



Evaluating Communication Skills

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Abstract. This study investigates the construct validity of an instrument to measure the quality of communication skills, during one curriculum year of a four year longitudinal communication skills training programme. 42 Representative videotapes of students' simulated patient encounters at the beginning of the third year and 35 of the end of the year were assessed by nineteen trained observers, using the MAAS-Global criteria list. A difference in communication skill competence was found between the performance at the beginning and at the end of the third year. The specific aspects in which the students improved revealed a greater routine in conducting a doctor-patient encounter and a greater structuring capability: those communication skills that have been trained in the years before the study period, thus supporting the validity of this instrument.

Key words: communication skills, competence, longitudinal programme, simulated patients, skills assessment, validity, Skillslab

Introduction

Communication skills are important qualities in the behaviour of a doctor. It has been shown that patient satisfaction and compliance are largely influenced by the quality of the communication between patient and doctor (Aday and Anderson, 1975; Hulka et al., 1966). Most medical curricula are therefore providing or preparing some form of teaching in communication skills (Evans et al., 1993). In the literature a multitude of teaching formats is described, directed at the acquisition of these skills (Carroll and Monroe, 1984; Monahan et al., 1988). Research has shown that medical students tend to pay less attention to communication skills in the course of the curriculum; especially by the time they are to solve medical problems (Craig, 1992). In a medical curriculum it is therefore important to continuously focus on communication (Flaherty, 1985). Encounters with simulated patients is a format in which students can practise both the medical problem solving and the communication skills in an integrated way, yet without being distracted by the demands of a health care situation in which patients have other things on their minds than providing the optimal teaching facilities (Barrows, 1993). When

communication skills are acquired under the conditions of continuation and integration they remain at the same level over a longer period, while some aspects of communication improve in time (Alroy et al., 1984; Bowman et al., 1992).

A continuous and integrated training has been realised in the communication skills training programme at the medical faculty of the University of Maastricht, The Netherlands. This programme is an important element of the first four curriculum years, embedded in a skills training programme in a specially designated Skillslab (van Dalen, 1990; van Dalen and Bartholomeus, 1990). The overall curriculum takes six years, in the final two of which clinical rotations take place. The programme consists of a continuous alternation between 'in vitro' communication skills trainings and encounters with simulated patients, designed to practise these communication skills. The simulated patients play the same scenario for all students of a year group. The student usually takes the role of (locum of the) physician. In the second, third and fourth year the students perform entire doctor-patient encounters, including physical examination and advice. These encounters are recorded on videotape, and feedback is given (van Dalen et al., 1989).

This programme takes place in the context of a problem based curriculum. An increase in communication skills of the students can be assumed for a number of reasons: teachers report progress in their students' communication skills; medical students from Maastricht feel themselves better prepared in psychosocial and interpersonal skills than students from more traditional faculties in The Netherlands (Busari et al., 1997), and it is claimed that students in a problem based curriculum further develop their ability to express themselves (Schmidt and Bouhuys, 1980). Students' ratings of this programme are very positive (van Dalen et al., 1996; van Hout et al., 1994). The students also indicate that they perceive the programme as very effective (van Dalen et al., 1996).

To assess the construct validity of an instrument to measure communication skills a study was conducted, attempting to answer the question whether this instrument actually shows student improvement. The hypothesis was tested that the instrument reveals better communication skills at the end of a curriculum year compared with the beginning of that year. The training programme in the different year groups addresses different issues. In the first two curriculum years the focus of the programme is on exploratory behaviour: i.e. asking open ended questions and appropriate reflection of emotions. In the third year the students learn to better structure the consultation, to take a proper history by means of a directive interview and to explain findings to the patient (i.e. structuring, asking closed questions, consultation evaluation and providing information). Since this study focuses on the third year we expect the instrument to show improvement in elementary communication skills such as structuring, asking closed questions and providing information, whereas other communication skills would show no improvement.

Method

SUBJECTS

The third curriculum year was chosen because the students are by then fully accustomed to working with simulated patients. At the beginning of the third year students were asked to submit the videotape of their second simulated patient encounter and this request was repeated at the end of the third year for their last simulated patient encounter. Thirteen students submitted videotapes of both measurement 1 and 2, thus allowing only for a cross-sectional analysis. Sample 1 consisted of 42 recordings; sample 2 of 35 recordings. In total 77 recordings were available.

Consequently, a total group of 64 students participated in the study. To assess the representativeness of the samples of students with their peers in the total year group, achievement scores on a knowledge test were compared. These were not different. The marks of the thirteen students of whom two recordings were available did not differ from the marks of the other students, at any time.

INSTRUMENT

The instrument that was studied is the MAAS-Global, used in Maastricht to provide feedback on the students' communication skills (van Thiel et al., 1991; van Thiel et al., 1992; van Thiel and van Dalen, 1995). In this list thirteen case-independent items are used, with a 7-point scale. Two types of items can be distinguished: items referring to communication skills needed in certain phases of the consultation (for example: exploring the patient's reason for the encounter, or: phrasing questions during history taking), and items about communicative behaviour needed in the entire consultation (for example: eliciting information, or: dealing with emotions). The focus of this instrument is on the process of communication, rather than the contents, i.e. *how* questions are phrased rather than *what* is asked. The instrument consists of a checklist and a 20-page scoring manual, listing criteria per item. The criteria are – as much as possible – operationalised as observable behaviour. In Figure 1 an example of an item is given, with the criteria for scoring. Furthermore an overall global judgement about the whole consultation was given on a 10-point scale. A score of 5 or lower is considered as insufficient on this scale (students failing the consultation), whereas a score of 6 or higher is considered as a passing score.

PROCEDURE

Video recordings of regular simulated patient encounters were used. When the encounters were recorded the students were unaware of the experiment. The video-recordings therefore show the students' natural behaviour.

Item 10. Providing information	+	-	6	5	4	3	2	1	0*
Announces, categorises	[]	[]							
Small quantities, concrete explanation	[]	[]							
Understandable language	[]	[]							
Asks for understanding	[]	[]							

Criteria for 'excellent':

The student announces that he will give information about a subject, and categorises the aspects that will follow.

The information is given in limited quantities and the student specifically clarifies details.

The language used is understandable and attuned to the patient.

The student checks whether the information has come across to the patient, by asking directly.

Clarification of the criteria:

Example of announcement: "I will first tell you what I have found, then what I think of and finally what can be done about it. First ..."

'Small quantities' indicates that the student does not give very much information at the same time. This can be achieved by inserting small breaks between bits of information, allowing the patient to react.

Students don't often announce that they will give information, or categorise the information. They also don't often ask whether the patient understood what they have told. The mark on this item will therefore often be 'good', 'sufficient' or lower. The inviting quality of the question is the most important aspect. If the question sounds paternalistic this is bound to be counterproductive, leading to a lower mark on this item.

Information is most likely to be given in the phases 'evaluation and diagnosis' and 'management and arrangements'.

* 6 = excellent, 5 = good, 4 = sufficient, 3 = doubtful, 2 = insufficient, 1 = bad, 0 = absent

Figure 1. Example of an item in the MAAS-Global.

Directly after the simulated patient encounter the students received a letter asking permission to use the videotape for this study, after the tape had been used for review and feedback. Objections could be raised with the fourth-year student who supervised all encounters. On average all students had individually participated in ten simulated patient encounters previous to this study, and they had witnessed ten more as personal observers. Progress due to increased familiarity with the encounters during the study period is therefore highly unlikely. In the third year itself, between the first and second measurement, the students took part in seven or eight more simulated patient encounters, reflecting a time interval of six to seven months.

The scenarios for the simulated patients at both measurements were highly comparable: on both occasions the complaint was chest pain. In the first situation this was caused by angina pectoris, in the second by pneumonia. The simulated patients were trained in a comparable way for both measurements. All simulated patients were equipped with a written scenario. Each simulated patient was individually instructed by a Skillslab staff member, focusing on realistic depiction of symptoms and simulation of findings with physical examination, as well as on personal characteristics and ideosyncracies.

Nineteen experienced skills trainers, familiar with the MAAS-Global were invited as raters. To enhance the reliability of the group-score, raters were maximally spread across tapes. In this way the group-score is the aggregate of nineteen different raters, and rater variance will hardly bias the results. The raters received one-and-a-half hour of training how to use the MAAS-Global. The raters were unaware of the purpose and the design of the study. Some raters were acquainted with the students but no one had been a teacher in that same year group.

STATISTICAL ANALYSES

The mean score of every student was calculated across the items of the MAAS-Global. A one-way analysis of variance was used to test for a difference between both measurements, using general mark, mean score and separate items. Using the general mark pass/fail rates were calculated at both measurement points. To check which items in the MAAS-Global contributed most to the general mark on each moment of measurement, regression analyses were performed.

Results

In Table I the mean scores are reported. Both the general mark (10-point scale) and the mean score (7-point scale) are significantly higher at the end of the third year than at the beginning of that year. An improvement is found for the following specific items: opening; exploring the reasons for encounter; eliciting information; providing information; (dealing with) emotions; empathy/flexibility.

Table II shows the different ratios of passing/failing students at the two measurements. The percentage of students passing the insufficient mark of 5 is significantly increased at the end of the year.

The results of the regression analyses are reported in Table III.

On the first measurement 81% of the variance in the general mark is explained by the items 'empathy/flexibility', 'management and arrangements', 'opening' and 'eliciting information'. Those items reflect the topics of training in the first and second curriculum year, mainly exploratory behaviour. At measurement 2, at the end of the third year, 73% of the variance in the general mark is accounted for by the items 'structuring', and 'consultation evaluation'. These items reflect the skills that are trained in the third year, a more directive approach.

Table I. Differences of mean score, general mark and item scores on measurement 1 and measurement 2 (one way anova)

Variable	Beginning of year (N = 42)		End of year (N = 35)	
	Mean	sd	Mean	sd
General mark (10 pt. scale)	5.40	1.55	6.50 ¹	1.40
Mean score (7 pt. scale)	3.02	0.84	3.62 ¹	0.83
Items (7 pt. scale):				
1. Opening	3.17	1.29	4.00 ¹	0.84
2. Exploring the reason for encounter	1.88	1.69	3.17 ¹	1.76
3. History taking	3.26	1.48	3.69	1.45
4. Physical examination	3.57	1.55	3.65	1.91
5. Evaluation and diagnosis	3.52	1.13	3.91	1.08
6. Management and arrangements	3.60	1.13	3.45	1.03
7. Consultation evaluation	2.15	1.70	2.91	1.73
8. Eliciting information	3.00	1.21	3.86 ¹	1.00
9. Providing information	2.66	1.54	3.53 ¹	1.38
10. Emotions	1.86	1.44	3.46 ¹	1.40
11. Summaries	3.29	1.35	3.54	1.24
12. Structuring	3.60	0.99	3.62	1.33
13. Empathy/flexibility	3.79	1.09	4.31 ¹	0.96

¹ $p < 0.05$

Table II. Table II. Percentages of students passing and failing on measurement 1 and measurement 2 (chi squared test)

	Beginning of year (N = 42)	End of year (N = 35)
Passed	52	77 ¹
Failed	48	23 ¹

¹ $p < 0.05$

Discussion

A significant increase in communication skills was shown, as well as a significant increase in the percentage of students passing the critical general mark of 5 on a 10-point scale. This can be seen as support of the construct validity of the instrument.

In giving a general mark at measurement 2, the raters used the more 'directive' communication skills, such as 'structuring' and 'consultation evaluation' to make a judgement. Apparently the exploratory skills were taken for granted, and the directive skills provided an extra positive weight in the eyes of the beholders. However,

Table III. Multiple regressions (stepwise) of the general mark with the different items of the MAAS-Global as independent variables, at different moments of measurement

Variable	R ²	Increase in R ²	df	F	p
Beginning of year					
Empathy/flexibility	0.58	0.58	37	51.1	0.00
Management and arrangements	0.71	0.13	36	44.9	0.00
Opening	0.78	0.07	35	40.6	0.00
Eliciting information	0.81	0.03	34	36.9	0.00
Consultation evaluation	0.84	0.03	33	34.6	0.00
History	0.86	0.02	32	33.1	0.00
Exploring reasons for encounter	0.88	0.02	31	32.7	0.00
End of year					
Structuring	0.50	0.50	28	27.9	0.00
Consultation evaluation	0.73	0.23	27	36.0	0.00
Empathy/flexibility	0.83	0.10	26	42.1	0.00
Management and arrangements	0.86	0.03	25	37.9	0.00

the results indicate that this behaviour has not entirely replaced the exploratory approach taught in the earlier years, judging from the 10% variance that is additionally explained by the item 'empathy' at the second measurement. These outcomes should not be interpreted as supporting an increase in communication skills, but rather as supporting the construct validity of the instrument. The study was not designed to attribute any results to the communication skills programme: there was no control group to which these results were compared. The communication skills programme is provided to all students; it would have been too disruptive to withhold this programme for a group of students.

The use of one case limits the generalisability of these findings. It remains unknown to what extent differences in perceived difficulty of the cases have influenced the results. The contents of the scenarios were similar, but individual circumstances of the students (i.e. more or less familiarity with the contents of the case) may have differed.

Due to uncontrollable circumstances, recordings of only thirteen students were available from both the first and the last simulated patient encounter, thus limiting the possible analyses to comparisons at group level. Comparison of the the first and the last measurement of these thirteen students showed no significant difference on any of the variables (general mark, mean score, thirteen separate items or the pass-fail ratio); however, on all but three of these variables the last measurement had a higher value than the first. On two items the second value was lower than

the first ('physical examination' and 'management and arrangements') and on one item ('summaries') the value was exactly the same.

The global marks on the 10-point scale are low from an absolute perspective. This can be explained by the instruction given to the raters: the third-year-students had to be rated according to the predefined criteria. These criteria represented the best possible communicative behaviour; apparently these are quite demanding.

Further study is needed to clarify how communication skills develop in a medical school, either longitudinally, over a longer period of time or by using a control group within a shorter time frame.

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