

TEACHER NOTION ON CLINICAL TEACHING DETERMINES THE TEACHING-LEARNING PROCESS

Helge Dohn and Jorgen Nystrup, Roskilde

ABSTRACT

This study concerns the relationship between implicit teacher goals and the choice of teaching method and teaching style. It was assumed that an interior link exists between these components of teaching. This was confirmed in a study based on systematic observation of clinical teaching in small groups. Additional interviews with senior medical teachers in surgery and internal medicine and with students attending the clinics was conducted.

In the light of the findings, the need to stimulate teachers to select teaching objectives on a broad basis and at a considered level was discussed. By tradition, clinical teaching is seldom guided by detailed curriculum goals. The content of the teaching in the clinics depends on the one hand upon the availability of small group patient cases to present, and on the other hand on each single teacher's conception of what the educational outcome of the clinical instruction should be. As a consequence, clinical teaching often shows a great variability.

In the study, it was assumed, that the teacher's choice of goals reflects his underlying philosophy as to the teaching-learning process, and, perhaps more basically in his epistemological points of view, i.e. his conception of knowledge to be developed by means of teaching. It was furthermore assumed, that logical links exist between the teacher's view of clinical teaching, the choice of teaching style, and the actual teaching in practice.

More specifically, it was the thesis of the study, that the teachers' implicit aims for clinical teaching played a major role in determining the content, sequence and the method of the teaching, subsequently influencing the learning result on the part of the students.

Examination Clinics.

In the Danish medical study programme, the so called "examination-clinics", simulate the situation of the final oral examination in the major clinical disciplines. The clinics serve the purpose of allowing repetition of theoretical knowledge and providing an opportunity for the student to be guided and corrected when demonstrating clinical skills. At present, the examination-clinics are conducted in the following manner: Before the teaching session, a patient is allocated to a student, the examinee. The examinee must take a medical record, including a history and a physical examination, of the patient. In the teaching sessions, the examinee presents his record, suggests diagnoses, plans for further investigations and eventually recommends treatment. During the student's presentation of the patient's medical record, the patient is usually upon. In the subsequent discussion, the teacher can select several roads, which the teaching process may follow. He can provide further data (i.e. laboratory tests and radiology) to enable the examinee to problem-solve, he can expand upon the details of the case, or he can place the case into a broader context of diseases, work-up principles, and treatment modalities.

The number of students attending the clinic, in addition to the examinee, is about 15.

Method

This study concentrated on examination clinics for final-year medical students of internal medicine and surgery at the University of Copenhagen, Denmark. The authors observed 20 teaching sessions chosen at random. In addition, interviews were conducted with five teachers and a random selected group of students, attending the clinics.

An observation instrument was constructed, dividing the teaching session into 45 units of observation. One dimension of the instrument was columns of content, chosen in accordance with normal procedure in the clinical approach to the patient (Morgan & Engel, 1969). The other dimension recorded the teacher, student, the class as a whole, or the patient as contributing to the teaching exercise.

The observer-reliability was calculated after the method indicated by Scott (Flanders, 1967). The reliability-coefficient was 0.78.

The interview-data was used to extend the observation picture of the clinics. Semi-structured interviews was conducted for teachers and students individually inquiring about the objectives of the clinics, the educational outcome, and how the clinics were carried out.

Results

Figure 1 pictures the teacher's indications of the objectives for their clinics, placed on a continuum. At one extremity we have placed objectives referring to the testing of concrete medical knowledge and to judging skills in collecting relevant data. In the middle section are placed those objectives stimulating the students to take a comprehensive view of a case, to synthesize clinical knowledge and to generate diagnostic hypothesis. At the other extremity are placed objectives referring to application of knowledge in unprepared contexts, to clinical problem solving and to reasoning ability across preclinical and clinical subject matter.

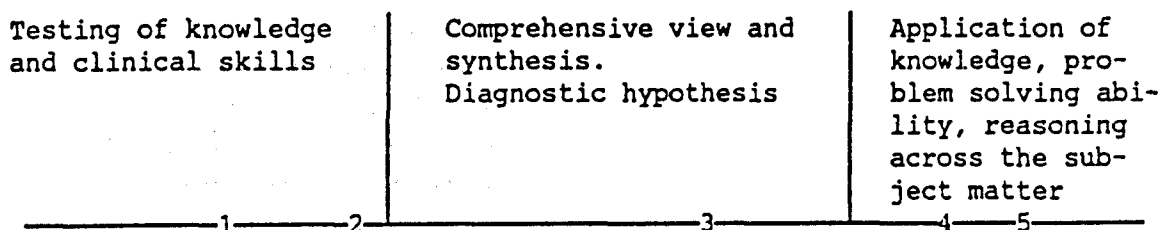
Going a little into detail, teacher no. one sees the aims of his clinics as being to prepare the students for the exam and to demonstrate for them the requirements to be fulfilled. According to this teacher the most pronounced pedagogic function of the clinics lies in the opportunity to fill in gaps in the students' knowledge and to give them an overall sense of clinical skills.

Teacher no. two stresses the importance of training clinical examination, including collecting histories and carrying out physical examinations. Besides special skills in these areas, the student should be able to present an overall picture of the patient, in relation to other maladjustment as well as to social implications.

By contrast, teachers no. three and four prioritize objectives referring to the ability to demonstrate a comprehensive view of the clinical situation on the part of the students and skills in synthesizing history data and physical examination information. Teacher no. three points out that the students should be able to advance proposals for diagnosis and plans for treatment, (with a certain amount of accuracy) as well as defend the proposed decisions. In addition, teacher no. four argued that the clinics, in contrast to the ordinary coursework which is mainly nosology in orientation, should promote reasoning in relation to the actual patient and, furthermore, "activate associations across the subject matter", as he expressed it. The viewpoint of knowledge and problem solving ability in unprepared cases was considered important. Coherent reasoning in relation to the patient was

Figure 1

Objectives for the clinics as indicated by the teachers.



also emphasized.

Although the teaching method at hand, in this case the clinical teaching, structures the educational process, it seems clear that the teachers intended to utilize the potentialities of the teaching clinics to varying degrees.

Using the indicated objectives as a base, it was possible to relate (1) the teacher's description of the teaching methods employed during the clinics, to (2) the observational data from the clinics registered by the observers.

1. The teacher's description of the teaching methods employed.

Table 1 summarizes the feature characterizing the teaching methods of each of the five teachers.

It was concluded that a high degree of consistency existed between the stated objectives and the teacher's description of the actual teaching methods used.

2. Recorded data on the teaching method used

The course of the clinic was recorded for each teacher, with respect to the content of the clinic, and the time devoted to each observational category.

The observational categories registered can be found in table 2.

Table 2. Observation categories

-
- A: Problem formulation
 - B: Data presentation
 - C: Data collection
 - D: Suggestion of diagnoses
 - E: Verification of diagnoses
 - F: Reference to disease entities
 - G: Treatment
 - H: General information
 - I: Other behaviour
 - J: Evaluation of present teaching session
-

Table 1

| Teacher no. | Characteristic teaching method employed. |
|-------------|--|
| 1 | The student is given the opportunity to present the patient; the teacher interferes if gaps in the student's knowledge are discovered. The student is then put back on the right track. |
| 2 | The students are encouraged to obtain all the information they can from the history data and physical examination findings, and to arrange the findings in a coherent way. |
| 3 | The teacher acts as a catalyst to the student's efforts to obtain a comprehensive view and to guide the reasoning of the students. |
| 4 | The students should be kept active. This means that the clinic should function like a ping pong play, provided that the students are able to volley the ball to the other side of the net. |
| 5 | If the students proceed through the findings too smoothly some obstacles will be imposed in order to encourage reasoning and problemsolving abilities. |

The contribution to the clinic from the teachers and the students for each of the observational categories is depicted in table 3 (a) and (b) respectively. It should be noted that data from only four of the teachers were available.

In general, a complementary trend appears when the teachers' and students' data are compared, i.e. the teachers take over on the categories D - I and, correspondingly, the students give way.

Looking at the data for each teacher, teacher no. one in accordance with his stated objectives and the

Table 3 a: Percentage of teacher performance in the observational categories
Observation category

| Teacher | No. of teaching sessions | A and B | C | D and E | F | G | H, I and J |
|---------|--------------------------|---------|------|---------|------|------|------------|
| 1 | 3 | 3.7 | 4.0 | 18.2 | 37.6 | 6.9 | 29.5 |
| 2 | 3 | 9.9 | 38.4 | 22.9 | 12.3 | 4.8 | 11.7 |
| 3 | 2 | 1.4 | 29.1 | 23.3 | 9.3 | 3.2 | 33.7 |
| 4 | 4 | 6.6 | 21.9 | 33.0 | 19.0 | 14.4 | 5.0 |

Table 3 b: Percentage of student performance in the observational categories
Observation category

| Teacher | No. of teaching sessions | A and B | C | D and E | F | G | H, I and J |
|---------|--------------------------|---------|------|---------|------|-----|------------|
| 1 | 3 | 51.1 | 1.0 | 15.0 | 19.3 | 5.1 | 7.8 |
| 2 | 3 | 67.9 | 16.5 | 15.6 | 0 | 0 | 0 |
| 3 | 2 | 37.0 | 9.4 | 24.5 | 7.7 | 3.2 | 18.4 |
| 4 | 4 | 44.5 | 12.2 | 26.2 | 9.6 | 6.5 | 0.7 |

description of his teaching style, actually gives the students the opportunity to present cases, hence the low value in category A and B for teacher section and the high value in the same categories in the student section. On the other hand, the contribution of this teacher in category F (reference to disease entities) is extremely high, which might be seen as a consequence of the teacher's deliberate effort to guide the student, correct errors and give more information to students in need of it. The outstandingly low values in category C in both teacher and student section corresponded to teacher no. one's notion that the clinics should give less priority to training physical examination skills. By contrast, teacher no. two emphasized the training of students in this activity, a fact which is reflected by the high values in category B C (both teacher and student section). For teacher no. three, there is an accumulation in the categories D, E and H, I, J reflecting his explicit goal to stimulate the students to reason and synthesize histories with physical examination data in order to suggest and discuss diagnosis, as well as to place concrete cases in a wider context. As has been pointed out, teacher no. four aims to foster reasoning ability across the subject matter, a purpose which seems to

have been achieved, when looking at the pattern in the teacher and student section, e.g. the high value in categories D, E and F and the comparatively negligible values in categories H, I, J.

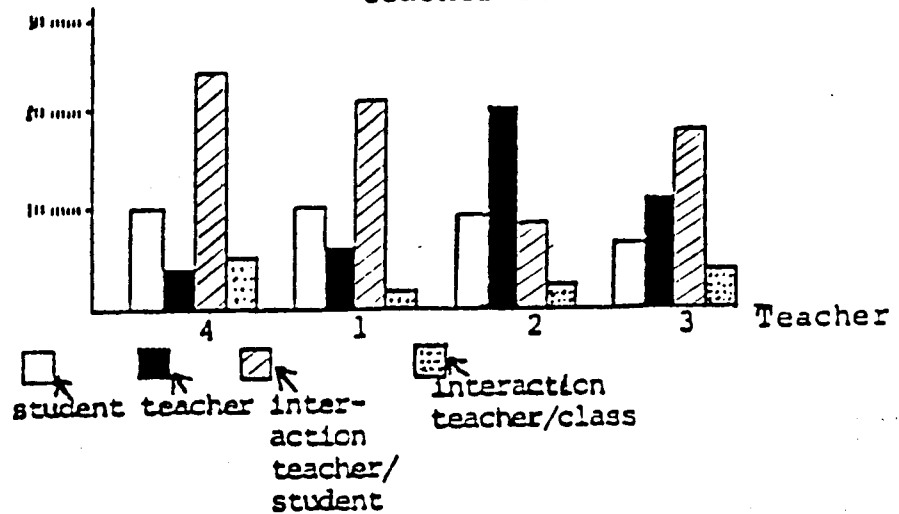
Furthermore, the data shows a remarkable variation between the teacher's - student's contribution at various points in the clinics. Though, it should also be noted that the main bulk of the contribution from teachers and students is centered around the more elementary categories A, B and C. This is particularly notable as the students are just about to complete their education as basic doctors.

Another set of observational data which throw some light on the relation between the teachers choice of objective and his actual teaching concerns the interaction pattern during the clinics.

It appears that teacher no. two dominates the clinics at the expense of teacher-student interaction. This is in accordance with previous findings which show that this teacher attempts to guide the students in collecting history and physical examination data and to arrange them in a coherent whole. As to the interaction profile for teacher no. one and four there is a high degree of resemblance, but according to the objectives methods and the quality of the teacher-student encounter varied a

Fig. 2 Interaction profile for each teacher observed

Average time spent on different types of interaction



great deal. Consequently, the interaction during the clinics for teacher no. one dealt mainly with testing the knowledge of the students, where as teacher no. four tried to stimulate the reasoning and inquiring ability of the students.

Conclusion and discussion

This study has demonstrated that the teachers' choice of learning objectives closely correspond to their own description of the teaching methods employed and to the actual teaching in practice, as observed by the authors.

In so far as the objectives reflect the teachers' epistemological view points concerning the character of the knowledge and skills that should be acquired through clinical teaching the study yields some support to the assumption of Tibbles (1981).

Where Tibbles considers the teaching styles (naming, authoritarian, Socratic, heuristic and counseling styles) to be a logical extension of epistemological apprehension our findings indicate that the teachers' implicit choice of teaching objectives acts as the determinant of his teaching style.

In this way, the teaching objectives link the teacher's philosophical point of view on clinical teaching with his actual teaching performance.

However, during the interviews we did not inquire into the teachers' epistemological points of view, and it may be suggested that some of the teachers did not, at a conscious level, contemplate epistemological options. In this case, the link may reflect the possibility that the teacher's selection of objectives are determined by their inherent teaching abilities.

The study demonstrates the need to stimulate teachers to select educational objectives deliberately and with awareness of the consequences for the teaching - learning situation.

In this context an alternative approach to clinical teaching described by Krassier (1983) as based on iterative hypothesis testing to teach diagnostic and therapeutic problem solving skills may represent a fruitful extension of the common repertoire of the clinical teaching format.

References

Flanders, N.A.: The Problems of Observer Training and Reliability. In: Amidon, E.J. & Hough, J.B. (eds): Interaction Analysis. Reading (Mass.) Addison - Wesley, 1967.

Krassier, J.P.: Teaching Clinical Medicine by Iterative Hypothesis Testing. The New England Journal of Medicine, 1983, 309, 921-923.

Morgan, W.L. & Engel, G.L.: The Clinical Approach to the Patient. Philadelphia, Saunders, 1969.

Tibbles, L: Epistemologies Inherent in Various Clinical Teaching Styles. Journal of Medical Education, 1981, 56, 445-446.

Helge Dohn, cand. psych.
Jorgen Nystrup, M. D.
Amtssygehuset Fjorden
Smedegade 10 - 16
DK 4000 Roskilde