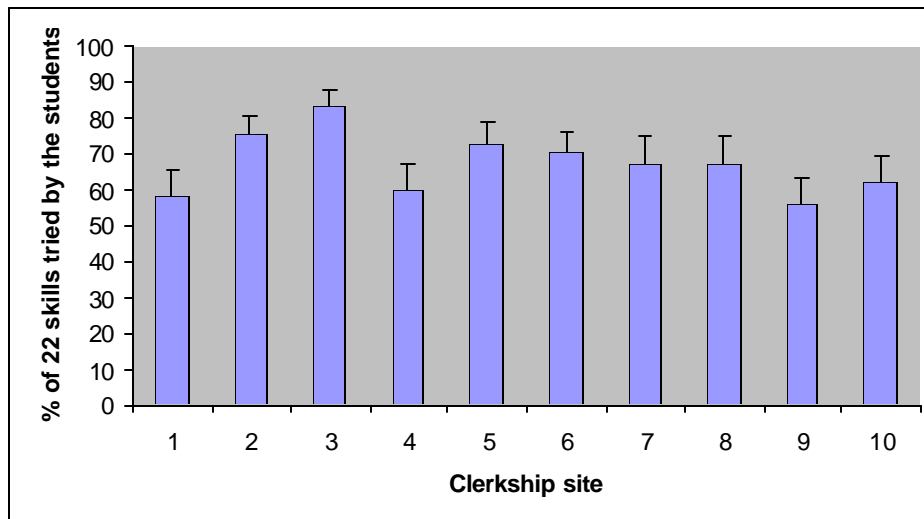


Figure 3: The extent to which student at different clerkship sites got to try out the 22 skills they had practiced in the skills laboratory (mean \pm SEM)

Perceived benefits of skills laboratory training:

Part of the third questionnaire explored students' perceived advantages of the pre-clinical skills laboratory training once they had finished their first clerkship. Ninety-eight per cent of the 121 students who answered the third questionnaire subsequent to their clerkship *strongly agreed* or *agreed* that training in skills laboratory increased their outcome of the clerkship. Combining *strongly agree* and *agree* responses, 90% believed that training in skills laboratory increased their self-confidence when performing clinical skills during clerkship, and that confidence was important. Seventy per cent of the respondents were convinced that they could transfer the skills taught on manikins directly to the handling of patients.

Comparison of skills training in laboratory and clerkship: A total of 87% (111) responded to both the second and third questionnaire and made comparison of responses prior to and following clerkship possible (Table 3). Students experienced that both skills training in the laboratory and during clerkship increased their motivation for becoming doctors.

When asked about preference for training site, 93% *strongly agreed* or *agreed* that the clerkship provided students with a better opportunity to learn

practical clinical skills when compared to the skills laboratory. The skills laboratory and clerkships were both found to provide an informal and safe setting for skills learning, although the skills laboratory was rated significantly higher on the aspects of both informality and safety when compared to the clerkship. Students perceived the teachers in the skills laboratory as well as in the clerkship to be committed to their teaching jobs, to demonstrate skills to the students before practice, and to give students feedback. Teachers in the skills laboratory were rated significantly higher on demonstration of skills and commitment to teaching compared to their colleges in the clerkships, whereas no significant difference was found between the two training sites for the provision of feedback from teachers to students. The lowest rating was given to the statement "Teachers observed if I learned what I was supposed to learn" with a rating of 2.7 and 2.5 on a 4-point for skills laboratory and clerkship respectively on a four-point Likert scale ranging from 1 being *strongly disagree* to 4 being *strongly agree*.

Variation in skills performance according to nature of skill, clerkship site and gender: The third questionnaire explored how the 22 skills that students had practiced in the skills laboratory (Table

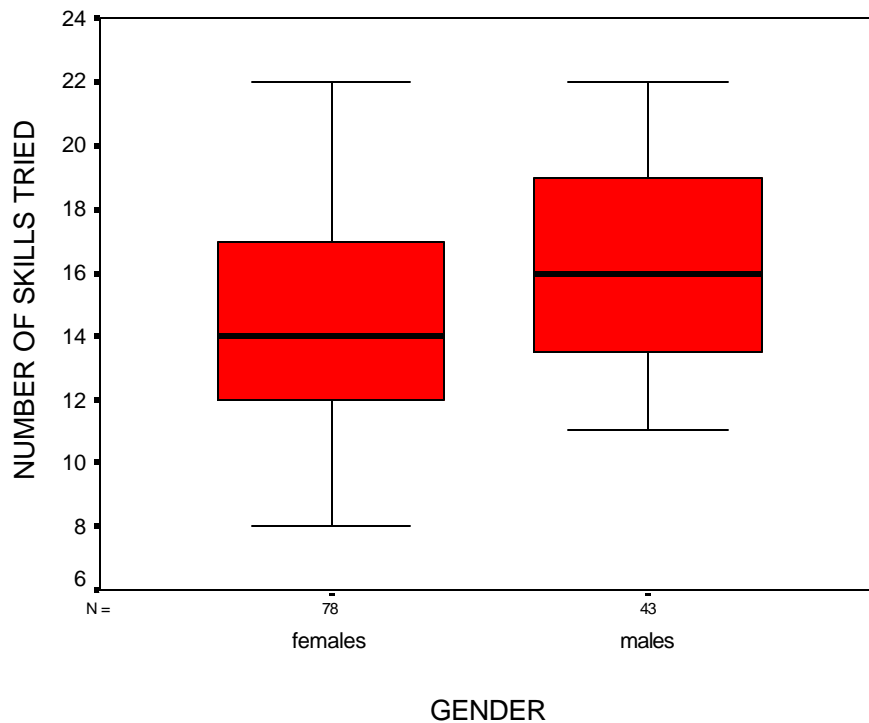


Figure 4: The extent to which male and female students got to try out the 22 skills they had practiced in the skills laboratory (bars are medians, boxes inter-quartile ranges, and whiskers the full range).

1) were put into practice in the clerkship. Ninety-nine per cent of the students stated that they had to work hard and be active in order to get access to practice skills in the clinical setting but only 36% had the chance to practice skills in the clerkship to the extent they wanted. On average, students tried out 15 of the 22 skills from their laboratory training. All students tried out at least eight skills during clerkship accounting for approximately a third of the 22 skills taught in the skills laboratory. Every student performed heart and lung auscultation, measured blood pressure, and counted pulse. More than 95% also performed abdominal examination, mouth examination, venipuncture, and lymph node palpation during their clerkship. The most frequent of the 14 skills that were taught in the skills laboratory but not practiced by everybody in clerkship were urethral catheterization, suturing, knee-, ankle-, breast-, and gynecological examination. Figure 2 shows the percentage of students at each hospital who performed each of these six skills. There was a variation as high as 70% between hospitals in the extent to which students practiced a given skill. There were no significant differences in the total number of skills tried during clerkship in relation to clerkship site (Figure 3).

Figure 4 shows the relationship between gender and the number of skills tried during clerkship. Male students tried out significantly more skills than females (males: 16.4 ± 0.5 and females: 14.2 ± 0.4 [mean \pm SEM]). The male-female ratio of respondents of the third questionnaire was one to two (42/79). However, 10 of the 18 students who tried out 20-22 of the 22 skills trained in laboratory were men, whereas only women were represented in the group who tried 8, 9 or 10 skills.

Discussion

In this study medical students held high expectations to skills laboratory training, confirming previous studies.^{6,9,10} Students' expectations to skills laboratory training were generally met with the exception that students did not get to practice each skill as much as they felt they needed. This can be explained by local factors, since teaching sessions are short and skills laboratory is not open for independent practice. However, others have also reported that skills laboratory courses do not by themselves satisfy the students' need for skills practice⁶ suggesting that it is important to inform students that skill courses are supplements and not replacements for clinical training and that skills perfection takes repeated practice both in the skills laboratory and during clerkship.

This study showed that skills training in the laboratory helped students gain confidence in per-

forming clinical practical skills supporting previous studies by Taylor et al¹⁰ and Treadwell & Grobler.¹¹ As lack of confidence and anxiety are well known in medical education, skills training might ease the step from the classroom to the real clinical world.^{12,13}

In this study, a majority of students believed that skills taught on manikins could be transferred to patients and thus experienced skills laboratory training as having face validity. Patrick points to the importance that students as well as their instructors accept that a simulation has sufficient face validity.¹⁴

Even though students believed in transferability; they still thought that clerkship provided them with a better opportunity to learn basic clinical skills when compared to training in the laboratory. The study did not capture why students preferred skills training in the clerkship over skills training in the laboratory. When asked specifically about training characteristics, students perceived teachers in the skills laboratory as well as in the clerkship to be committed to teaching, to demonstrate skills prior to students practice, and to provide students with feedback. Both learning environments were also perceived to be safe and informal settings for skills training. There was a small but significant higher rating of the skills laboratory over the clerkship. Skills training in the laboratory and the clerkship are by nature different. In skills laboratories, skills training can be planned and all aspects associated with skills acquisition covered. Neither are teachers in the skills laboratory interrupted by competing tasks associated with patient care. In clerkship the teaching situation is more opportunistic. Time constraints, noisy wards and patients not being available might restrict teaching in clerkships.¹⁵

In this study students also reported that they had to work hard and be very active during clerkship in order to try different practical procedures and still only 36% were given a chance to practice skills to the extent they wanted. Despite this, students preferred the more opportunistic learning situation of the clerkship to the more ordered learning opportunities in the skills laboratory. One explanation of the preference of the clerkship for skills training over the laboratory could be that the authenticity of the learning context by itself has a large influence on students' opinions about learning outcomes.

All students trained 22 skills in the skills laboratory prior to their clerkship. Our study showed that the number of skills that were practiced in the clerkship varied with the nature of the skill, with hospital, and with gender. Almost all students practiced basic

skills associated with the physical examination. A majority of students - but with great variation between hospitals - practiced other basic skills such as knee, ankle, and breast examinations. Still other skills such as that of urethral catheterization and gynecological examination were tried by a minority of students but also with great variations between hospitals. Within the domain of communication skills, Van Dalen showed that skills learned during a course decline if not maintained by practice.¹⁶ Remmen et al. also concluded that longitudinal practice of practical skills provides good preparation for clerkship activities.¹⁷ It is thus preferable that a major proportion of skills taught in the skills laboratory are practiced again. We found a variation as high as 70% between hospitals in the extent to which students practiced a given skill. The findings raise the question if it can and should be assured that different clerkship sites offer the same learning opportunities? Could it be that learning goals set by teachers in the skills laboratory are not clearly specified, communicated and accepted by teachers in the clerkship as has been shown in other cases?¹⁸ Good quality communication between teachers in skills laboratories and clerkships is important if we want to ensure continuity in skills education and avoid that skills laboratories become isolated educational events.

Females seemed to find it more difficult than males to find opportunities to practice clinical skills in clerkships, as female students performed significantly fewer skills compared to the male students. Females were also the only gender represented in the group who performed fewest skills. The students were asked to mark whether they had tried a particular skill or not rather than asked whether they mastered the skills. This rules out that the gender difference identified is due to differences in mode of reporting. Further studies should be undertaken to explore gender differences in training opportunities and whether a skills laboratory can play a significant role in assuring that all students acquire a sufficient skills level.

We wanted to explore the connection between skills training in a laboratory setting and skills training with real patient in a hospital setting in the very young medical student. We found that students experience skills laboratory training as beneficial for the outcome of a consecutive clerkship, and that students believe in the transferability of skills learned in the laboratory setting to the real clinical world. Our study also showed that although students rated skills training in the laboratory higher than skills training in the clerkship on a number of aspects, they still preferred the authentic setting of the clerkship.

This study expanded our understanding of skills training by following a group of students from one training context to another. The study was limited by data being very contextual since *one* specific group of students from *one* particular medical school training a *selected* number and type of skills were studied. Further studies should be undertaken that follow skills training from laboratory through clerkship. Also, transfer studies should be carried out if we fully want to understand the long-lasting value of skills laboratory training.

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Appendix

Questionnaire #1 (response rate = 90% (114))

1 A. Expectations to skills laboratory training

The following statements are trying to capture some of your expectations to skills laboratory training. For each statement please indicate to what extent you agree or disagree

<i>My expectations to skills laboratory training are:</i>	Strongly agree	Agree	Disagree	Strongly disagree	Incomplete answers
1. Training will increase my motivation for becoming a doctor	77	35	2	0	0
2. Training will increase my motivation for learning other subjects this semester	53	58	3	0	0
3. Teachers in the skills laboratory will be committed to teaching	71	41	0	0	2
4. Teachers in the skills laboratory will take time to teach each individual student	44	64	5	0	1
5. I will have to participate actively in class	109	5	0	0	0
6. All students will try all stations	82	30	1	0	1
7. Skills laboratory training will make it easier for me to learn clinical skills than if I was only taught during clerkship	90	20	3	1	0
8. By the end of the course I will be able to perform clinical skills supervised by a doctor	70	42	1	0	1
9. By the end of the course I will be able to perform clinical skills on my own	9	48	44	9	4

1 B.

<i>Skills training will make it easier for me to learn clinical skills because:</i>	Strongly agree	Agree	Disagree	Strongly disagree	Incomplete answers
10. I do not have to be afraid to do anything wrong	27	58	22	7	0
11. I do not have to be afraid to hurt the patient	53	58	3	0	0
12. the skills that I have learned to perform on a manikin can be transferred directly to a patient	8	61	36	7	2
13. The skills will be demonstrated step by step before I have to do it myself	68	42	3	0	1
14. I will not be under any time pressure	45	51	18	0	0
15. Teachers will give me feedback	82	30	1	0	1
16. I can try each skill as much as I need	90	20	3	1	0

17. Sex: Female: 77 = 67, 5% male: 36 = 31, 6% (1 incomplete answer)

Questionnaire #2 (response rate = 93% (118))

2 A. Your view of skills laboratory training

The following statements are trying to capture your view of training in the skills laboratory. For each statement please indicate to what extent you agree or disagree

<i>My view of skills laboratory training is that:</i>	Strongly agree	Agree	Disagree	Strongly disagree	Incomplete answers
1. Training increased my motivation for becoming a doctor	65	50	2	0	1
2. Training increased my motivation for learning other subjects this semester	17	68	30	3	0
3. Teachers in the skills laboratory were committed to teaching	65	49	4	0	0
4. Teachers demonstrated the skills for me so that I understood what to do	63	55	0	0	0
5. Teachers observed if I learned what I was supposed to learn	7	71	37	3	0
6. I had to participate actively in class	93	24	1	0	0
7. I tried all stations in the sessions that I participated in	105	12	1	0	0
8. There is an informal relationship between students and teachers	60	50	7	1	0
9. There was too much noise in the skills laboratory	15	44	48	11	0
10. There were too many students in the skills laboratory at the same time	9	46	50	12	1
11. It was hard to concentrate in the skills laboratory	2	17	81	17	1
12. I have benefited from the skills training	80	38	0	0	0
13. I believe I could have learned the same skills just as well during clerkship	5	24	69	18	2

2 B. The learning of clinical skills

<i>Skills training has made it easier for me to learn clinical skills because:</i>	Strongly agree	Agree	Disagree	Strongly disagree	Incomplete answers
14. I did not have to be afraid that I would do something wrong	56	48	13	1	0
15. I did not have to be afraid that I would hurt the patient	58	47	9	4	0
16. the skills that I have learned to perform on a manikin can be transferred directly to a patient	11	73	29	5	0
17. Teachers went through the skill with me before I had to perform it myself	60	54	4	0	0
18. I was not under any time pressure	19	45	29	20	5
19. Teachers gave me feedback	22	60	33	1	2
20. I tried each skill as much as I needed	4	21	60	32	1

2 C. Skills level

Please indicate at which level you believe that you at the present time can perform the following skills on a patient.

Skill	I did not try the skill in the skills laborat.	I tried the skill				Incomplete answers
		but I cannot perform it	and can perform it supervised	and can perform it unsupervised	and master it	
21. Heart auscultation	1	4	78	32	1	2
22. ECG	14	47	55	1	0	1
23. Breast examination	0	2	66	46	1	3
24. Lymph node palpation	0	5	66	45	1	1
25. Lung auscultation	0	2	71	42	2	1
26. Spirometry	3	11	53	45	5	1
27. Blood pressure measurement	0	0	7	69	41	1
28. Pulse count	0	0	1	58	58	1
29. Microscopic examination of urine	2	33	73	5	2	3
30. Venipuncture	0	6	84	23	2	3
31. Blood glucose examination	0	0	22	82	14	0
32. Urine strip test	4	0	18	69	26	1
33. Gynaecological examination	1	30	81	5	0	1
34. Urethral catheterization	1	15	88	13	1	0
35. Abdominal palpation	0	10	83	24	0	1
36. Neurological examination	0	7	82	27	1	1
37. Preparation of blood sample for microscopy	2	1	25	83	6	1
38. Microscopic examination of blood	2	6	75	28	5	2
39. Mouth examination	6	1	38	68	4	1
40. Knee examination	3	2	67	39	7	0
41. Ankle examination	4	4	72	33	4	1
42. Suturing	4	15	82	12	1	4

Questionnaire #3 (response rate = 96% (121))

3 A. Your view of the clerkship

The following statements are trying to capture your view of the clerkship. For each statement please indicate to what extent you agree or disagree

<i>My overall view of the clerkship is that:</i>	Strongly agree	Agree	Disagree	Strongly disagree	Incomplete answers
1. Clerkship increased my motivation for becoming a doctor	80	37	3	0	1
2. Clerkship increased my motivation for continuing my studies	91	29	1	0	0
3. Teachers in the clerkship were committed to teaching	22	94	3	0	2
4. Teachers observed if I learned what I was supposed to learn	4	59	51	6	1
5. There was an informal relationship between students and teachers	38	75	8	0	0
6. Teachers in the clerkship gave me feedback	22	79	20	0	0
7. I had to work hard and be active in order to get access to practise skills in the clerkship	78	42	1	0	0
8. I tried out all the skills I wanted to during clerkship	16	74	28	3	0
9. I tried every skill as often as I would like to	6	28	70	17	0
10. I was not under any time pressure when performing clinical skills	7	21	80	13	0
11. Teachers went through the skill with me before I had to perform it myself	26	73	18	2	2
12. I did not have to be afraid that I would do something wrong	33	72	12	4	0
13. I did not have to be afraid that I would hurt the patient	4	24	70	23	0

3 B. The learning of clinical skills

<i>My view of learning clinical skills is that:</i>	Strongly agree	Agree	Disagree	Strongly disagree	Incomplete answers
14. Skills learned on a manikin can be directly transferred to patients	10	76	29	4	2
15. There is no difference in learning skills on a manikin and on a patient	1	6	65	49	0
16. Skills training in the skills laboratory has increased my confidence when I perform skills on patients in the clerkship	37	75	8	0	1
17. Confidence is important for me when I perform clinical skills	77	42	1	0	1
18. Skills training in the skills laboratory has increased my outcome of the clerkship	69	50	2	0	0
19. Clerkship provides students with a better opportunity to learn clinical skills when compared to the skills laboratory	57	55	9	0	0

3 C. Skills level

Please indicate at which level you believe that you at the present time can perform the following skills on a patient.

Skill	I did not try the skill during clerkship	I tried the skill				Incomplete answers
		but I cannot perform it	and I can perform it supervised	and I can perform the skill unsupervised	and I master it	
20. Heart auscultation	0	2	22	71	23	3
21. ECG	68	11	36	5	0	1
22. Breast examination	40	2	36	41	2	0
23. Lymph node palpation	3	3	17	85	13	0
24. Lung auscultation	0	0	13	79	28	1
25. Spirometry	88	8	16	8	0	1
26. Blood pressure measurement	0	0	3	45	73	0
27. Pulse count	0	0	0	31	90	0
28. Microscopic examination of urine	95	19	5	1	1	0
29. Venipuncture	4	1	17	75	22	2
30. Blood glucose examination	55	5	15	35	11	0
31. Urine strip test	67	5	9	27	13	0
32. Gynaecological examination	86	8	26	1	0	0
33. Urethral catheterization	72	4	23	22	0	0
34. Abdominal palpation	3	2	31	64	18	3
35. Neurological examination	22	6	49	40	2	2
36. Preparation of blood sample for microscopy	73	10	17	19	2	0
37. Microscopic examination of blood	79	17	20	4	0	1
38. Mouth examination	4	3	14	82	17	1
39. Knee examination	30	0	43	42	5	1
40. Ankle examination	29	0	44	40	7	1
41. Suturing	30	2	47	34	7	1