3 DEVELOPING PATIENT EDUCATION IN COMMUNITY PHARMACIES
Theories about individual and organizational change

3.1 Introduction

This chapter concentrates on the development of patient education in community pharmacies from a theoretical point of view. The objective is to find out what individual and organizational variables are expected to be involved in pharmacists’ and technicians’ patient education behavior and how they are to be influenced. As pharmacy technicians are involved in the majority of all patient contacts, and pharmacists participate in only a minority of these contacts, we concentrate on the patient education behavior of pharmacy technicians. Patient education involves both the individual members as well as the social system in which these members interact and function. In other words, at one extreme our unit of interest is the individual technician and at the other the community pharmacy, being an organization. Therefore the general principles of individual behavioral change and organizational change are presented in sections 3.2 and 3.3. In section 3.4 these principles are translated into the consequences for the development process of patient education in community pharmacy.

3.2 Theories about individual behavior (and change)

Many theories have been developed to understand and predict human behavior, which theories all try to identify the determinants of behavior. These theories differ in the extent to which they are based upon the cognitive element in people’s behavior, include attention for the influence of the social environment on people’s behavior and focus on changing one’s behavior. In paragraph 3.2.1 we discuss two theories about individual behavior, which concern Ajzen’s theory of reasoned action and Green’s PRECEDE-PROCEED model. The interventions which may change individuals’ behavior are discussed in paragraph 3.2.3.

3.2.1 Ajzen’s theory of reasoned action

The theory of reasoned action, which was called the Fishbein-Ajzen model originally, has been frequently used to analyze and predict patients’ health behavior. In addition, studies about pharmacists’ behavior have also used this model to analyze and predict pharmacists’ patient counseling behavior [1-2]. This theory is based on the assumption that human beings are usually quite rational: people systematically use the information available to and consider the implications of their actions before they decide to engage in a given behavior. Therefore this theory is called ‘a theory of reasoned action’. This theory states that the immediate antecedent of any volitional behavior is the intention to perform the behavior in question and they specify
two conceptually independent determinants of behavioral intention. One is a personal factor termed **attitude** toward the behavior and refers to the degree to which a person has a favorable or unfavorable evaluation of the behavior in question. The second predictor of intention is **subjective norm**, which is a social factor that refers to the perceived social pressure to perform or not to perform the behavior in question [3]. Later on the model was extended with one’s **perceived control** over behavior, being a determinant of intention as well as of behavior, corresponding to Bandura’s self efficacy concept [4]. Perceived control refers to the extent to which a person feels to have control on the concerned behavior, and seems to be related to one’s perceived abilities to practice this behavior. This later version of the theory of reasoned actions is presented schematically in figure 3.1.

![Figure 3.1. Ajzen’s model: determinants of behavior [4]](image)

So one’s behavior is to be predicted by one’s intention, which in turn is a function of three basic determinants. The first determinant (attitude) is one’s positive or negative evaluation of performing the behavior and may be viewed as a function of one’s behavioral beliefs. The second determinant of intention (subjective norm) is one’s perception of social pressure put on him to perform or not perform the behavior in question, and is a function of one’s normative beliefs. The third determinant of intention is the perceived behavioral control and reflects people’s confidence in their ability to perform the behavior [4].

### 3.2.2 The PRECEDE-PROCEED model

Green developed the PRECEDE-PROCEED model, which may be viewed as a framework to plan educational interventions. This model may also be useful to understand pharmacists’ and technicians’ behavior in patient education. PRECEDE stands for Predisposing, Reinforcing and Enabling Causes in Educational Diagnosis and Evaluation. To accommodate the broader mandate of health education the original PRECEED framework has been expanded with the PROCEED concept, which stands for "policy, regulatory, and organizational constructs in educational and environmental development". Green’s PRECEDE-PROCEED framework has been used frequently in attempting to understand the implementation of health education programs [5]. Green distinguishes three categories of influencing factors with respect to behavior, which are the predisposing, enabling and reinforcing factors (figure 3.2).

Predisposing factors
Predisposing factors to behavior - which include knowledge, attitudes, beliefs, values and self-efficacy - provide the rationale and motivation for practicing this behavior. Values include basic orientations, such as one’s view on the role of the professional or the patient’s autonomy. Beliefs include the more immediate viewpoints of professionals on the matters such as the effectiveness of patient education and its patient and profession directed outcomes. Attitude towards a behavior may be viewed as the evaluated beliefs about the concerned behavior, including the evaluated abilities to realize this behavior. Self-efficacy is a perception of one’s own capacity for success in practicing the new behavior and is a concept from Bandura’s social learning theory. Self-efficacy is found to be a significant determinant of performance that operates partially independent of underlying skills [6]. The relationships between behavior and constructs such as attitudes, beliefs and values give ample evidence of their association [5].

Enabling factors
The predisposing factors account for one’s motivation and self-confidence regarding patient education. But even with motivation and high self-confidence, professionals sometimes fail to take the appropriate action because they lack the necessary knowledge, skills and resources
to do so. The actual knowledge and skills differ from the predisposing self-efficacy in that they are real deficits and not just a lack of confidence. In other words, one’s perception of one’s own knowledge and skills is a predisposing factor to activities while the competence (available knowledge and skills) enables these activities.

**Reinforcing factors**
While motivation and abilities influence the development of new behavior, reinforcing factors are involved in the persistence of the new behavior. Reinforcing factors may be distinguished in external factors (rewards, social support, feedback) and internal factors (self-efficacy, outcome expectancies).

### 3.2.3 Changing individuals

The discussed theories about the individual behavior also refer to the interventions which may be used to develop new behavior. Similarly others postulate several statements about interventions and developing new behavior, like Bandura with his review of the social learning theory [6]. We list the different remarks concerning interventions addressed to individuals, which have the objective to realize new behavior.

#### Diagnosis
The determinants of a behavior have to be known before interventions can be properly developed. If the causes of a behavior can be understood, one can intervene with the most appropriate and efficient combination of education, training and resource development to influence the factors that predispose, enable or reinforce the behavior. An intervention linked to a diagnosed problem has the greatest chance of success. Therefore an individual approach of assessing the educational needs of pharmacists and pharmacy technicians will be most successful, when efforts are made to develop patient education in a community pharmacy.

#### Planning
Green states there is a precedence in the sequence of interventions which are intended to influence behavior. Predisposing factors are in place before intervening the enabling factors and enabling factors have to be addressed before intervening the reinforcing factors. According to Green’s PRECEDE-PROCEED concept the next sequence of interventions (and addressed factors) has to be preferred: education (attitude), counseling (self-efficacy), training (skills), resources (staff, materials), feedback (patients, physicians, colleagues, teachers). In other words, a communication skills course will be most successful when the participating pharmacists and technicians have a positive attitude toward patient education and at a
Developing patient education in community pharmacy

pharmacy level sufficient resources are present to practice the new learned skills. Similarly there is little point in setting up a reinforcement system if technicians have not been educated to perform patient education behavior.

**Stepwise change**
When people experience success in using what they have learned, this increases their outcome expectancies and perceived self-efficacy with respect to the concerned new behavior. This may be achieved when newly acquired skills are first tried in a situation likely to produce good results, and afterwards extended to the more difficult situations [6]. Repetition of the performance increases one’s self-efficacy, which affects task performance, which in turn promotes behavioral change [7]. Therefore a communication skills training should start with the more simple patient contacts in the pharmacy, which may be expanded stepwise to the more complicated contacts at the counter. Similarly this stepwise development should be taken into account when new patient education activities are planned in the pharmacy.

**Teaching methods**
When planning the teaching methods one has to consider the prior and concurrent learning experiences, as learning does not occur in a vacuum. To affect technicians’ and pharmacists’ behavior, the interventions must be planned in a sequence that takes into account prior and concurrent learning experiences to which they are exposed. This concerns both what they have learned from others (at school, university, postgraduate) as well as what has been learned from own experiences in daily community pharmacy practice. The consequences are that communication skills courses should concentrate on the subjects which are frequently discussed in pharmacy patient contacts. Besides role plays and video feedback have to be carefully introduced to pharmacists and technicians, as most of them do not have any experience with these instruments of communication skills courses.

**Observational learning**
The capacity to learn by observation enables people to expand their knowledge and skills on the basis of information exhibited and authorized by others. If new behavior has to be learned, potential adopters may be informed and motivated by competent models who impart the necessary skills. The Social Learning theory states that modeling frequently occurs in interpersonal networks [8]. Modeling produces significant improvements of behavior, but the addition of guided enactment was found to increase the effects [6]. Videotaped modeling serves as a convenient aid to actual demonstrations of new behavior and is frequently used in communication courses. In addition, observational learning may also be useful in a community pharmacy, if the pharmacist is able to act as model to technicians. Therefore
efforts to develop patient education in community pharmacies should seriously pay attention to pharmacists’ expertise in practicing patient education.

**Reinforcement**
The social learning theory states that individuals whose behavior is expected to change, should experience direct advantages of the new behavior. These advantage may concern the effects of the new behavior, or in the case of delayed effects, current incentives to sustain adoptive behavior until its intrinsic value becomes apparent [6]. As health professionals may not experience directly the effects of patient education, other incentives may be necessary to motivate them to continue patient education, like promotion, raise in salary, education or feedback from superiors or colleagues [9]. Peer feedback among physicians was found to improve compliance with recommended standards of care, while this factor also played an important role in sustained quality assurance [10, 11]. The feedback principle seems to be useful within the pharmacy team, and therefore interventions addressed to patient education should also pay attention to pharmacists’ and technicians’ feedback skills.

**Participation**
Innovations are best introduced in settings where members are willing to try them out, at least at a provisional basis [6]. Attempts to change professional behavior will be more successful if professionals participate in identifying their own needs for change and in selecting the methods that will enable them to realize this change, as was found in studies among doctors [12-14]. This means that efforts to improve patient education in community pharmacies have to be based upon pharmacists’ and technicians’ views on the desired level of patient education and their agreement with the interventions which will be used (teaching methods, supervision, experiment).

**Strategies**
The wide variety of strategies to influence people’s behavior all represent one of the basic strategies originally suggested by Chin and Benne [15]. These authors distinguish three basic strategies for affecting people’s behavior, which are the empirical rational strategies, the normative re-education strategies and the power strategies. The major differences between these approaches lie in the assumptions about the sorts of pressures to which potential adopters are most responsive (and -so- when each approach is advocated) [16].

The empirical rational approaches, also called persuasion strategies, assume that people are rational and will behave in whatever can be shown to be their own interest. Principles of these strategies are used in advertisements as well as in politicians’ election campaigns. A second group of strategies are the normative re-educative strategies, which are based upon
Developing patient education in community pharmacy

the assumptions that one’s motivation to adopt an innovation is not only built upon rationality and intelligence, but also influenced by the extent to which persons are tempted to change their normative orientations to old patterns and develop commitments to new ones. The re-educative strategies differ from the empirical-rational strategies, as they involve changes in attitudes, values, skills and significant relationships, and not just changes in knowledge, information, or intellectual rationales for action and practice. This strategy has to be preferred in case of the introduction of innovations which require different normative orientations of persons, such as changes in patient care [17]. Finally, the power strategies assume that those with less power, of whatever type, will usually comply with the changes advocated by those with greater power. These strategies can bring about significant changes as long as the real power is present. When the behavior can not be readily observed in order to administer rewards or punishments, it could prove counterproductive to use a power approach.

3.2.4 Conclusions

Based upon the theories that have been discussed in section 3.2.2 one may classify the determinants of behavior into three groups, which are people’s motivation with respect to the new behavior (role beliefs, expectancies of patient outcomes and professional outcomes, perceived self-control and self-efficacy) their abilities to practice this behavior (knowledge, skills, resources and opportunities) and their positive experiences with the new behavior. These determinants of patient education behavior need attention when efforts are made to develop patient education in community pharmacy.

Patient education may be viewed as an innovation which reflects one’s values about the professional responsibility and about patients’ autonomy. Based upon these characteristics of patient education the normative re-education strategies seem to be the most adaptable for developing patient education in community pharmacies. These strategies attempt to introduce changes in behavior by first creating the necessary motivation for change, after which the acquisition and stabilization of the new behavior can take place. One of the principles of the individual change process listed in section 3.2.3, states that an intervention program has to apply to the specific individual learning needs. So decisions about the interventions to influence technicians’ and pharmacists’ determinants with respect to patient education, have to be based upon their individual learning needs, their learning experiences and their participation in the intervention program. The consequences are that an intervention program addressed to patient education in community pharmacy, may differ from pharmacy to pharmacy.

3.3 Theories about organizational change
3.3.1 Introduction

Originally theories about organizational change were based upon two research traditions [18]. The first was the work of Lewin, who developed one of the earliest stage models which has three stages: unfreezing-moving-refreezing and emphasized factors resisting change efforts. Lewin looked at individual behavior as being influenced by the characteristics of the individual coupled with the surrounding environment. The works of Argyris, MacGregor and Likert are examples of Lewin's influence [18]. The second influence on organizational change theories was the diffusion-innovation theory of Rogers which in the mid 1950s focused on how individuals such as farmers, teachers and doctors adopted innovations [19]. An innovation is any idea, practice or device that is perceived by people to be new. Rogers introduced the word "innovativeness", being the degree to which an individual is relatively earlier in adopting new ideas than other members of his social system, and distinguished 5 categories of innovators: innovators, early adopters, early majority, late majority and laggards [19].

Later on innovativeness has been related to organizations and described as being the degree to which an organization accepts an innovation rather easily [20]. In addition, the characteristics of innovations have been studied and have been found to be important variables that help explain people’s responses to it. Zaltman, Duncan and Holbek reviewed the literature and identified several variables of innovations which influence its acceptance, such as the required skills and resources, return on investment, efficiency, risk and uncertainty, communicability, compatibility with prevailing social norms and value systems, complexity, perceived relative advantage, impact on personal relations, and the like [21]. These various attributes of an innovation can be reduced to one basic question: the benefits of an innovation have to be greater than its costs.

As research on organizational changes increased, two types of studies resulted. One category examined the characteristics of innovative organizations, by gathering cross sectional data from a large sample of organizations. The second type, which started in the mid 1970s, were studies which focused on the nature of the innovation process and the behavior of organizations in the process of change. These latter studies led to the development of Stage Theories and Organizational Development Theories [18]. Stage Theories are so named because organizations pass through a series of steps or stages when an innovation is introduced and each stage requires a unique set of strategies. The Organizational Development Theories concentrate on the different interventions aiming at either the organization’s design, technologies or human processes [18]. Based upon these different theories about organizational change, we discuss the stages of innovation processes in organizations (3.3.2), the innovative capacity of an organization (3.3.3) and the principles of organizational change (3.3.4). The conclusions of this section will be presented in 3.3.5.
3.3.2 Stages of innovation processes

Zaltman, Duncan and Holbek proposed one of the earliest stage models to be applied to organizations and stated that an organizational change process consists of two general stages: the initiation and implementation of an innovation [21]. Originally research about the introduction of innovations concentrated on the degree of acceptance of new ideas or products among people, which was called the initiation stage afterwards. Later on it was Bennis who paid attention to the integration of an innovation into an organization and so introduced a second stage, concerning the implementation of innovations [22]. The initiation stage is concerned with how the organization becomes aware of an innovation, forms attitudes and makes decisions about the innovation. The implementation stage concerns the process of integrating the change into the organization. Both the initiation stage and the implementation stage are subdivided into different substages [19, 21]. Figure 3.3 presents the stages of the innovation process such as presented by Zaltman and Duncan [21].

<table>
<thead>
<tr>
<th>Stage I. Initiation</th>
<th>Stage II. Implementation</th>
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<tbody>
<tr>
<td>Knowledge awareness</td>
<td>Initial implementation</td>
</tr>
<tr>
<td>Attitude formation</td>
<td>Continued sustained implementation</td>
</tr>
<tr>
<td>Decision to adopt</td>
<td></td>
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</tbody>
</table>

Figure 3.3 Stages of the organizational innovation process [21]

The initiation stage has three substages, leading up to the decision whether or not the innovation will be adopted. The implementation stage is subdivided into the initial implementation stage, and the continued sustained implementation stage. These and other formulations of the stages of change are based upon the assumption that the innovation decision process is rational and follows a logical sequence of steps, namely from problem recognition, through assessment of alternatives, to adoption and implementation of a solution [23]. The various models all have in common that the different stages occur in sequence [18].

Compared to the innovation-decision process of individuals, the innovation process in organizations consists of similar substages but is much more complicated as a number of individuals is involved, each of whom plays a different role in the decision process. The innovation process in an organization may move slowly or rapidly and may even backtrack as previously unrecognized problems are revealing. Usually the innovation process stages occur in the expected time order if an innovation is imported from external resources. As an innovation originates within the organization, the stages of the innovation process seem to appear muddled and overlapping [20].
3.3.3 The innovativeness of organizations

Rogers looked at the organizational variables associated with the innovativeness of an organization and found that several characteristics facilitate or impede change and so influence the innovative capacity of an organization [19]. These organizational variables are the complexity, formalization and centralization of an organization and the individual leadership within the organization. These organizational characteristics will be discussed in terms of how they affect the change process and to what extent this may have consequences for developing patient education in community pharmacies.

Complexity
Complexity is defined in terms of the number of occupational specialties in the organization and their professionalism, and a very differentiated task structure. It appears that the complexity of the organization can have both positive and negative effects on the various stages of the change process. At the initiation stage, highly diverse organizations are able to produce a variety of information and ideas that can increase the awareness and knowledge of change and the need to implement it. However, because of potential conflicts, on the implementation stage high complexity makes it difficult for the organization to actually implement the change. A community pharmacy might be viewed as a rather low complex organization. Although pharmacy technicians and pharmacists differ in their occupational activities, both groups participate in the same kind of activities. The low level of complexity of a community pharmacy requires extra attention at the initiation stage where a lack of ideas about the innovation may arise, while fewer problems may be expected at the implementation stage.

Formalization
Formalization is concerned with the emphasis that is placed within the organization on following specific and rigid rules and procedures in performing one’s job. High formalization may prohibit organizational decision makers from seeking new sources of information, while low formalization seems to facilitate the initiation stage. On the other hand high formalization facilitates the implementation stage, because it tends to reduce ambiguity and potential conflicts that individuals would experience as they implement the change. The seriousness of making and dispensing drugs requires strict rules in community pharmacies, because of the necessity to prevent any mistakes. This situation may lead to high formalization in the pharmacies and inhibit innovations like patient education at the initiation stage. At the same time a high level of formalization may facilitate the implementation stage of the innovation process.
Centralization
Centralization is the degree to which power and control are concentrated in the hands of relatively few individuals. The greater the hierarchy of authority and the less the participation in decision making that exist in an organization, the greater the centralization. A low level of centralization increases the information available to the organization and thus increases the knowledge-awareness at the initiation stage. However when the organization gets at the implementation stage, a more specific line of authority and responsibility is required to reduce the role conflict of ambiguity that might accompany implementation of the change. Based upon the differences in responsibility between pharmacists and technicians, one may expect a certain level of centralization in community pharmacies. Therefore, efforts to introduce patient education in community pharmacies should pay attention to the information gathering process at the initiation stage, in order to achieve the required level of knowledge and awareness about patient education among the pharmacists and pharmacy technicians involved.

Leadership
Hage states that the motivation for innovation within organizations is critically influenced by the values of the executive leadership. Those executives who are committed to maintain and enhance high standards of performance in their organizations and who are dissatisfied with the status quo, will direct energy and resources toward importing new ideas and programs [23]. In other words, the motivation of pharmacists to spend time and energy in the development process of patient education will influence the innovative capacity of the pharmacy with respect to the development of patient education. In addition, the leadership of the pharmacist is important as this may influence the internal communication patterns in the pharmacy. In a study about nurses’ patient directed behavior, the perceived frequency and quality of the internal communication was found to affect nurses’ behavior [24, 25]. Others confirmed the influence of the internal communication patterns on the innovativeness of organizations [22].

3.3.4 Changing organizations

Strategy
According to the discussed strategies to change individual behavior the empirical, re-educative and power strategies are to be used to realize an organizational change. One of the conclusions in section 3.2 is that the re-educative strategy has to be preferred to develop patient education in community pharmacies. A specific example of re-educative strategies is Lewis’ so-called action-research, which is based upon a collaborative relationship between researchers, educators and adopters of the innovation. This strategy is to be preferred when the objectives of an organizational change are not limited to the introduction of an innovation, but also include the improvement of the problem solving capabilities of an organization.
Another important aspect of strategies about changing organizations is the planning principle that states that an organizational change will be realized with more success, when a planning is made about its objectives, target groups, necessary preparation, implementation and evaluation [17].

**Facilitating conditions**

It is suggested that three prerequisites are necessary for a successful implementation of an innovation: (1) availability of a sufficient level of expertise and knowledge to practice with the innovation, (2) clarity and specificity of the new tasks the staff members are to perform and (3) availability of equipment, materials and supplies [23]. A major cause of failure in changing organizations seems to arise from the difficulty of articulating concrete and specifically defined sets of skills and tasks from broad ideological statements and belief systems. Pharmacists who want to start new patient education activities therefore have to prepare their technicians adequately, have to define clearly the objectives and contents of these activities and have to take care of the necessary equipment, materials and supplies. In addition, correspondent changes may include modifications of authority and supervisory relations and internal communication patterns. When a new program calls for autonomy in task performance, staff members cannot function adequately if their work is structured by hierarchical authority, vertical communication patterns and rigid coordination mechanisms [23]. One may expect these conditions to be involved in the introduction of patient education in pharmacies. Patient education in community pharmacy may be viewed as a rather new activity which requires new role definitions with increased task autonomy, compared to the traditional activities of preparing and dispensing drugs. This increased task autonomy may be expected to come about as patient education requires technicians to interact with patients without pharmacists’ immediate supervision.

**Coping with resistance**

A major source of resistance toward an innovation may be expected from those in the organization who fear losing rewards, being denied access to the inducements of the new program or disturbing existing power relations. Often the success of new programs depends on the compliance of lower-level staff in direct contact with clients. This can undermine the innovation process, even when it has been sanctioned by the executive leadership. To achieve active compliance among staff members, they have to be provided with direct incentives to support the innovation. As technicians’ behavior can be observed by patients as well as by colleagues and pharmacists one may expect resistance towards new activities in patient education. Technicians may fear to fail in patient education or existing personal relations may change when introducing a new task that requires certain knowledge, skills and organizational opportunities. Attention should be paid to this resistance as the willingness of pharmacy
Developing patient education in community pharmacy
technicians to participate in the innovation process is essential to achieve the required level of motivation for patient education. This confirms the necessity of using a re-educative strategy to develop patient education in community pharmacies.

3.3.5 Conclusions

Studies about organizational change differ in the topics on which they concentrate, which may concern the organizational characteristics to be influenced, the planning process and stages of the innovation process and the appropriate strategy to achieve the desired organizational change.

The organizational characteristics that may be influenced in order to support an innovation process, concern the structure as well as the culture of an organization, among which the style of leadership and internal communication patterns. Whether all these aspects have to be influenced, depends on the characteristics of the innovation, the organization involved and the opportunities to influence the organizational characteristics.

The planning principle states that an organizational change will be realized with more success, when a planning is made about its objectives, target groups, necessary preparation, implementation and evaluation [17]. The theories about stagewise development of organizational change state that innovation processes consist of an initiation stage and an implementation stage, each of which consists of substages and requires different interventions in order to be adequately passed. The first stage is the so-called initiation stage and concerns the acceptance of the innovation while at the second stage (the implementation stage) the innovation is put into practice. Both stages require specific interventions, which at the same time also depend on the characteristics of the innovation and the organization involved. Different strategies may be used to introduce and support the innovation process within an organization. A specific strategy of interest concerns Lewis’ action research strategy, which is based upon a collaborative relationship between educators (which at the same time are researchers) and the adopters of the innovation. This strategy has to be preffered when the objectives are not limited to the introduction of the innovation but also include the improvement of the problem solving capacities of the organization.

As community pharmacies are expected to be rather centralized organizations, with a high level of formalization and a rather low level of complexity, the introduction of patient education as a non-radical innovation, may need serious attention and time investment at the initiation stage while at the implementation stage fewer problems are to be expected. The consequences are that in a pharmacy team the discussion about the objectives and necessity of developing patient education need considerable attention before new activities can be put into practice. The presence of any resistance among pharmacy technicians to efforts to
develop patient education may also have consequences for the contents and time table of the innovation process. In order to respond adequately to this resistance, technicians’ participation in the discussions and decisions at all stages of the innovation process is necessary. In addition, pharmacist’s leadership is expected to influence the innovativeness of a community pharmacy. Pharmacist’s willingness and expertise to develop patient education may be viewed as necessary conditions for introducing new activities in the pharmacy, while the pharmacist is also expected to create the necessary task autonomy and internal communication patterns which facilitate the process of implementing patient education in a community pharmacy. As the intervention period is limited in time the objectives of the intervention program also include the improvement of the problem solving capabilities of the pharmacy team. Therefore the action research strategy has to be preferred. This strategy is one of the re-educative strategies and is based upon a collaborative relationship between educators (who at the same time are researchers) and the adopters of the innovation.

3.4 Consequences for developing patient education

3.4.1 Variables to be influenced

Theories about individual and organizational change state that both individual variables and organizational variables influence the change processes within organizations. As patient education concerns the individual pharmacist and technician as well as the pharmacy as an organization, both kind of variables may be involved in the development of patient education in a community pharmacy. Figure 3.5 presents an overview of these individual and organizational variables which are expected to influence innovation processes in community pharmacies (figure 3.5).

<table>
<thead>
<tr>
<th>Individual variables</th>
<th>Organizational variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation (values, beliefs, attitude)</td>
<td>Leader’s expertise (innovation and management)</td>
</tr>
<tr>
<td>Abilities (individual and organizational)</td>
<td>Internal communication patterns</td>
</tr>
<tr>
<td>Reinforcing experiences (rewards and feedback)</td>
<td>Complexity, formalization, centralization</td>
</tr>
</tbody>
</table>

Figure 3.5 Innovation processes in community pharmacies: variables involved

The variables listed in figure 3.5 are expected to have an influence on the innovation process of developing patient education in the pharmacy. In other words the extent to which a pharmacy will be successful in developing patient education is expected to depend on both the individuals working in a pharmacy and the characteristics of the pharmacy as an
Developing patient education in community pharmacy

organization. Therefore efforts to develop patient education have to take into account both kinds of variables, in order to facilitate the innovation process. The organizational variables that concern the structure of the pharmacy (complexity, formalization and centralization) cannot be easily changed. They nevertheless may influence the outcomes of an intervention strategy addressed to patient education and should be considered when evaluating interventions.

The individual variables seem to be more suitable to be influenced by an intervention program which has the objective to develop patient education in a community pharmacy. These individual variables may be distinguished into the variables which are related with technicians’ and pharmacists’ individual behavior in patient contacts on the one hand and with pharmacist’s expertise in both patient education and managing the innovation process on the other hand. Pharmacist’s expertise in patient education is needed to be able to supervise pharmacy technicians in patient education and to act as a model for technicians. Besides, the pharmacist has to support and supervise technicians at the different stages of the innovation process, which may require several management skills. Therefore efforts to develop patient education should concentrate on both the expected determinants of the individual patient education behavior as well as on pharmacist’s expertise in patient education and on pharmacist’s management skills. Figure 3.6 presents an overview of these different variables.

<table>
<thead>
<tr>
<th>Determinants of behavior</th>
<th>Variables to be influenced</th>
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</thead>
<tbody>
<tr>
<td>Technician’s motivation</td>
<td>Beliefs about professional responsibility</td>
</tr>
<tr>
<td></td>
<td>Beliefs about patient education outcomes</td>
</tr>
<tr>
<td></td>
<td>Beliefs about own expertise in patient education</td>
</tr>
<tr>
<td></td>
<td>Beliefs about social norms</td>
</tr>
<tr>
<td>Technician’s abilities</td>
<td>Drug knowledge</td>
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<tr>
<td></td>
<td>Communicative skills</td>
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<tr>
<td></td>
<td>Organizational resources and opportunities</td>
</tr>
<tr>
<td>Technician’s experiences</td>
<td>Experiences with practicing patient education</td>
</tr>
<tr>
<td>Pharmacist’s leadership</td>
<td>Expertise in patient education and management</td>
</tr>
</tbody>
</table>

Figure 3.6. Patient education: individual variables to be influenced

In conclusion one may state that interventions have to be addressed to the variables listed in figure 3.6, which influence pharmacist’s and technician’s patient education behavior as well as to pharmacist’s expertise in managing the innovation process in the pharmacy.
In addition one should consider differences among pharmacists in the adoption of patient education activities in their pharmacies. According to Rogers’ diffusion curve different groups of pharmacists are to be distinguished with respect to the process of adopting patient education behavior [19]. The first half of all adopters, consisting of the so called innovators and the early adopters are considered to be the most deliberate in their actions and issues of benefits and costs are important in their decision to adopt. To the second half of all adopters, consisting of the late majority and the laggards, social influences are known to be more important in changing people’s behavior [26].

3.4.2 Stages of the innovation process

The hierarchical principle of learning requires an educational intervention strategy which is based upon a step-wise development. This step-wise development of patient education starts with pharmacists’ and technicians’ attitude toward patient education and their perceived expertise, followed by the acquisition of required knowledge, skills, resources and opportunities to practice patient education, and finally reinforcing the new behavior. In addition, the educational activities also have to fit well within the stages of organizational change processes as mentioned in section 3.3. Based upon these stages we have planned the organizational and individual change process with respect to the development of patient education in community pharmacies (figure 3.7).

<table>
<thead>
<tr>
<th>Organizational change process</th>
<th>Individual change process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge-awareness</td>
<td>Motivation</td>
</tr>
<tr>
<td>Decision and Planning</td>
<td>Abilities</td>
</tr>
<tr>
<td>Initial implementation</td>
<td>Positive experiences</td>
</tr>
<tr>
<td>Sustained implementation</td>
<td>Sustained behavior</td>
</tr>
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Figure 3.7 Stages of organizational and individual change process

Based upon these stages of the individual and organizational change process we have developed an intervention program which will be discussed in detail in chapter 4.
3.4.3 Intervention strategy

Patient education may be viewed as a non-radical innovation in a community pharmacy, since pharmacists and technicians are already involved in patient contacts and patient education. As community pharmacies are expected to be organizations with a high level of formalization and centralization and with a rather low complexity, serious attention must be paid to the first stage of the innovation process of developing patient education, the so called initiation stage. At this stage the organization becomes aware of the innovation, forms attitudes and makes decisions about the innovation. At this stage resistance toward patient education or toward changes may arise, and needs serious attention in order create the necessary motivation to develop patient education in the pharmacy. When interventions are on a temporal base, they should concentrate on the problem-solving capacities of the pharmacy team, as the pharmacy team has to proceed with patient education afterwards. In addition, one should take into account that the success of an intervention program which is based upon pharmacists’ and technicians’ voluntary participation, also depends on their agreements with the contents and educational methods of the interventions. Therefore the development of patient education has to be based upon a collaboration between the pharmacy-team and the change agents, and at all stages of the innovation process technicians and pharmacists should participate in the decision-making processes and the information-exchanges.

Based upon these characteristics of patient education and on the conditions of an intervention program, the action research strategy seems to be most successful to develop patient education in community pharmacy.
REFERENCES

Developing patient education in community pharmacy


3 DEVELOPING PATIENT EDUCATION IN COMMUNITY PHARMACIES

Theories about individual and organizational change .......................................................... 53

3.1 Introduction .................................................................................................................. 53

3.2 Theories about individual behavior (and change) ....................................................... 53

  3.2.1 Ajzen’s theory of reasoned action ........................................................................... 53

  3.2.2 The PRECEDE-PROCEED model ........................................................................ 54

  3.2.3 Changing individuals ............................................................................................. 56

  3.2.4 Conclusions ........................................................................................................... 59

3.3 Theories about organizational change ........................................................................... 60

  3.3.1 Introduction ......................................................................................................... 60

  3.3.2 Stages of innovation processes ............................................................................. 61

  3.3.3 The innovativeness of organizations .................................................................... 62

  3.3.4 Changing organizations ....................................................................................... 63

  3.3.5 Conclusions ........................................................................................................... 65

3.4 Consequences for developing patient education .......................................................... 66

  3.4.1 Variables to be influenced ..................................................................................... 66

  3.4.2 Stages of the innovation process .......................................................................... 68

  3.4.3 Intervention strategy ............................................................................................. 69

REFERENCES .................................................................................................................... 70