

Imitation Methods in Teaching Decision-Making to Students of Medical Faculties

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ABSTRACT

Urgency of an issue addressed in the article is due to the fact that practice-oriented student teaching requires not only mastering of medical manipulations, but psychological readiness for professional activities as well. The aim of the article is to develop a model of psycho-pedagogical training of medical students for effective interaction skills and decision-making. The leading methods of the given problem study are imitation interactive methods, performance and activities of the students themselves with a teacher as a coordinator being the primary source of pedagogical process resources, when these methods are applied. It is shown in the article that application of imitation methods in student teaching are found to contribute to practical skills formation and enhancement in communicative, cognitive, emotional-volitional and motivation spheres at three levels (reproductive, productive and creative ones). The information given in this article may be helpful to the teachers of psycho-pedagogical disciplines, when teaching students to professional decision making as a component of the psychological readiness for professional activities in practice.

KEYWORDS

Imitation methods, decision-making, medical students teaching, communicative, cognitive, emotional - volitional and motivation factors, psycho-pedagogical experiment, psychological readiness for professional activities.

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Introduction

Urgency of the problem

The priority area is introduction of innovation technologies within the framework of higher education modernization. At present, such education functions as psycho – pedagogical and methodical support of the educational process, innovation and research and methodological activities are performed at Kazan Federal University (Gafurov & Kalimullin, 2015). Thus, a Center for simulation imitation teaching operates at the Institute of Fundamental Medicine and Biology. Practice-oriented student training on simulators, robot-simulators, electronic phantoms and other highly sophisticated computerized equipment is performed at the Center. When training future doctors much attention is paid to practicing of medical manipulations, practicing until they become automatic forming practical readiness for professional activities.

However, one of the most important education tasks is to carry the psychological readiness of a future specialist for his/her professional activities in to effect (Yezhov, Bologova & Nebolyubova, 2014; Popov & Ustin, 2015; Thagapsoev, 2014). It is important to train a doctor capable of not only rendering high technology medical aid, but capable of thinking for himself, reasoning, making clinical decisions, interacting successfully with patients, paying attention and showing empathy for them as well (Bulatov & Heidi, 2015).

The Center for practical skills operates for twenty years at the Kazan State Medical University. An imitation program “Standardized patient”, which proved to be efficient in teaching to interaction with patients and assessment of the student practical skills is used successfully for senior students on the Center basis (Bulatov & Palmova 2009; Kushner, et al., 2014; Ortwein, et al., 2006). However, when teaching future doctors, integration of imitation methods of teaching into a curriculum is already possible in the first year of studies. In a modern system of student-centered teaching, students obtain knowledge and skills through experience, modeling and practice (Granger et al., 2012). The role of learner-centered learning, obtaining of knowledge and acquisition of skills in the process of interactive teaching methods application grows more and more, these facts taken together develop creative and personal potential of a future specialist. It promotes the development of self-reflection, self-development, creative self-development, systemic decision-making, cognitive mental states, motivation and responsibility of students for their academic activities and results (Golovanova & Sibgatullina, 2015; Popov & Ibragimova, 2015; Prokhorov & Chernov, 2015; Ryabova, 2015; Prokhorov, 2014; Telegina et al., 2015).

Methodological Framework

Research methods

The following theoretical and empirical methods: analysis of pedagogical, psychological sources, professional periodicals; comparison and generalization of pedagogical experience in application of imitation method teaching; direct and indirect observation, talks, student questioning, pedagogical experiment were applied in the study process. Diagnostic technique in the form of a questionnaire “Scale for Assessment of Systemic Decision-making Peculiarities”, where by information, cognitive, emotional - volitional, motivation and communicational factors were identified, was used (Ryabova, 2010).

The experimental base of the research

Pilot testing was carried out at the Kazan State Medical University (KSMU).

The stages of the research

- The first stage (from 2013 to 2014): scientific and methodological literature on the problem in hand was studied, empirical material on application of the imitation teaching methods complex was selected;

- the second stage (from 2014 to 2015): the theoretical rationale for modeling and implementation of the imitation teaching methods in the process of the student practical competency formation were performed, psycho-pedagogical experiment was carried out;

- the third stage (from 2015 to 2016): psycho-pedagogical interpretation of experimental study results was made, the experimental data systematization and generalization were performed, and the study results were registered, their statistical processing was performed, and conclusions were defined more accurately.

120 first-year students of the department of pediatrics of the KSMU aged from 18 to 20 years (18 youths and 102 girls) took part in the study. Their curriculum includes a discipline "Psychology and Pedagogics". In total, 72 hours of classroom studies are envisaged according to the program, practical classes being conducted once a week. Educational process in the control groups (in total, 57 persons) was focused on application of traditional methods of teaching in formation of practical competency and psychological readiness for professional activities of a future doctor, where in experimental groups (in total 63 persons) – implementation of a complex of imitation methods of teaching was carried out. The students participated actively and emotionally in the creative process of script writing containing problems and tasks on doctor-patient interaction to be solved. Then the students played the roles specified in the script, the participants interacted in making a certain decision by means of group discussions, and finally the conclusions were drawn, and the results of the imitation game were assessed. In such dramatizations, the learners "playing" a certain role have the opportunity to watch themselves (acquire self-reflection skills), as well as their colleagues' response to their decisions, actions and behavior. The primary source of pedagogical process resources is the performance and activities of the students themselves with a teacher as a coordinator. At the beginning of the educational course "Psychology and Pedagogics" and after its completion the students of the control and experimental groups were given the psychodiagnostic technique to be filled in.

Results

The carrying out of the psycho-pedagogical experiment in the process of teaching the first-year students of the department of pediatrics on the discipline "Psychology and Pedagogics" allowed developing a model of training future doctors for professional decision making, which is a component of formation of psychological readiness for professional activities. The model comprises a target component (formation of common cultural, professional competencies), different methods and learning tools (traditional, active, and interactive). The complex of interactive methods of learning when forming practical competency of the future doctors included non-playing methods (case studies and their unaided project planning, the method of analysis of specific situations, case-studies, exercises – actions according to instructions) and role playing imitation methods: situation-playing of "dramatizations" and role-playing (role playing games, business games,

organizational activity games). The model's resultative component indicates the formation and development of such decision-making factors as cognitive, emotional – volitional, motivation and communicative.

Diagnostics of students by their answering the questions of the scale for assessment of systemic decision-making peculiarities at the beginning of the course of studies showed that indices of such factors as in formative, emotional – volitional and motivate on had low values as compared with the norm in students of both studied groups. Analysis of statistical data obtained on the study of the control and experimental groups revealed no significant differences. On completing the psycho-pedagogical experiment-training the students of the control and experimental groups answered the scale-rating questions again. No significant differences in test scales were revealed in students of the control group before and after the carried out course. The analysis of answers of the experimental group revealed that there were significant differences in all studied factors (differences are significant at the level of confidence <0.05). They demonstrate a high level of formedness of the decision-making skills according to all scales.

Differences in control and experimental groups are statistically significant, consequently the hypothesis that the level of formedness of decision-making skills differs in students of the control and experimental groups is true. From our point of view, the changes, that have taken place in the levels of practical competency components, result not from random causes, but are due to implementation of pedagogical conditions for application of a complex of imitation methods of teaching, which we highlighted. The psycho-pedagogical experiment, which we carried out, shows efficiency of development and application of a complex of imitation methods of teaching in formation of decision-making skills in future doctors, provided that suggested organizational and pedagogical conditions are implemented.

The level characteristics of the formedness of the decision-making components as the students' practical competency (high, low, average) were highlighted and determined on the basis of criteria developed by means of literature references within the frames of the given study.

The first level-low (reproductive). Future doctors have general idea of practical activities and unstable motives for studying; the formedness of general and professional competencies (professional knowledge) is poor, capacity to study and cognitive activities (analysis, synthesis, generalization, interpretation) are low; a high level of anxiety when interacting; self-reflection, orientation toward self-development and creative self-development, self-control and self-perfection are poorly formed.

The second level-average (productive). Awareness of the importance of training for practical activities, professional knowledge are available; the ability to analyze and generalize the acquired knowledge is shown; future doctors hold their own in a well-argued manner; effective communication skills; orientation toward self-reflection, self-development, self-control is available.

The third level-high (creative). Future doctors have sharp awareness of the importance of professional training for practical activities, the expressed motives for studying; strong belief in their right choice of profession; they easily begin a dialogue, take an active part in discussions, hold their own in a well-argued manner; demonstrate accurate, clear and quick actions when dramatizing the situations, they have a creative approach to task performance; they properly estimate their role in team activities, have clear orientation toward self-reflection, self-development, self-control and self-perfection.

Table 1. Test results according to the scale of systemic decision-making after psycho-pedagogical experiment (average values are given).

Factors	Information	Cognitive	Emotional volitional	Motivation	Communicative
Control group					
before	29,1	24,2	27,3	25,3	26,1
after	30,4	26,1	29,2	26,9	30,1
Experimental group					
before	28,7	24,5	26,9	26,4	24,7
after	37,1	35,2	38,1	37,2	39,5

Table 2. Diagnostic results of the levels of formedness of the decision-making components in future doctors before and after psycho-pedagogical experiment (data are given in %).

Components	Information		Cognitive		Emotional - volitional		Motivation		Communicative	
Levels of formedness	Before	After	Before	After	Before	After	Before	After	Before	After
Low	16,1	5,1	19,1	8,9	15,6	8,7	18,2	10,4	21,2	19,7
Average	53,7	26,8	60,2	58,3	70,3	51,4	47,7	48,4	53,4	50,8
High	30,2	68,1	20,7	32,8	14,1	39,9	34,1	41,2	25,4	29,5

Levels of formedness of decision-making components in students of the experimental groups are higher, average and high levels predominate, this fact confirms the efficiency of application of the imitation method complex for professional decision making, which was integrated into the educational process of the course “Psychology and Pedagogics”.

The following changes in information and cognitive factors were revealed in medical students after carrying out a psycho-pedagogical experiment: their skills for collection and analysis of information are upgraded; attention when working with a patient and information develops; skills for self-reflection or awareness of their strong and weak points requiring improvement develop; abstract, visual thinking skills as a basis for efficient, creative use of a systemic approach are acquired; systemic thinking develops; creative self-reflection develops; coping with certain stereotyped perceptions of other people (for instance, obese and disabled people, and etc.) takes place; accumulation of professional and life experience takes place, the latter contributing to formation of intuition (in the form of implicit or “curtailed” experience); prognostic function develops. The formedness of a cognitive component of the future doctor practical competency was assessed (except psychodiagnostic technique) according to the indices of the behavioral efficiency criterium in role-playing games, and systemacity (body of knowledge in student’s consciousness), flexibility (the capacity to find unaided the ways of knowledge application in non-standard situations), concreteness (skills for splitting knowledge up into elements and applying general knowledge in activities); generalization (skills for expressing domain-specific knowledge in a general concept/abstract form) were assessed according to independent indices.

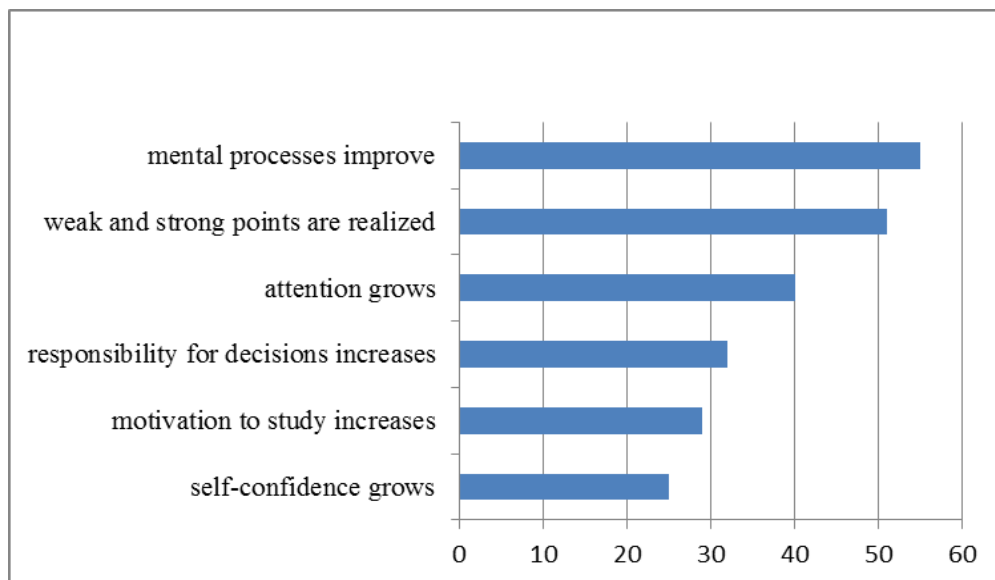


Figure 1. Results of student questionnaire after psycho-pedagogical experiment (data are given in %).

The following changes were revealed after the psycho-pedagogical experiment when analyzing changes according to the emotional-volitional component of decision-making: responsibility for decisions made and self-confidence develop; empathy, sympathy and compassion are sharpened; skills to work in stressful

situations, resistance to stress, to control one's emotions in a problem situation improve. As far as motivation sphere, students confirm strong belief in their right choice of profession of a doctor, motivation to study increases, and this fact promotes new achievements. The future doctors notice the growth of moral responsibility for interaction with a patient in themselves, this fact being particularly topical now a days (Danilenko, 2015).

The greatest changes take place in communicative sphere: self-confidence in situations of interaction with a patient is formed; skills to work in a team with colleagues, to carry on a dialogue, to take an active part in discussions, to make collective decisions with application of group thinking techniques improve. Various techniques of team-oriented teaching are brushed up; students discuss positive and negative aspects of the group, make mutual decisions. It comes at an opportune time, because team-oriented teaching as innovative pedagogical practices has a high potential and promotes students' active involvement in the process of studies (Sutherland, 2013). Furthermore, a future doctor learns to interact with a patient as with a partner from a student's bench, and that fact corresponds to a patient-oriented model in modern medicine.

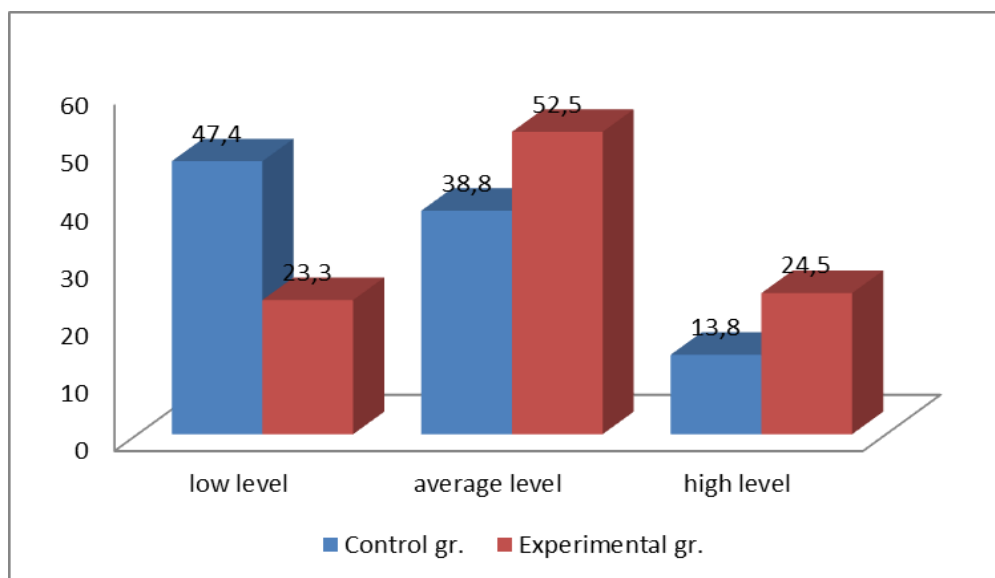


Figure 2. Levels of formedness of the communicative component of decision-making after psycho-pedagogical experiment (data are given in %).

Thus, carrying out of the psycho-pedagogical experiment created training-simulation education environment promoting to qualitative formation of practical competency in future doctors, accumulation of skills for interaction practical experience and, consequently, formation of psychological readiness for professional activities. Moreover, increase in quality of practical classes with application of interactive and imitation methods of teaching was due to the teachers' professional competency development as well. Orientation of professional medical education to ward training of a future specialist capable of self-learning, self-education, self-organization, self-reflection, self-development, creative self-development, systemic decision-making increased. Professional situations of the future doctor activities (role-play methods), processes of interactions with patients and colleagues created

in simulation conditions promote self-realization of medical students as personalities; increase of their creative potential, formation of their general and professional competencies, professionally important personal qualities and practical experience skills.

Discussions

Domestic authors underline that application of simulation training and imitation methods for students should be started from the first year of their studies at the medical institute (Perepelitsa & Nasevich, 2016; Tolmachev et al., 2014). Some authors consider it necessary to algorithmize professional decision making, and in our opinion this fact excludes uniqueness of every situation of decision-making at the bedside (Krasnov et al., 2011).

Foreign authors consider that it is in role-play games, where medical students develop communicative competency, and its component – empathy in particular, as well as change stereotyped perceptions of other people (Boulet et al., 2007; Kleinsmith, et al, 2015; Kushner, et al., 2014; Luttenberger, et al., 2014; Mole et al., 2016; Teherani, et al., 2008). Some author slay emphasis on the influence of stress situations on clinical thinking (Pottier et al., 2013). However, the number of research papers dedicated to the issue of imitation teaching of decision-making to future doctors, compared to teaching of decision-making to future nurses, is extremely low (Standing, 2011).

Conclusion

Application of interactive methods of student teaching including the imitation ones already in the first year of their studies is found to promote formation and perfection of practical skills in communicative, cognitive, emotional-volitional and motivation spheres. Students acquire skills for active, creative interpersonal communication, team working skills. They develop skills for self-learning and self-development, they turn from the knowledge consumers to the participants of formation of common cultural and professional competencies. Students' responsibility and activity, all-round development of the individual are a common denominator of the carried out reforms.

A number of research issues and perspective trends requiring further consideration with the account of obtained results of the given study can be distinguished: broadening and enhancement of certain statements given in the article associated with the development and improvement of imitation methods; further development of scientific and methodical support of decision-making within the framework of the course "Psychology and Pedagogics" at medical universities.

Recommendations

The information given in this article may be helpful to the teachers of psychopedagogical disciplines when teaching students to professional decision making as a component of psychological readiness for professional activities in practice. Besides, the application of imitation methods can become a regular fixture in student teaching as an efficient method of forming and teaching to decision-making in professional activities allowing to brush up skills of a future specialist and boosting the increase of the obtained knowledge equality within the framework of the competency-based approach.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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