Cognitive Change in Pharmacy Communication Courses: Need and Assessment

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This article contends that teaching pharmacy communication courses requires more than skills training. Communication skills are critical components to pharmacy education. However, pharmacy educators must be able to facilitate internalization of such skills. This article suggests that a cognitive approach for teaching communication skills is needed in pharmacy communication courses. The Pharmacy Communication Belief Instrument (PCBI) is introduced as a means of measuring cognitive change relative to a pharmacy communication course.

Over the past several years many articles have appeared stressing the importance of communication in pharmacy practice. Required courses in communication have been developed to provide our pharmacy students with necessary communication skills. Credit must be given to Eli Lilly and Company, in cooperation with the American Association of Colleges of Pharmacy, for sponsoring a series of Pharmacy Educators Communication Skills Workshops since 1977. This effort certainly provided a foundation for many pharmacy communication courses and made many pharmacy educators aware of the fact that not enough attention was being paid to this important area. The fundamental emphasis of these workshops was on skills training in communication.

The cognitive aspects of pharmacy communications were not emphasized until 1979 when Baldwin *et al.* suggested communication apprehension (CA) as a contributing factor predisposing pharmacists and pharmacy students to avoid patient communication(1). McCroskey(2) advanced the original conceptualization of CA in 1970. Communication apprehension is "an individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons"(3). Berger *et al.* further studied CA in pharmacy students and developed approaches to help them overcome this problem(4-7). Although CA represents the way a person *feels* about communicating, not *how* he or she communicates, CA is seen as having serious behavioral implications. The point made by the research on communication apprehension is that the cognitive aspects of communication training are as important as the behavioral (skills) aspects. Students and pharmacists who fear communicating (or the consequences of communicating) would not be as likely to engage in communication with patients and others as students who do not fear communicating(6). It is certainly true that for some of these students, skills training may alleviate some of the problem; however, the findings of the research in this area also suggest skills training is not enough. A change in cognition must take place. Skills must be internalized

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(cognitively) by the individual before they will be used. Moreover, CA is only one facet of the cognitive domain.

The notion that cognitions are critical in shaping behavior is not at all new. Ajzen and Fishbein have written extensively about the relationship between beliefs and subsequent behaviors(8,9). They state, "...in the final analysis, behavior change is brought about by producing changes in beliefs. By influencing beliefs about the consequences of performing behavior we can produce change in the attitude toward the behavior..."(8). When we teach our students about assertiveness or various other skills we are asking them to change their communication behaviors. Fundamentally, two things must happen before the student uses these new skills. *First*, he or she must believe that the consequences of using these skills are more positive than negative. *Second*, he or she must visualize her/himself using these new skills. The student must "see" how he or she is going to use them. Both of these processes are cognitive. What Ajzen and Fishbein(8) are saying is that without these two steps being internalized positively, the likelihood of adoption of these new behaviors (skills) will be exceedingly low. Observation and conversations with students confirm this. Many students state that they can "see" someone else being assertive (etc.) but not themselves.

Relatedly, much is being written and produced in the area of self-image psychology as applied to various fields including athletics(10-14). The basic premise is that individuals adopt certain behaviors only if those behaviors are compatible with their self-image. Again, a person must "see" her/himself doing the behavior. The behavior must be internalized. This is cognitive.

The importance of these ideas in teaching pharmacy communication courses is that skills training is simply not enough. Many of our students will use the skills they are taught in the classroom because there is an associated grade, but will not continue to do so after the class is over.

MISCONCEPTIONS ABOUT COMMUNICATION

Although many pharmacists and pharmacy students have never had a formal course in the field of communication, this does not mean they have never learned anything about communication. In the course of everyday living, not to mention attending elementary and secondary schools, people acquire many conceptions about communication that are common in our culture. Thus, cognitive learning about communication is inherent in our society, with or without formal teaching.

Unfortunately, many of the common conceptions related to human communication are at odds with clear thinking about this vital human activity. These "misconceptions," as we prefer to call them, frequently interfere with the development of good communicaton skills as well as presenting barriers to the understanding of the communication behaviors of others. In order to illustrate some of the kinds of cognitive concerns pharmacy educators need to consider when attempting to improve the communication of their students, we will discuss some of the communication misconceptions which have been addressed extensively by communication scholars(14,15).

Meanings are in words. Probably the most common misconception about communication is that meanings are in words. We learn as little children that if we do not understand a word, we should look it up in the dictionary. Form this we fail to learn that words are merely codes, symbols for meanings we have in our mind. While words (as well as nonverbal symbols) exist in many forms, meanings exist only in people's minds. Thus, *meanings are in people, not in words.*

No word has meaning apart from the person using it and the context in which it is used. To the extent that two people have different meanings for the same word, communication between those people which uses that word will be less effective than would be possible if they gave the same meaning to that word. To a major degree, successful communication between two people depends on the extent to which they have similar meanings for the words (and for the nonverbal symbols) they use.

The meanings we have for words are a product of our culture, our social class, and experiences—including our educational background. Consequently, the pharmacist who wishes to stimulate some meaning in the mind of a patient must select words (and nonverbal symbols) to be used on the basis of what he or she expects the patient's meanings for those words to be. One who tells a patient to take a medication "four times a day" should not be surprised when the patient takes it all during the morning hours rather than "after each meal and before bedtime."

Communication is a verbal process. When most people think of "communication," they think of words, whether written or spoken. This verbal focus is understandable, given that is what our educational system stresses from kindergarten through college. However, communication, particularly oral communication, is not just a verbal process. It also is a nonverbal process.

What we say or write, of course, is important. But often how we say it is of equal or even greater importance. Our nonverbal behavior will determine to a major extent whether people even choose to communicate with us, and if they do, it will be a major determinant of what they interpret our words to mean. *Communication is both a verbal and a nonverbal process.* The pharmacist who sincerely wants to help her/his patients gives prescriptions to them and asks if they have any questions. If the pharmacist is standing on an elevated platform behind a high counter and is wearing a white coat, he or she should not be surprised if patients consistently shake their heads and leave. Nonverbally, the pharmacist may be indicating that he or she does not wish to communicate.

Telling is communicating. This misconception provides the foundation for many interpersonal conflicts as well as misunderstandings. Many people operate as if saying (or writing) something is equivalent to communicating it. It is not. Saying it is just a first step in the communication process.

The misconception stems from our failure to recognize the active role the receiver plays in the communication process. Receivers are not sponges. They hear or read messages, interpret them, evaluate them in light of their own experiences, and record in their memories what our messages mean to them. These meanings may be very different from, or even diametrically opposed to, the meanings we intended them to record. *Telling is only half of communicating*, at best. Remember the "four times a day" example noted above.

Communication can break down. When people, or even nations, attempt to influence one another but are unsuccessful, they often feel a need to place blame for that failure. The "communication breakdown" is the culprit which is identified frequently. Somehow, it seems, if we can assert that communication broke down, there is no need to assume that anyone is at fault. The concept of communication breakdown should be recognized for just what it is, a cop-out intended to cover someone's failure to communicate effectively.

When people refer to communication breakdowns they usually are implying that communication is unsuccessful, but this does not mean that communication did not occur. In fact,

when two people are in proximity to one another, communication is constantly occurring. Even in the absence of talk, *one cannot not communicate*. While the grammar of this statement is questionable, the content illustrates a very important concept about communication. To simply stop talking does not terminate communication or mean that communication has broken down. The absence of verbal communication often communicates more than would its presence.

Communication is a natural ability. The final misconception about communicaton to consider is the idea that communication ability is something one is born with. Communication is not an inborn ability. *Communication is a learned ability*. Only in the last decade or so have the pharmacy profession and pharmacy educators recognized that communication can be improved through formal educational experiences. Many of our students have not yet come to that realization.

Although the normal child is born with the capacity to learn to be an effective communicator, without careful instruction the child is unlikely to become one. Such instruction is sadly lacking in most elementary and secondary schools as well as many colleges and universities. The fact that a large proportion of our pharmacy students have not developed a high level of communication skill is far more a function of their lack of opportunity to study communication in their previous school years than some inborn limitation. We must lead our students to understand that they can become effective communicators, just as others have, by careful study and practice.

While the above misconceptions about communication are only a few of those highlighted in writings in the field of communication, our purpose here is only to illustrate some of the kinds of cognitive issues that pharmacy educators need to address in their communication classes, not to replicate information which appears in many textbooks devoted to communication. These cognitive orientations are the kinds of cognitions which can either enhance or inhibit the development of effective skills in our students.

CHANGING COGNITION AND MEASUREMENT CHANGE

It seems reasonable to believe that pharmacy educators teach students certain communication skills because they believe these skills are important for use in pharmacy practice (and in everyday interaction). Therefore, it seems appropriate to do as much as possible to ensure that these skills will be adopted or used by our students. Based upon the extensive research of Ajzen, Fishbein and others, it is reasonable to conclude that a cognitive approach will be extremely useful. However, it is crucial to know if change is occurring. Often this is assumed, but never measured. Therefore, a discussion of the development of an instrument to measure cognitive change relative to a pharmacy communication course will be pursued.

THE PHARMACY COMMUNICATION BELIEF INSTRUMENT

In developing the instrument, the researchers envisioned that it would be given to students at the beginning and end of a pharmacy communication course. A paired *t*-test would be used to determine if individual item and overall change scores were significant. This would give an instructor an indication of where significant change in beliefs was occurring and where further emphasis was needed. It is important to note that this particular instrument was developed to serve the needs of the researchers for a particular pharmacy communication course being taught. It was not necessarily meant to be the definitive instrument for *all* pharmacy communication courses. It was meant to provide educators with guidelines and a philosophical approach for its development. The newly developed instrument was originally composed of twenty-four belief statements about communication, in general, and pharmacy communication, in particular (see Appendix A). The instrument was named the Pharmacy Communication Belief Instrument (PCBI) (see Appendix A). The items chosen were based upon both the objectives of a pharmacy communication course deemed appropriate by the researchers and a list of commonly held conceptions or misconceptions about communication(14). As a result, some items may not be appropriate for a course with different objectives. For example, some questions might be raised about the appropriateness of Item O (see Appendix B). In the particular pharmacy communication course the instrument was developed for, time is spent examining the limitations of drug information alone in patient counseling. In the course, the students are given three copies each of drug information on Valium. The resources used are the *(USP-DI)*, the *Physician's Desk Reference*, and *Facts and Comparisons*. They are told, one week in advance, that they will need to counsel several patients on the use of Valium, so they will need to be thoroughly familiar with the drug. The following week they are asked to give advice to these patients in role play situations. One prescription the student receives is for Valium 5mg, #30, one tablet three times a day for anxiety, no refills. The problem is that the patient operates a bulldozer on his job. In fact, pressures at work are one of the reasons he is taking Valium. The literature certainly indicates that operating heavy machinery may be dangerous while taking Valium! And the student certainly knows this. Drug information alone won't solve this patient's problems. Tailoring the medicaton to the patient's needs will do this. This process requires several communication skills, including empathy, assertiveness and effective questioning.

In total six different Valium prescriptions are presented with other problems covered, but not resolved by the literature. The attempt is not to convince students that drug information is not important. The attempt is to show students that it is not enough.

The PCBI was sent to six pharmacy professors throughout the country to give to their students at the beginning of their pharmacy communication course. A large enough sample was needed to do an exploratory factor analysis. In all 239 students completed the PCBI. Cronbach's alpha was 0.48. Since many different beliefs are being measured, alpha will be moderately low. The purpose of the factor analysis was to determine if: (i) the items represent a unified set of cognitions, and (ii) any items should be discarded. If the items represented a unified set of cognitions (a single factor), then the instrument might be able to be used in any pharmacy communication course. However, if several factors were present, it would be necessary to examine individual items to determine if they are truly compatible with teaching objectives (in regard to cognitive change). This does not make the instrument less valuable.

The factor analysis for the original instrument (see Appendix A) revealed at least four major factors.[2] Seven items were dropped from the instrument in total. These were items J, K, L, M, P, R, and S. These items were dropped either because they did not appear to load substantially on any one factor, or because in terms of cognitive change, the items were not particularly useful. For example, Item J, "Communication is neither good nor bad." In regard to cognitive change, we would not gain much in a communication course if students changed their

[2] Factor analysis is available upon request from the corresponding author.

Table I. Mean item scores and overall PCBI scores before and after exposure to course ($N=40$)

Item	Ideal score	Before	After	Difference	Paired t	Significance level
A	5	4.00	4.23	0.23	1.10	0.277
B	5	3.75	4.48	0.73	6.11	0.001
C	5	1.98	3.60	1.62	6.57	0.001
D	1	3.93	4.48	0.55	5.45	0.001
E	1	3.80	4.15	0.35	3.56	0.001
F	5	2.70	3.45	0.75	2.81	0.008
G	5	3.98	4.23	0.25	2.24	0.031
H	5	1.78	2.73	0.95	4.05	0.001
I	5	3.15	4.33	1.18	5.07	0.001
J	5	3.10	3.83	0.73	4.65	0.001
K	5	3.35	4.23	0.88	5.31	0.001
L	1	3.88	4.08	0.20	1.31	0.198
M	1	3.78	4.33	0.55	4.87	0.001
N	1	2.63	3.08	0.45	3.64	0.001
O	5	3.33	3.63	0.30	2.08	0.044
P	1	3.08	3.78	0.70	3.62	0.001
Q	5	3.25	3.88	0.63	4.41	0.001
Total	85	55.43	66.45	11.02	10.95	0.001

[a] Items D, E, L, M, N, and P were recorded (5 = 1), (4 = 2), (2 = 4), (1 = 5) for the purpose of obtaining a total pre- and post- PCBI score. The higher the total score, therefore, the closer it would be to the "ideal" total score of 85.

responses from positive to negative. No behavior could be associated with this change in cognition.

Based upon the course objectives and the factor analysis, a seventeen item PCBI was developed (see Appendix B). This instrument was used at the beginning and end of a pharmacy communication course taught at Auburn University. The instructor was very careful not to tell the students the purpose of the instrument. Moreover, students were told to respond with what they believed to be true. This was emphasized again at the end of the quarter. They were told that there were no right or wrong answers. In addition, students were told they could see the instructor after the final class if they wanted to know about the use of the instrument. Because the items were developed with course objectives in mind, efforts were made throughout the quarter to influence student beliefs and demonstrate why the concepts they were being taught were important. The instrument (PCBI) was simply being used to examine if significant change had occurred. The course was the intervention. As was discussed previously with Item O, every PCBI item was presented and actively demonstrated throughout the course. Students were not just told passively to believe something.

The pre- and post-item scores and overall scores may be seen in Table I. In addition, Appendix C, an expanded syllabus of the course, is available from the corresponding author to give the reader a perspective on the course content and objectives relative to the PCBI.

By having the information provided by Table I, an instructor may adjust his/her teaching to emphasize areas where weaknesses exist, and know where positive change is occurring. For example, even though statistically significant change took place on Item H, "Words have meaning," an "after" score of only 2.70 was achieved. It was a goal of this course to illustrate to students that words, in fact, don't have meaning. As stated previously people and context give words meaning. This is especially important in pharmacy practice where directions such as "prn" or "pc & hs" are given to patients. What do these mean? If, for example, a patient eats only two meals a day and the pharmacist does not explain that the intent of the "pc & hs" prescription is four times a day, the patient will only take the medication three times. Of course, the other extreme is possible. Diabetics eat many "mini" meals and could take too much of a given medication. Therefore, this item needs more emphasis in the classroom so that the probability of the desired behavior (student thoroughly explains directions to patient) is increased.

On the other hand, not much more effort may need to be put into items B, D, I, and M. It is really up to the individual instructor to make these decisions. For our course an average "after" score of at least 4.00 per item is our objective. It is important to study an item longitudinally to insure that teaching effectiveness remains consistent and improvement is occurring where it is needed. At least with this kind of feedback, good decisions can be made.

SUMMARY AND CONCLUSIONS

Change in beliefs or cognitions are critical to changes in subsequent behavior. In pharmacy communication courses we are attempting to change behavior by providing students with a set of skills.

The development and use of the PCBI are intended to provide pharmacy educators teaching communication with a method for assessing, in an objective way, whether cognitive change is occurring. The authors are not suggesting that the PCBI is the definitive instrument for doing this. However, it does provide a basis for exploring this type of change. As a result of the work of Ajzen and Fishbein, it seems clear that if beliefs are not changed, new behaviors will not likely be adopted. As educators we have a responsibility to be accountable for what we do; for assessing whether we really are having an impact on a student's beliefs. This is a start.

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APPENDIX A. ORIGINAL PHARMACY COMMUNICATION BELIEF INSTRUMENT

Directions: This instrument is composed of 24 statements concerning communication. Please indicate in the space provided the degree to which each statement reflects what *you* believe about communication—whether you (1) Strongly Agree, (2) Agree, (3) Are Undecided, (4) Disagree, or (5) Strongly Disagree with each statement. Many of the statements may seem similar to other statements. Do not be concerned about this. Work quickly and record your first impression.

_____ A. Communication skills really can't be taught.
_____ B. It is not necessary to require a pharmacy communication course.
_____ C. Some people are born communicators.
_____ D. I can learn to be an effective communicator.
_____ E. I see myself doing a good job of counseling patients.
_____ F. Drug knowledge will make me an effective communicator.
_____ G. I don't see myself talking comfortably with patients.
_____ H. Words have meaning.
_____ I. Communication is primarily verbal.
_____ J. Communication is a good thing.
_____ K. The more communication, the better.
_____ L. Communication can break down.
_____ M. Communication will solve our problems.
_____ N. When people stop talking, they stop communicating.
_____ O. Being assertive is OK for others, but not for me.
_____ P. When two people get angry at each other, communication has broken down.
_____ Q. Communication requires desire, understanding, and experience.
_____ R. The primary purpose of effective communication is to influence and control the actions and thoughts of other people.
_____ S. Communication cannot be effective if people are upset with each other.
_____ T. I would communicate more effectively as the result of a communicaton course.
_____ U. I communicate better than most people.
_____ V. In pharmacy practice, drug knowledge is more important than communication skills.
_____ W. Most communication comes from what we do, not what we say.
_____ X. I am not an effective communicator.

APPENDIX B. PHARMACY COMMUNICATION BELIEF INSTRUMENT

Directions: This instrument is composed of 17 statements concerning communication. Please indicate in the space provided the degree to which each statement reflects what *you* believe about communication—whether you (1) Strongly Agree, (2) Agree, (3) Are Undecided, (4) Disagree, or (5) Strongly Disagree with each statement. Many of the statements may seem similar to other statements. Do not be concerned about this. Work quickly and record your first impression.

_____ A. Communication skills really can't be taught.
_____ B. It is not necessary to require a pharmacy communication course.
_____ C. Some people are born communicators.
_____ D. I can learn to be an effective communicator.
_____ E. I see myself doing a good job of counseling patients.
_____ F. Drug knowledge will make me an effective communicator.
_____ G. I don't see myself talking comfortably with patients.
_____ H. Words have meaning.
_____ I. Communication is primarily verbal.
_____ J. When people stop talking, they stop communicating.
_____ K. Being assertive is OK for others, but not for me.
_____ L. Communication requires desire, understanding, and experience.
_____ M. I would communicate more effectively as the result of a communication course.
_____ N. I communicate better than most people.
_____ O. In pharmacy practice, drug knowledge is more important than communication skills.
_____ P. Most communication comes from what we do, not what we say.
_____ Q. I am not an effective communicator.