

Pedagogical support of the future specialist at professional self-determination

Apoyo pedagógico en la autodeterminación profesional del futuro especialista

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ABSTRACT:

Training methodology of specialists in a technical university is created taking into account the requirements of modern society and particularities of engineering functions. This is facilitated by the study of the rational use of existing technology and the design of innovative technologies. Methodology of the study. Within the frame of the study performed the tasks of accompanying professional self-determination are not limited to choosing a profession and future professional activity direction. The goal is to orient students in the chosen future profession development and implementation of the personal potential opportunities at the future professional activity. Results of the study. The model of professional self-determination coaching based on technical university student vocation guidance designed to improve the process of the professional training is developed. It is the pedagogical system that includes the target unit (goal and approaches), the content unit (pedagogical and developing components), the diagnostic and analytical unit (diagnosing and estimated components), the correcting component, the result. The following criteria of professional self-determination level for technical university students

RESUMEN:

En el marco del estudio realizado, las tareas de la autodeterminación profesional acompañante no se limitan a elegir una profesión y la dirección futura de la actividad profesional. El objetivo es orientar a los estudiantes en el desarrollo futuro de la profesión elegida y la implementación de las oportunidades personales en la actividad profesional futura. Resultados del estudio. Se desarrolla el modelo de coaching de autodeterminación profesional basado en la orientación vocacional de estudiantes universitarios diseñados para mejorar el proceso de formación profesional. Es el sistema pedagógico que incluye la unidad objetivo (objetivo y enfoques), la unidad de contenido (componentes pedagógicos y de desarrollo), la unidad de diagnóstico y análisis (diagnóstico y componentes estimados), el componente corrector, el resultado. Se definen los siguientes criterios de nivel de autodeterminación profesional para estudiantes universitarios técnicos: criterio cognitivo; criterio de actividad; criterios personales. Discusión. Las condiciones pedagógicas para el apoyo de la autodeterminación profesional basadas en la orientación vocacional de los estudiantes universitarios han sido identificadas y

are defined: cognitive criterion; activity criterion; personal criteria. Discussion. The pedagogical conditions for professional self-determination support based on technical university student vocation guidance have been identified and theoretically substantiated: motivation for students at the development of professional self-determination was formed; use of information, educational and consultative methods in the process of professional coaching; preparation of the teaching staff for the work on supporting at technical university student professional self-determination. Conclusion. The results of the pilot study confirm that vocation guidance at the pedagogical support of the student professional self-determination affects the overall success of mastering of professional knowledge and increases the satisfaction with the profession's choice in the university.

Keywords: Vocation guidance, pedagogical support, training of specialists, student professional self-determination, model, pedagogical conditions

fundamentadas teóricamente: se formó la motivación de los estudiantes para el desarrollo de la autodeterminación profesional; uso de métodos de información, educación y consulta en el proceso de coaching profesional; preparación del profesorado para el trabajo de apoyo a la autodeterminación profesional de estudiantes universitarios técnicos. Conclusión. Los resultados del estudio piloto confirman que la orientación vocacional en el apoyo pedagógico de la autodeterminación profesional estudiantil afecta el éxito general del dominio del conocimiento profesional y aumenta la satisfacción con la elección de la profesión en la universidad.

Palabras clave: Orientación vocacional, apoyo pedagógico, formación de especialistas, autodeterminación profesional del alumno, modelo, condiciones pedagógicas

1. Introduction

The goal of higher technical education is the preparation of highly qualified technical personnel who are proficient in their specialty and able to align themselves with related fields of activity, ready for professional growth and professional mobility. Training of specialists in the a technical university takes into account the requirements of the modern society and the engineering function specifics. That was facilitated by the study of the rational use of existing technology and the design of innovative technologies - taking into account the changes occurring in science, technology, economics and the organization of production industrial management. In technical universities, in addition to training in engineering specialties, students are trained in such areas as economics, management, innovation, design, sociology, forensic expertise, linguistics, coaching, etc. All these areas are aimed at training not only for obtaining knowledge of technology itself as such but also the specifics of its operation and maintenance (Sergeeva, Komarovskaya, et al., 2018). One of the positive aspects of the multi-level system of higher education is the possibility of realization the personal potential by building up the individual trajectory of learning and choosing the professional activity. Vocation guidance of the technical university students becomes especially significant at while forming of own program of professional development, identification and use of personal resources for professional growth. Currently, the support of professional self-determination in higher educational institutions is not sufficient due to modern educational opportunities, namely the choice of alternative disciplines by students, the change in the direction at master degree program, upgrading of qualifications, retraining. Students of the technical universities have not enough information about the engineering specialists demands in the current labor market, about the future professional activity specifics and they have not enough knowledge about their profession important qualities requirements. All this requires the development of entire pedagogical support system at the student professional self-determination within the framework of higher education on the basis of the vocation guidance that fosters the conscious self-realization of the an individual in the profession and the development of motivation for learning. There is a need to make changes in the content of certain disciplines of higher technical education to modernize the approaches and methods of support at the student professional self-determination (Sirotyuk and Sergeeva, 2011). The Rrelevancy of the this research is conditioned by the requirements of the societal urgency and the needs of the labor market in the higher education not only highly qualified but also socially oriented, capable of forecasting their own programs at technical specialist professional development. The search for scientific and methodological approaches the pedagogical support improvement at professional self-determination demanded to develop a model for professional self-determination coaching in technical university based on the vocation guidance for the students and setting up of pedagogical conditions of the training process as well as the development of educational and methodological support procedure for the student

2. Methodology of the study

The analysis of the literature on the research topic showed that the main task of the competence approach in higher education is the development of the student's ability to independently solve problems in various spheres of professional activity. Special attention of modern scholars paid to vocation guidance and the support at professional self-determination. The analysis of scientific publications shows that many aspects of professional self-determination coaching presented in general education and in particular in secondary school. Professional orientation in professional activities in higher education is carried out mainly at the study of profile disciplines (Micheeva , et al., 2017). At the same time pedagogical literature practically does not present the work on professional self-determination coaching within the framework of higher education on the basis of vocation guidance for the specialty selection. There is not enough work on vocation guidance based on: increasing the level of knowledge about the characteristics of the specialty selection and the necessary skills of planning own training and work in the chosen profession; education for awareness by the student of the need for the formation of personal qualities meaningful for the effective solution of professional tasks.

The problem of vocational guidance for technical university student at professional self-determination coaching is still insufficiently studied and does not find proper theoretical and practical justification. Thus it is required to define the role of vocational guidance at pedagogical support of students, criteria and indicators of the level of professional self-determination; require the development of pedagogical conditions for the effective support at professional self-determination based on the vocational guidance for technical university student. This determines the relevance of this study. There is a need to define the pedagogical conditions for professional self-determination support in which career guidance will help to increase the level of knowledge of students in the field of the chosen profession, develop professionally important skills and personal qualities necessary for successful professional activity.

As part of the study the tasks of professional self-determination coaching are not limited to choosing the profession and future professional activity specification. The goal is to orient students in the future development of the chosen profession and possibilities for realization the personal potential in the future professional activity. Based on the analysis of the literature the concept of pedagogical support at professional self-determination of technical university student was defined which is the system of support and assistance in solving problems of professional development, education of students and their socialization on the basis of personal potential.

3. Results of the study

Since the main task of professional development of students in a university is self-determination it is necessary to develop the model for professional self-determination coaching of technical university student on the basis of vocational guidance. The developed model is the pedagogical system reflecting the ideas of personality-activity and competence approaches including the *target unit* (goal and approaches), the *content unit* (pedagogical and developing components), the *diagnostic and analytical unit* (diagnosing and evaluating components), *correcting component* and result (Sergeeva & Nikitina, 2016).

The *target unit* includes the goal and theoretical approaches to professional self-determination coaching. The goal is the development of professional self-determination of future technical university student. Based on the analysis of system, personality-activity and competence approaches we have identified the principles of active learning: systemic, pragmatization, heuristics, the connection between theory and practice; professional appropriateness (awareness, functionality, accounting of adaptation processes, mobility, professional orientation); democratization (projecting, modeling of allocated freedoms for self-development, self-regulation, self-determination, self-education, self-education).

The *content unit* includes pedagogical and developmental components. The task of the pedagogical component is to provide students with knowledge about the features of future professional activity and professionally important personal qualities. Educational and cognitive activity based on vocational guidance providing correctly chosen forms of student learning activities organization have the properties to integrate all the components of the learning process into the achievement the specific goal (in our case the development of professional self-determination) and creates the conditions for realization the student's personal potential. Therefore as the form of work we chose lectures using active and interactive educational technologies, colloquiums and practical training: educational, internship, pre-diploma work (Lomakina and Sergeeva, 2008).

The task of the *developing component* is the development of professionally important personal qualities. As the form of work we identified practical classes: seminars (portfolio creation, vocational training, performance of exercises for the development of professional skills), laboratory work; independent work: annotation of additional literature, creative works performance; research work: theoretical and experimental research, expeditions, conferences, round table discussions (Sergeeva, Sokolova, et al., 2018).

The *Diagnostic-analytical unit* includes diagnostic and evaluation components. The task of the diagnostic component is the development of professional self-awareness for the implementation of which we used professional diagnostics and testing.

The task of the *assessment component* is to determine the level of the professional self-determination development. In the course of the theoretical study of the professional self-determination the criteria (cognitive, activity, personal) and their indicators were defined according to which the levels (low, medium, high) of professional self-determination of technical university student were characterized.

The **cognitive** criterion characterizes the level of knowledge of the foundations of professional activity of the chosen profession or groups of professions; their abilities, qualities, inclinations; perception of the requirements to the chosen type of professional activity. It is estimated on the basis of the analysis of the questionnaire answers.

The **activity** criterion determines the skills of planning the professional career and the ability to use the existing experience of interaction with the professional and socio-cultural environment. It is evaluated on the basis of studying the products of activity namely on the basis of the ability to make CV that reflects the skills of realization the personal potential in the chosen profession in the conditions of the existing labor market.

The **personal** criterion determines the personal meaning of the motive for choosing a profession; interest in the particular type of the professional activity; desire to design an individual trajectory of learning; awareness of the value of the professional choice. To diagnose the motivation for the chosen professional activity of the respondents the specially developed questionnaire (Zalkina and Sergeeva, 2013) is used.

The task of the corrective component is the development of the student's ability to enter productively into professional activity and the ability to analyze available options for professional growth including continuing education. As the form of work we identified practical exercises using trainings, business games, creating complex of professional situations; discussions on the development prospects, ethical conversations, auto-trainings and consultations. And also it is independent work: fulfillment of individual homework assignments, modeling of different types of professional activity.

4. Discussion

The result of the pedagogical support is the increase in the level of the professional self-determination development of the technical university student.

In the course of the theoretical research pedagogical conditions were developed for the effective support of the technical university student professional self-determination on the basis of vocational guidance: the formation of motivation for the student in the development of professional self-determination; use in the process of professional training of information-educational and consultative methods of vocational guidance on the basis of active and

interactive educational technologies that activate the process of the technical university student professional self-determination and contribute to the development of the Engineer professionally important qualities; preparation of the teaching staff for the work on supporting the technical university student professional self-determination including the teachers mastering of the techniques of organizing vocational guidance for students in the course of professional training on the basis of active and interactive educational technologies, studying the dynamics of professions requiring engineering knowledge and their relevance in the existing labor market, peculiarities of the student professional self-determination (Sergeeva, Bedenko, et al., 2018).

In determining the **first pedagogical condition** we proceeded from the literature analysis results on the issues related to the motivation for profession selection which showed that the presence of internal motives is the positive factor of educational and cognitive activity. Internal motivation determines the directed and consistent character of the student actions in the future professional activity knowledge and skills mastering giving him the properties of organization, system and sustainability. Pedagogical support in the university is the form of professional orientation activity where the motives for the development of self-determination enable the correct the choice of the professional path taking into account the personal potential and determine awareness at knowledge mastering.

Theoretical analysis of the works (Lomakina and Sergeeva, 2008; Sergeeva, 2007; Mikheeva, 2016; Sergeeva, et al., 2017) showed that characterological features can be considered as one of the factors of professional self-determination and the internal motives development.

Specialist personal characteristics have the significant impact on his professional activity. Individual characterological features of the personality play the important role. The correctness at the choosing the professional path, the seriousness of the approach to select your future profession taking into account the realization of internal potential and personal growth largely determine the success of the technical university student professional training.

In addition the prevention and overcoming of negative impacts of the student characterological features is the most important task of the teacher. At the time of choosing the direction of study at the university the student has the formed structure. Diversity and inclusiveness of the student personal characteristics allows you to build the process of professional self-determination coaching in compensatory manner replenishing the missing qualities due to the skills and abilities that enable the individual to overcome the problem by himself. In the process of training focused on the competence approach it is necessary to create pedagogical conditions for the professional self-determination development on the basis of the technical university student individual characteristics. Knowledge of the relationship between personal characteristics and professionalization will increase the opportunities for professional training of the future specialists.

Professional self-determination is inextricably linked with individual self-realization that means an intrapersonal conflict the resolution of which depends on the individual self-consciousness (Mukhin, et al., 2017a; 2017b). In order to form the values of the student's professionalism and professional-personal self-realization is not enough advertising and information work or just a set of career-oriented activities. It is necessary to consider the support of professional self-determination not just as support for the specific professional choice but special educational activity aimed at forming the number of career guidance competencies: professional orientation, professional choice, professional design, professional development. Familiarization of the technical university student with the necessary professionally important qualities of their chosen profession and analysis of the personal potential will allow him to develop ability to make independent, informed decisions and thus comprehensively prepare the trainee for future professional activity.

Selection of information-educational and consultative methods of professional training for vocational guidance is based on active and interactive educational technologies (information and communication, design, developmental instruction, group and game training, modular, development of critical thinking, case-technologies) that activate the process of the technical

university student professional self-determination. The ***second pedagogical condition*** for the effectiveness of this process as per the views of a number of academic institutions (Neverkovich, et al., 2018; Petrov and Kryzhanovskaya, 2016; Kryzhanovskaya and Bakhtigulova, 2017) suggest that the use of such active and interactive educational technologies at the student training focused on the features of his chosen profession and the necessary skills and creates the conditions for the formation of skills used him in practice. In this case vocational training is more productive with the student's professional knowledge potential to be expanded, the formation and development of relevant skills and skills as well as the professionally significant personal qualities of the student is fully used. There used the following methods of the vocational guidance: educational (vocational guidance diagnostics, work with profессиograms, lectures, trainings, individual consultations, etc.) and diagnostic (questioning, testing, interviewing, etc.) what creates conditions for emergence of professionally important personal qualities and ways of their implementation in professional activities .

The ***third pedagogical condition*** for the effective coaching of professional self-determination based on vocational guidance was the training of the teaching staff. The implementation of the most important functions to increase the level of the student professional self-determination directly depends on the degree of preparedness of teachers for the use of the vocational guidance methods for the student in the course of professional training on the basis of the active teaching methods, knowledge of the dynamics of engineering professions, the relevance in the existing labor market as well as the characteristics of the student professional self-determination (Kovalyonok and Kryzhanovskaya, 2010).

5. Conclusion

The implementation of the *first pedagogical condition* required the series of career-oriented activities aimed at student's familiarizing with the socio-economic characteristics of the chosen profession. Particular attention was paid to the possibility of personal potential realization in the future professional activities. For this the following technical active and interactive forms at the training process were used: problem lecture, lecture-press conference, lecture-conversation, lecture-discussion, lecture-case study, lecture-provocation, lecture-consultation, lecture-study, lecture with feedback technique, multimedia lecture ; stimulated the student's research and independent work and participation in scientific conferences, colloquiums, round tables (Kryzhanovskaya, 2011).

The implementation of the *second pedagogical condition* required the training program performance. This made it possible to improve the level of the student's practical preparedness for solving professional problems, developing professionally significant skills as well as the qualities of personality necessary for successful professional activity. In the course of the experimental work the set of information-educational activities including professional diagnostics and advisory activities was conducted to orient the student in the professional world, to choose the professional path and build up the individual trajectory of training for future career prospects and possible work places in the chosen field. Realization of this pedagogical condition was facilitated by exchange of opinions between the student and specialists of the technical profile during the course of internship (Kryzhanovskaya, 2004).

Within the framework of the implementation of the *third pedagogical condition* during the experimental work the set of activities was carried out to work with the teaching staff where the main tasks were: training teachers to use the methods of organizing the student vocational guidance on the basis of active teaching methods, the teacher mastering the profession dynamics, the relevance to the existing labor market as well as the vocational guidance methods of diagnosis. In order to expand the knowledge of teachers in the field of the modern technologies for the professional self-determination support the educational and methodological manual "Professional Self-Determination Support for Future Forestry Specialist" was developed in the course of the training process (Kryzhanovskaya, 2016). The implementation of this pedagogical condition was facilitated by the exchange of experience

between teachers who work in different areas of training as well as the systematic provision with reports and discussions on the results of the experimental work.

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