The Development of an Instructional Model Based on the Theory of Goal Attainment to Improve Communication Skills for Continuing Education

Zhang Li[1,2], Bung - on Sereerat[2,*], Saifon Songsiengchai[3] & Penporn Thongkamsuk[2]

[1]Graduate School, Bansomdejchaopraya Rajabhat University, Bangkok, Thailand

[2]Faculty of Education, Bansomdejchaopraya Rajabhat University, Bangkok, Thailand

[3]Institute of Science Innovation and Culture, Rajamangala University of Technology Krungthep, Bangkok, Thailand

*Correspondence: Faculty of Education, Bansomdejchaopraya Rajabhat University, Bangkok, Thailand

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Abstract

This study investigates the factors influencing the development of communication skills among students at The People's Hospital of Guangxi Zhuang Autonomous Region. Recognizing the pivotal role of effective communication in healthcare, the research aims to identify key elements, such as the learning process, environment, teachers, and students, that significantly impact the acquisition of communication skills in a medical education context. The sample group was 30 students from The People's Hospital of Guangxi Zhuang Autonomous Region. The research was conducted in three steps: studying the factors that affect the development of communication skills, developing the instructional model, and the experimental and improvement process. The research instruments were a questionnaire about factors that affect the development of communication skills, an interview form about factors that affect the development of students' communication skills, lesson plans, an observation form about student behavior, an interview form about opinions on teaching, and a communication skills scale. Findings revealed: 1) Principal factors influencing communication skills development include the learning process, environment, teachers, and students, respectively; 2) An instructional model grounded in the Theory of Goal Attainment materialized, comprising four core components: a) principles, b) objectives, c) learning process, and d) results; and 3) Post-implementation of the instructional model based on the Theory of Goal Attainment, students exhibited higher communication skill scores compared to pre-experimental levels, attaining statistical significance at the 0.05 level.

Keywords: instructional model development, theory of goal attainment, communication skills

1. Introduction

1.1 Rationale

As medical science advances and the global population ages, worldwide prescription rates and health-related drug spending are set to surge. IMS Healthcare's latest report projects the global pharmaceutical market to hit about $1.4 trillion by 2020. Over the next five years, international drug prescriptions are expected to rise by 24%, reaching 45 trillion. In 2020, China, the largest emerging market, is anticipated to spend approximately $165 billion on medicines (Healthcare, 2020). However, drug use also comes with risks and challenges. Irrational drug use leads to unnecessary adverse drug reactions, rapidly increasing drug resistance, and billions of dollars of drug costs every year, so there is an urgent need to optimize drug use for patients. Adverse drug events are estimated to cost £466 million annually in the UK and up to $5.6 million per hospital in the US. Half of all adverse drug events could be prevented if used correctly (Kshirsagar, 2016).

The irrational use of drugs is widespread. De Geest (De Geest & Sabaté, 2003) found that 50% of patients either failed to adhere to prescriptions or used inappropriate medicines. Skoog (Skoog et al., 2015) reported that approximately 55% of patients used drugs without clear indications. Moreover, patients often forego prescribed medications, opting for alternatives. In China, the irrational use of drugs, particularly the overuse of antibiotics, is on

the rise (Mao et al., 2015).

It is essential to promote the rational use of medications in patients. DeYoung (DeYoung, 1996) reviewed the research on the relationship between pharmacist-patient communication and patients' medication knowledge and compliance in medical institutions and emergency centers and found a positive correlation between the two. Intervention studies applied to improve pharmacist counseling skills have also been found to improve patient medication adherence.

In addition, the transformation of pharmacists' identity requires pharmacists to have good communication skills to encourage patients to obtain better health outcomes. The governments and associations of many developed countries have issued policy guidance on pharmacists' communication with patients. For example, the Omnibus Budget Reconciliation Act of the United States in 1990 made pharmacists' communication with patients a part of the services provided by pharmacists("Omnibus Budget Reconciliation Act of 1989, Public Law 101-239," 1990). Subsequently, Denmark, Finland, Switzerland, and other Nordic countries also adopted legislation to regulate pharmacists' medication communication behaviors (Svensberg et al., 2015). In 2006, the WHO and the International Pharmaceutical Federation (FIP) proposed the concept of the seven-star pharmacist, which proposed that the traditional role of pharmacist dispenser was extended to various roles such as nursing assistant, decision supporter, communicator, and communicator(FIP/WHO, 2012). Among them, the communicator is one of the main roles of the pharmacist. In addition, the demand for patient-centered care is becoming increasingly vital. Pharmacists must fully consider patients' special circumstances and expected results when providing pharmaceutical services and coordinate pharmacist recommendations with patient preferences (Stewart et al., 2000). With the increasing importance of shared decision-making and the gradual expansion of pharmacists' roles, pharmacists' ability to communicate effectively with patients is becoming increasingly important (Epstein & Street, 2011).

Marta Sabater-Galindo et al. (2016) reviewed eight interpersonal communication frameworks that may apply to pharmacist-patient communication in the medical field in 2016 and concluded that there needed to be a model suitable for pharmacist-patient communication. The theory of goal attainment (King, 1981) is a systematic theory that explores the process of interpersonal interaction, which focuses on the interaction between subjects and objects to reach a Transaction and finally achieve the goal. This theory has been widely used in communication research in the nursing and medical fields (King, 1996). The core concepts of the Theory of goal attainment include the interaction between subjects and objects in communication, goal setting, and reaching communication. Interaction refers to verbal and non-verbal communication between the two parties, during which the subject and the object identify problems, jointly formulate goals, and explore ways to achieve goals. Reaching communication refers to the process by which both parties agree on goal setting and realization and finally achieve the goal. Based on the above definition, King proposed a more specific model definition, which classified the core concepts of the Theory of goal attainment into four stages: assessment, planning, implementation, and evaluation, which run through the whole process of medical service. Taking nursing as an example, nurses and patients conduct a preliminary assessment after sharing information (assessment stage); Then, both nurses and patients identify problems through interaction (diagnosis stage) and jointly formulate goals and explore ways to implement plans (planning stage). The communication realization is reached when the above explorations achieve the common goal-setting and implementation methods. However, both sides still need to work together to implement the jointly set goals (implementation stage). When the goal is achieved, the communication process is completed. If goals are not met, the system provides a feedback loop for ongoing evaluation, with the communicated results fed back into the evaluation phase (evaluation stage) (King,1996).

King introduced the open system framework, examining the dynamic interaction between individuals and their environment. The structure comprises three levels: personal, interpersonal, and social. In this dynamic system, individuals are seen as individual systems, groups as interpersonal systems, and communities and schools as large social systems (Mu et al., 2010). Each open system has its unique concept and corresponding connotation, engaging for information exchange with other open systems.

There are few studies on the drug-patient communication model in China, and the existing studies focus on the current situation of communication and the training and improvement strategies of communication skills of medical students and clinical pharmacists. Zhang and Yang, 2003 proposed that the communication between pharmacists and patients is mainly based on medication guidance and medication consultation, while interactive communication is rare and affected by factors such as limited energy and weak service awareness of pharmacists. Li and Tang, 2013 evaluated patient satisfaction after the intervention by implementing the intervention of pharmacist communication skills training, and the results showed that pharmacist communication training improved patient satisfaction. The

literature review shows that the Theory of goal attainment is the most suitable communication model for pharmaceutical care, which can effectively improve students' communication skills.

On February 26, 2020, the National Health Commission of China issued the Notice on the Issuance of the Opinions on Strengthening Drug Management in Medical Institutions and Promoting Rational Drug Use (NHC No. < 2020 > 2), which proposed that medical institutions should develop home-based community pharmaceutical care. Therefore, The People's Hospital of Guangxi Zhuang Autonomous Region, one of China's first standardized unique ability training bases for family pharmacists, must develop an independent instructional model for students.

In summary, from the previous description of the importance of communication skills, we know that the quality goals of family pharmacists include communication skills. Therefore, we will use the Theory of goal attainment to organize teaching and develop an instructional model that improves students' communication skills.

1.2 Research Objectives

1.2.1 To study the factors affecting the development of communication skills.

1.2.2 To develop an instructional model based on the Theory of goal attainment.

1.2.3 To compare the students' communication skills before and after implementing the instructional model based on the Theory of goal attainment.

1.3 Research Hypothesis/Hypotheses

The students had higher communication skills after using an instructional model based on the Theory of goal attainment.

1.4 The Variable

Independent Variable: Instructional model based on the Theory of goal attainment

Dependent Variable: Communication skills

2. Method

The methodology of this research was research and development. This research was a multi-sequenced design and equivalent status design: population and sample group, research instruments, research process, and data analysis were presented as follows:

2.1 Population and the Sample Group

2.1.1 Population

This study selected 40 students of Family pharmacists in the 2023 academic year of The People's Hospital of Guangxi Zhuang Autonomous Region.

2.1.2 The Sample Group

The simple cluster sampling method selected 30 students from The People's Hospital of Guangxi Zhuang Autonomous Region.

2.2 Research Instruments

Research instruments were presented as follows:

1) Questionnaire about factors that affect the development of communication skills
2) Interview form about factors that affect the development of communication skills
3) Lesson plans
4) Communication Skill Scale
5) Observation form about Student behavior
6) Interview form about opinions on teaching

2.3 Research Process

This research was conducted in three steps: studying the factors that affect the development of communication skills, developing the instructional model, and the experimental and improvement process.

2.3.1 Step 1 Studying Factors that Affect the Development of Communication Skills

1) Studied the concept and development process of the questionnaire about factors that affect the development of normal pharmacy students' communication skills

2) Drafted questionnaire: rating scale of Likert scale 5 levels with strongly agree, agree, unsure, disagree, strongly disagree have 20 questions

3) Verified questionnaire by advisers

4) Modified the questionnaire according to suggestion

5) Verified the validity of the questionnaire by 5 experts. Three of them come from Thailand, and the other two come from China. The test consistency index of congruency is 0.98.

6) Modified the questionnaire according to suggestion

2.3.2 Step 2 Developing the Instructional Model

1) Studied Instructional model development process
2) Determined the instructional model components
3) Drafted the details of the instructional model: principle, objective, learning process, and result
4) Verified the details of instructional mode by advisers
5) Modify the details of the instructional model according to the suggestions
6) Verified the details of instructional mode by the five professional scholars and modified instructional model according to suggestion
7) Modify the details of the instructional model according to the suggestions.

2.3.3 Step 3 Experimental and Improvement Process

1) Students of family pharmacists in the 2023 academic year in The People's Hospital of Guangxi Zhuang Autonomous Region were tested before using the instructional model through the Communication Skills scale.
2) Students of family pharmacists in the 2023 academic year in The People's Hospital of Guangxi Zhuang Autonomous Region experimented using three units /3 lesson plans according to the instructional model for 20 hours: 10 weeks, with 120 minutes of lessons per week.
3) The researcher observed and interviewed the students of family pharmacists in the 2023 academic year in The People's Hospital of Guangxi Zhuang Autonomous Region about the activities gained after learning from lesson plans according to the instructional model.
4) Students of family pharmacists in the 2023 academic year in The People's Hospital of Guangxi Zhuang Autonomous Region were tested after using an instructional model through the Communication Skills scale.
5) Analyze data and improve instructional models according to data.

2.4 Data Analysis

2.4.1 Qualitative data are analyzed through content analysis.

2.4.2 Quantitative data are analyzed through descriptive statistics: frequency, mean ($\overline{X}$), and standard deviation (S.D.), and the different scores of communication skills before and after using the instructional model are analyzed through t-test (t).

3. Results

3.1 Results on Factors Affecting Communication Skill Development

Table 1 Indicates that all factors affecting students' communication skills development at The People's Hospital of Guangxi Zhuang Autonomous Region are generally found at a high level ($\overline{X}$ = 4.22). Considering only each item, it was found that Factor Learning processes are the high mean ($\overline{X}$ = 4.36), followed by Factor Teacher $\overline{X}$ = 4.32), and the fewest norm is Factor Student ($\overline{X}$ = 3.96). The results above are teachers' questionnaires on the factors affecting the development of communication skills and summarize the factors that affect the development of students' communication skills. These factors present results using mean, standard deviation, and ranking of all factors.

Table 1. Summary Table of Influencing Factors

Factors	t	$\overline{X}$	S.D.	Ranking within All Factors
Student	16.500	3.9600	.53666	4
Teacher	20.980	4.3200	.46043	2
Learning processes	25.342	4.3600	.38471	1
Environment	21.866	4.2400	.43359	3

3.2 Results of Developing an Instructional Model Based on the Theory of Goal Attainment

An instructional model based on the theory of goal attainment consists of 4 elements: principle, objective, learning process, and result were presented as follows:

3.2.1 Principle

The theory of goal attainment proposed that after the process of problem identification was completed, the process of intensive information exchange began, which included the following elements: Common goal setting, exploring ways to achieve goals, and reaching consensus, The instructional model based on Theory of goal attainment refers to the method in that students and teachers cooperate to play a role by setting up a story situation and integrating the case into the situation. The theory emphasizes that under the premise of establishing common goals, people and people make joint efforts and practice interacting with and influencing each other (Zhou & Chen, 2021). The instructional model emphasizes the development of information exchange and communication process and also considers the influence of individual perception and attitude on the communication process, and finally improves students' communication skills (Wang, 2019). Moreover, the study has found that the communication process is directly related to satisfaction, significantly improving patients' outcome index (Park et al., 2017). In the learning process, students significantly improve their participation in the course to improve communication skills (Zhou et al., 2018).

3.2.2 Objective

This model aims to improve students' communication skills, including building a relationship of trust, looking for conversation points, planning your conversation, paying attention to the manner, tone and attitude of the conversation, being a good listener, and seizing the moment.

3.2.3 Learning Processes

Step 1: Introduction

The teacher explains the benefits of working with patients. Teachers and students share experiences and attitudes.

Step 2: Planning

1) The teacher presents the communication process and explains the case study's details. Teacher and student identify problems and set goals together.
2) Students plan the communication process and present the communication process.
3) The teacher gives feedback about the communication process.

Step 3: Implementation

Students practice communicating with patients: building a relationship of trust, looking for conversation points, planning conversation, paying attention to the manner, tone, and attitude of the conversation, being a good listener, and seizing the moment.

Step 4: Evaluation

1) Students conclude and reflect on good and bad things, feeling, and improvement.
2) Teachers guide and comment on the practice and result of communicating.

3.2.4 Result

Students can improve communication skills, including building a relationship of trust, looking for conversation points, planning conversation, paying attention to the manner, tone, and attitude of the conversation, being a good listener, and seizing the moment.

3.3 Communication Skill Improvement Results

The results compare students' communication skills before and after the experiment using a t-test for the one-sample group, which provides the significant difference between before and after learning outcomes.

Table 2. Comparison between Students' Communication Skills before and after Learning Through the Instructional Model Based on Theory of Goal Attainment

Communication skills	Scores	N	$\overline{X}$	S.D.	t	Df	Sig. (2-tailed)
Building a relationship of trust	pre-test	30	19.0667	1.59597	1.264	46.577	0.212
	post-test		19.8000	2.74678			
Looking for conversation points	pre-test	30	18.8000	1.78885	1.845	47.641	0.071
	post-test		19.9667	2.96512			
Planning your conversation	pre-test	30	18.3000	1.95024	1.290	48.667	0.203
	post-test		19.1667	3.11928			
Pay attention to the manner, tone and attitude of the conversation	pre-test	30	20.0000	1.36458	2.737	46.317	**0.009**
	post-test		21.3667	2.37056			
Being a good listener	pre-test	30	19.1667	1.31525	2.854	44.807	**0.007**
	post-test		20.6000	2.41547			
Seize the moment	pre-test	30	20.2333	1.43078	1.173	47.206	0.247
	post-test		20.8333	2.40808			
Summary	pre-test	30	115.5667	5.97514	2.225	39.290	**0.032**
	post-test		121.7333	13.95296			

From Table 2, student development of Paying attention to the manner, tone, and attitude of the conversation at The People's Hospital of Guangxi Zhuang Autonomous Region is generally found at a high level. the pre-test is different from the post-test by Paying attention to the manner, tone, and attitude of the conversation (pre-test $\overline{X}$ = 20.00 post-test $\overline{X}$ =21.37). The results from the t-test show the t-value of Pay attention to the manner, tone, and attitude of the conversation, which is higher than the t-distribution (t = 2.737) and p-value = 0.009 (** p<0.01). Then, it can be summarized that the given treatment influences attention to the conversation's manner, tone, and attitude at a significance level of 0.05.

The development of Being good listeners of The People's Hospital of Guangxi Zhuang Autonomous Region is generally found at a high level. The pre-test differs from the post-test by Being a good listener (pre-test $\overline{X}$ = 19.17 post-test $\overline{X}$ = 20.60). The results from the t-test show the t-value of Being a good listener, which is higher than the t-distribution (t = 2.854) and p-value = 0.007 (** p<0.01). Then, it can be summarized that the given treatment influences Being a good listener at a significance level of 0.05.

Overall, student development of communication skills at The People's Hospital of Guangxi Zhuang Autonomous Region is generally high. The pre-test differs from the post-test in communication skills (pre-test $\overline{X}$ = 115.57, post-test $\overline{X}$ = 121.73). The results from the t-test show the t-value of communication skills, which is higher than t-distribution (t = 2.225) and p-value = 0.032 (* p<0.05). Then, it can be summarized that the given treatment influences students' communication skills at a significance level of 0.05.

Figure 1 Indicates that all students' communication skills at the People's Hospital of Guangxi Zhuang Autonomous Region are generally found at a high level. The pre-test score is 115.57, and the post-test score is 121.73. The scores increased by 6.16 compared with the pre-test. Considering only each item, it was found that No.2 students had the highest increase, followed by No.7 students, and the fewest increase is No.11 students.

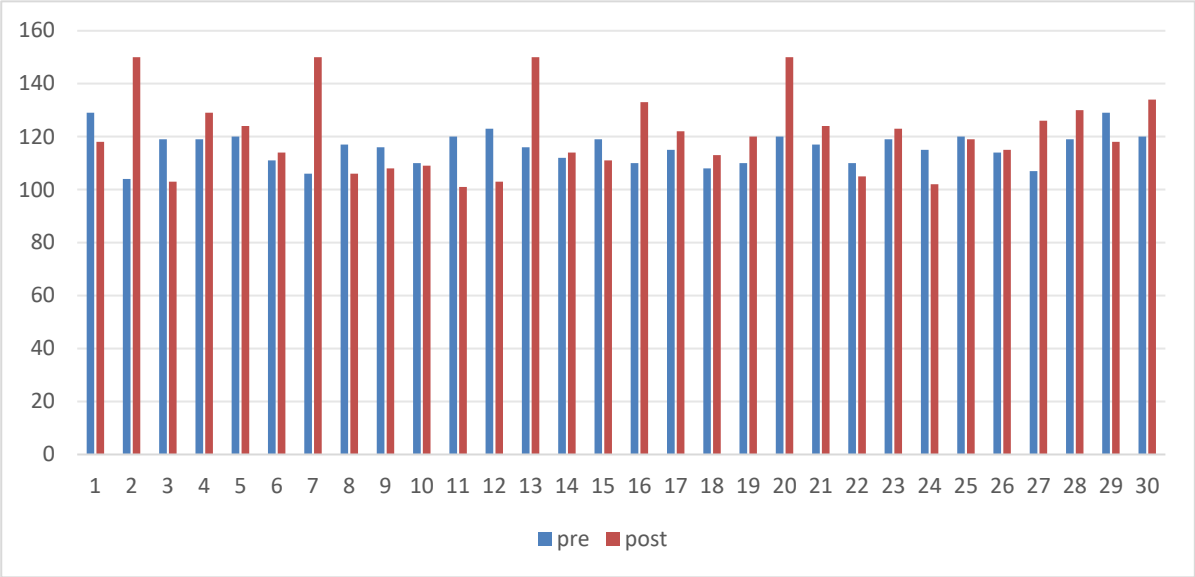

Figure 1. Pre-Test Score and Post-Test Scores of Individual Students' Communication Skills

4. Conclusion

1) Key elements influencing the enhancement of communication skills encompass the learning process, environmental factors, the role of teachers, and individual contributions from students.
2) The development of an instructional model, rooted in the Theory of Goal Attainment, involved the creation of four fundamental components: a) principles, b) objectives, c) learning processes, and d) results.
3) Following implementation of the instructional model grounded in the Theory of Goal Attainment, students exhibited significantly elevated communication skill scores compared to their baseline levels, reaching statistical significance at the 0.05 level.

5. Discussion

Communication is the process by which information is transmitted from one person to another. It refers to verbal and non-verbal behaviors in a social environment. It includes all the signs and cues people use to give and receive information (Shah & Chewning, 2006). The factors that influence the development of communication skills among students at The People's Hospital of Guangxi Zhuang Autonomous Region are as follows:

1) Learning process: Examining the factors influencing the development of communication skills among students at The People's Hospital of Guangxi Zhuang Autonomous Region, the primary contributor identified through data gathered from questionnaires and interviews is the learning process. Specifically, situational simulation teaching emerges as a prominent instructional model. In this approach, students, guided by the teacher, engage in immersive teaching by simulating a position or role within a given plot. This method enhances students' teaching intuition and fosters a sense of personal participation. However, it demands a solid foundation in theoretical knowledge and operational skills. Research indicates that situational simulation teaching enhances teaching intuitiveness, boosts students' subjective initiative, stimulates comprehensive thinking in clinical pharmacy, and fosters teamwork (Guirguis & Nusair, 2016).
2) Teachers: The second critical factor influencing the development of communication skills is the role of teachers. Teachers are pivotal figures in nurturing these skills, and their awareness of the importance of communication development directly affects the effectiveness of such training. King proposed the open system framework based on studying the dynamic interaction between humans and the environment. The open system structure is a dynamic interactive system composed of three different levels of open systems: personal, interpersonal, and social. In this dynamic interactive system, the individual is regarded as an individual system,

the group and group as an interpersonal system, and the community and school as a large social system (Mu et al., 2010). Teachers can significantly improve students' understanding of the learning process by emphasizing the importance of communication skills in class, practicing them repeatedly with students in class, and providing feedback and suggestions to students.

3) Environment: The learning environment is the third key factor influencing the development of communication skills. There needs to be more research on the mode of pharmacist-patient communication in China, and the existing research mainly focuses on the current situation of pharmacist-patient communication and the training and improvement strategies of communication skills between medical students and clinical pharmacists. In clinical practice, pharmacists often need appropriate communication skills to collect patients' physical, psychological, spiritual, social, and cultural health information, formulate medication plans, and establish and develop an excellent pharmacist-patient relationship. The necessary teaching facilities, a large number of patients, and the degree of patient cooperation are essential to develop these skills.

4) Students: The students are the fourth key factor influencing the development of communication skills. Students' previous educational background and work experience are the basis for improving communication skills, and students' participation in teaching activities is crucial. Learning initiative is an important determinant of improving communication skills. Students who are active learners tend to feedback and evaluate their communication skills more effectively. Confidence also improves the effectiveness of communication.

Discuss the differences that arise when Instructional models based on the Theory of goal attainment are used to improve students' communication skills.

The progress in students' communication skills was evaluated based on six distinct dimensions: building a relationship of trust, looking for conversation points, planning your conversation, paying attention to the manner, tone and attitude of the conversation, being a good listener, and seizing the moment.

Two methods for improving communication skills in pharmacy education are situational simulation teaching and the Theory of goal attainment-based instruction model. Situational simulation teaching involves students simulating a position or role under the teacher's guidance to enhance their teaching intuition and teamwork. The Theory of goal attainment-based instruction model integrates rational drug use knowledge points into a situational simulation to improve students' communication skills. At the same time, the student's communication skills can be enhanced through the reverse goal achievement orientation.

Each learning process step is meticulously designed to target specific facets of communication. Students are continuously engaged in activities that foster the development of their communication skills.

6. Future Research

1) This study introduces an instructional model rooted in the Theory of Goal Attainment for enhancing communication skills. Subsequent research endeavors could explore diverse and innovative approaches to further advancing communication skills.

2) While the current research centers on communication skills as the primary dependent variable, future investigations could broaden the scope to examine the impact of the instructional model based on the Theory of Goal Attainment on other variables, such as pharmacist competency and patient satisfaction.

3) The findings of this study indicate that the instructional model grounded in the Theory of Goal Attainment effectively improves communication skills, yet there remains room for refinement. Future research might concentrate on adjusting or integrating additional resources, such as case studies, and modifying assessment criteria to enhance the instructional model continually.

4) This research focuses on students at The People's Hospital of Guangxi Zhuang Autonomous Region. Future studies could expand the application of the instructional model based on the Theory of Goal Attainment to diverse learner groups, including students in various courses and majors.

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