

# Basic Communication Skills of Pharmaceutical Students

## To What Level Can Guided Self-study Complement or Replace Interactive Training?

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### INTRODUCTION

In the last decade, a clear change of duties has taken place within community and hospital pharmacy. The "white coat period", in which the pharmacist would rush diligently from behind the counter to give the patient his self-prepared chest syrup in time, is clearly over. The increasingly demanding patient and the ever more important range of self-care products inside the pharmacy is, whether we like it or not, pushing us in the direction of medicines consultants and health advisors.

Universities cannot ignore these tendencies and are attempting, to a greater or lesser extent, to integrate the guidelines set out by the European Association for Pharmaceutical Faculties concerning *pharmaceutical care* within their curricula (Leemans and Laekeman, 2000). These guidelines emphasise the increasingly important place of pharmaceutical care in training. Communication training, as part of

social and administrative pharmacy, is one aspect, as well as pharmaco-economics, pharmaco-epidemiology, clinical pharmacy, law and ethics, pharmacotherapy, symptomatology, health promotion and prevention of sickness (Tromp *et al.*, 1999). Considering the interactive character of this newer field of education, particularly the communication section, the curriculum often becomes overloaded and university personnel overburdened. In addition, students' prior knowledge and skills differ in this respect. Consequently, there is a need for a form of training in which the unequal starting level is respected and in which the teacher is only required to be present at crucial moments. Perhaps guided self-study is the best solution here?

In June 1998, a communication training project started in the Faculties of Medicine and Pharmacy at the K.U. Leuven, in which we wanted to measure and compare the effect of guided independent instruction with that of interactive training sessions for students in

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Medicine and Pharmacy. The following research questions were posed:

1. What is the effect of the intervention (self-study or interactive training) on scores for basic communication skills?
2. What is the effect of the intervention in combination with the internship in the community pharmacy on basic communication skills?

In this article, we present the results and discussion relating to the Faculty of Pharmaceutical Sciences.

## METHODOLOGY

### Research Groups and Study Methods

The students who followed the course in pharmacy practice were randomly allocated to two groups: a self-study and an interactive training group. A self-study pack was developed, which included assignments related to four aspects of communication, theoretical background and examples: *observing and interpreting, body language, asking questions, paraphrasing and mirroring (reflecting)*. Everyday subjects were striven for in order to filter out the diversity in pharmaceutical and medical prior knowledge as far as possible. Self-study was designed to provide 6 h learning. If required, the students could ask for help from the lecturer. After completion of the self-study pack, all the assignments were reviewed and the students were given the necessary feedback.

Students in the training group participated in three 2-h training sessions in groups of 8–10. The first session dealt exclusively with *listening skills*, the second emphasised *asking questions* and during the third session the students learned to handle concepts such as *paraphrasing and mirroring*. There was an interval of one week between each session. Everyday subjects of conversation

were chosen, such as hobbies, sport and holidays. The study period ran simultaneously for both groups and an attempt was made to make identical information available to the students.

### Testing Instruments and Evaluation Stages

To evaluate the skill taught a role-play test was composed, with one station for each of the three basic communication skills (listening, asking questions and informing). Each role-play was recorded on video. To increase the reliability of the evaluation this station test was complemented by written and video tests, in which the student was asked to formulate a response as if he was involved in the conversation. An extensive description of these tests, as well as an analysis of their reliability and validity during the pilot study, has been submitted for publication (Beullens *et al.*, 2001).

An experimental design with pre-, intermediate- and post-assessments was chosen. The pre-test (January 1999) took place before the training or self-study and consisted of the video, written and role-play tests. The intermediate test (April 1999) took place a few weeks after the training and only consisted of video and written tests. We particularly wanted to measure any increase of knowledge produced by the intervention. Approximately eight months after the training/-self-study (October–November 1999; the students were then in their last year, during which they followed six months of internship in a community pharmacy) the students were again subjected to a video, written and role-play assessment. At this time, the students had experienced an average of about two months of internship in a community or hospital pharmacy.

The tests that were performed at different times were similar in format, but not identical. All tests were evaluated "blind" by two independent observers, trained for this research. The observers were not aware of the name of the student, nor the stage at which the tests were

completed, and were consequently not influenced by possible prejudices concerning the effectiveness of the intervention.

Instruments for the role-play were developed from a score list for Basic Communication Skills (BACOVA). Each role-play was assessed according to a 5-point scale. The BACOVA-list was submitted to an international panel of experts at the Social Pharmacy Workshop in August 1998 in Leuven for discussion (Leemans and Beullens, 1998). The written and video tests were scored on a 5-point scale in accordance with predefined answers.

Covariances were subsequently calculated with regard to both research questions, taking the following factors into account: age, gender, communication exercises already carried out, whether or not they had reviewed communication literature and the attitude with regard to their future profession (information which was collected beforehand). For the first research question, variance analyses were carried out on the findings from the pre- and intermediate-test; for the second question, on the findings from the pre- and post-test.

## RESULTS

### Effect of the Intervention

Fifty-three students participated in the pre- and intermediate measurement. Twenty-six followed the interactive training sessions, 27 completed the guided self-study. Table I gives an overview of the mean scores for the video and written tests.

### Video Test

Both groups significantly improved their communication scores ( $F_{(1,51)} = 65.38; p < 0.001$ ). The training group achieved significantly higher scores than the self-study group ( $F_{(1,51)} = 6.89; p < 0.05$ ). However, this last difference was not significant after correction for the five variables in the covariance analysis.

TABLE I Scores achieved during the pre- and intermediary measurement

	Pre-measurement			Intermediate measurement	
	N	M	SD	M	SD
<i>Video test</i>					
Self-study	27	2.98	0.48	3.52	0.40
Training	26	3.21	0.48	3.81	0.41
<i>Written test</i>					
Self-study	27	3.06	0.66	3.80	0.55
Training	26	2.99	0.54	4.18	0.43

N = number of students; M = mean score on a 5-point scale; SD = standard deviation.

### Written Test

The scores increased significantly within both groups ( $F_{(1,51)} = 117.29; p < 0.001$ ). The students from the training group registered better progress than their colleagues from the self-study group ( $F_{(1,51)} = 6.54; p < 0.05$ ). Both conclusions stand after correction for the five variables in the covariance-analysis.

### Effect of the Intervention and the Internship

Students were included in the post-test if they had not yet received additional final year training. Thirty-eight students were eligible and participated in the video and written test, but only 35 students attended for the role-play. A technical defect occurred on one of the videotapes relating to listening skills, so that only the role-play of 25 students could be analysed by the observers.

Table II gives an overview of the mean scores on the pre- and post-measurement, divided per test format. We make a distinction in the role-play test between the three basic communication skills that were emphasised during the training and self-study, namely informing, listening and asking questions.

The scores increased significantly within both groups, both with regard to the video test and the written test (respectively,  $F_{(1,36)} = 43.53; p < 0.001$  and  $F_{(1,36)} = 94.75; p < 0.001$ ). One group

TABLE II Scores achieved during the pre- and post-measurement

	Pre-measurement			Post-measurement	
	N	M	SD	M	SD
<i>Video test</i>					
Self-study	22	2.97	0.45	3.71	0.36
Training	16	3.19	0.49	3.83	0.53
<i>Written test</i>					
Self-study	22	3.05	0.71	3.94	0.38
Training	16	3.18	0.49	4.32	0.21
<i>Role-play test</i>					
Self-study	9	3.13	0.18	3.08	0.18
Training	16	3.23	0.27	3.16	0.36
<i>Informing</i>					
Self-study	17	3.49	0.37	3.45	0.56
Training	17	3.59	0.45	3.65	0.53
<i>Listening</i>					
Self-study	9	3.17	0.34	2.65	0.23
Training	16	3.16	0.38	2.91	0.40
<i>Asking questions</i>					
Self-study	18	2.79	0.39	2.84	0.59
Training	17	2.92	0.44	2.95	0.55

N = number of students; M = mean score on a 5-point scale; SD = standard deviation.

did not make more progress than the other. The significant increases stand after correction for the five variables in the covariance analysis. However, with regard to the overall role-play result, no significant difference was detected between the pre- and post-measurement. A decrease in score was noticed in the pre- to post-measurement for listening ( $F_{(1,23)} = 24.00$ ;  $p < 0.001$ ). Little difference could be discerned between the scores from the intermediate and post tests.

## DISCUSSION

The score on the intermediate test increased significantly from the pre-test result for both groups and with regard to both testing formats. Completion of either a self-study pack or interactive training sessions causes an increase in knowledge in the field of communication skills in the short term ( $\pm 2$  months). A difference between both forms of study could only be demonstrated by the written test. However, we

believe that the video test approaches reality to a greater extent, as the students have to give an immediate reaction to the conversation partner, whereas they can consider a response on the written test for longer. We believe that there will be little difference in the increase of knowledge between the self-study and the training group in general, and that such a self-study pack may be considered a good alternative for increasing knowledge with regard to basic communication. The increase in knowledge also persists in the longer term ( $\pm 8$  months).

Both groups also scored significantly higher in the written and video post-test than in the pre-test. All students undertook a few months internship between the intermediate test and the post-test, in which the learned communication skills could be tried in reality. This internship may have caused the knowledge to last longer, without reducing or improving knowledge or skills. Klamen and Williams (1999) also concluded that, as opposed to what some lecturers and health care professionals allege, practical experience does not appear to have a negative effect on communication skills.

All students in the Health Care course for pharmacy were obliged to take a communication course. Consequently, we could not provide a control group for the project and we cannot attribute the increase in knowledge to the intervention with certainty. However, the section of the project with students of Medicine, in which a control group was included, did not produce any contrary findings.

In contrast to the video and written test, the score for the role-play test did not increase. A 6-h training course, via interactive sessions or self-study, could not be expected to produce a lasting effect on skills. We anticipated this finding, but intended to examine whether a self-study pack could replace lectures or interactive sessions, which require significant "manpower". We do not at all want to refute the use of interactive sessions. Certainly an intensive interactive training is more than desirable when the intention is

to produce permanent behavioural change. Theories and methods relating to communication and patient interviews are best introduced as early as possible in undergraduate training. But it is during further interactive training—offered over several years—and during the internship that the student will learn to experience and practice the techniques in reality (Evans *et al.*, 1993). In the event of an early introduction to communication training in the curriculum, the shortage of medical and pharmaco-therapeutic knowledge might hamper (simulated) patient counselling (Evans *et al.*, 1996). In this study, we attempted to neutralise any lack of knowledge by placing all the exercises within a non-medical context.

We emphasised the three most important basic communication skills in interactive training and self-study; listening, asking questions and informing. During the listening session, we emphasised the importance of “active listening”, in which the student was not allowed to avoid aspects such as paraphrasing and mirroring. Adequate listening skills should encourage patients to express their anxieties in relation to a particular treatment or complaint and consequently to reduce their feelings of anxiety (Greco *et al.*, 1998). In order to master the various skills, “micro-training” is encouraged, in which each skill is trained separately in an intensive and interactive way (Hargie and Morrow, 1987; 1989). Some authors even suggest adapting the content and format of the course to the student’s learning style to achieve the maximum result in communication skills (Roter *et al.*, 1995).

We used two independent observers in our study, who had been trained beforehand to assess all the tests “blindly”. Clinical and communication skills are often assessed in similar research by the simulation patients (SP) themselves (Finlay *et al.*, 1995; Monaghan *et al.*, 1995; 1997; Gomez *et al.*, 1997; Pangaro *et al.*, 1997; Bradley and Humphris, 1999). The use of SP offers various advantages:

1. Other skills than solely cognitive skills may be assessed. This is expressed, among other things, by the non-congruency of scores/grades achieved during the training and scores achieved in these interactive exercises (Gomez *et al.*, 1997).
2. The student can give a spontaneous answer without being able to select from a list of answers drawn up in advance (less direction of the student’s reactions).
3. The student can still make mistakes without harming a real patient.
4. Social and interactive skills, of great importance in the relationship between the health care professional and the patient, can be developed and evaluated in this way.
5. It offers the possibility to integrate pharmaco-therapeutic knowledge with communication and problem-solving skills (Monaghan *et al.*, 1995).

It is also true that the use of SPs has disadvantages. It is a relatively expensive form of education, which the education budget does not always allow. In addition, such training is time-consuming and not completely realistic, as it relates to an actor and not to a patient who is ill and has the accompanying symptoms (Monaghan *et al.*, 1997). Hence the importance of SP training and regular validation in order to simulate reality as well as possible and to continue to guarantee quality (Finlay *et al.*, 1995; Pangaro *et al.*, 1997).

Instruments were developed from the BACOVA-score list for the evaluation of videotapes of the role-play test. We submitted this score list for discussion and optimisation to a panel of experts, a method, which should also guarantee consensual validity (Theaker *et al.*, 2000). Research shows that such score lists consistently estimate students’ skills accurately. It is important to choose a score list of an optimal length, in which sufficient information is generated with regard to the interaction (an argument in favour of long score lists) and in which the

accuracy of the answers is assured (an argument in favour of short score lists). Vu *et al.* (1992) compared score lists of various lengths and concluded that a list of around 15 items could generate adequate information about a student with an acceptable degree of accuracy. Our score list for the role-play test consisted of 17 items, but we divided these into three separate instruments in order to assess the relatively short conversations. We are convinced that we can assess the interactions with sufficient accuracy in this way.

To allow the observation to proceed as objectively as possible, we recorded a videotape of each role-play, in addition to the intensive training of the observers. In this way the observers could watch the video on numerous occasions if desired (Boon and Stewart, 1998). However, we did not ask the observers to state the numbers of times that they watched a scene and consequently could not include this as a possible co-variable in the variance analysis. This may partially explain the non-significant results relating to the role-play test.

Introvert people often perform less well on video or audio-recordings. Nevertheless this form of education generally offers the best way to give students feedback (Hargie and Morrow, 1989). The students had no experience of role-play until the tests. It is possible that the unfamiliarity with video cameras caused the lack of any positive result with regard to the role-play. Once familiar with role-play the students seem to appreciate greatly this form of training and assessment (Cushing and Jones, 1995). It is not clear why students scored lower on the role-play test relating to listening after the intervention. The technical failure of the videotape, as a result of which the number of participants was considerably smaller, is a possible reason for this.

This is one of the first occasions that research has been carried out within interprofessional communication training, using similar teaching material in two faculties. The present social position of, and changes within, health care have

encouraged multidisciplinary co-operation. In Leuven, the Pharmacy students are offered the opportunity of 2-month clinical internships in various hospital departments. This internship should be the impetus for better consultation between doctors and pharmacists. It should link a more practical dimension to the aspects taught theoretically and help students to understand the pharmaco-therapeutic thought processes of the doctor (Leemans and Laekeman, 2000). If we seek better co-operation between doctor and pharmacist in the future, we must develop interdisciplinary working patterns during training.

## CONCLUSION

The shifts within the health care sector and the increasingly more demanding patient are pushing the pharmacist into the direction of a medicines consultant, for which multi-professional co-operation appears more than necessary. The value of guided self-study as one of the education methods in communication training is apparent from this multi-faculty research. Guided self-study may be used in advance of intensive training sessions and practical internship in order to teach theories and practical knowledge with regard to communication. But, considering the great importance of intensive practical training to promote behavioural change, it is impossible to replace interactive sessions completely by guided self-study. Offering this self-study and interactive training before the internship has the advantage that the communication skills taught could subsequently be tested in practice. This should ensure the skills to persist and consequently increase the net return from the self-study and training. We hope to be able to expand such interfaculty education initiatives in future, so that the students can learn to assess the proper value of each profession (Greene *et al.*, 1996; Milton, 1997).

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