School - university - production: a chain of effective communications

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Abstract. The article describes various methods of increasing the effectiveness of communications in the chain “school - university - production” both at the tactical and at the strategic level. The main methods of solving the problem of shortage of production personnel in the sector of skilled labor are identified: participation of large enterprises in effective vocational guidance for adolescents, creation of the Center for Youth Innovative Technologies (TSMIT), implementation of a modular principle of training in cooperation with leading professional and higher education institutions, social networking resources, encouragement of employees for participation in career counseling communications.

1. Introduction

For all enterprises and especially for industries, communication as the art of providing clear, timely and relevant information has now become the key factor for survival in the current market situation. With proper management, internal production communication has a huge impact on the processes in the company, on its customer focus, on image, on customer loyalty and on the main factor is profit.

On the one hand, according to the results of the NRU HSE ISSEK survey of 90 large employing organizations (universities, research institutes, NGOs in 2016), a significant proportion of organizations (61%) currently experience a shortage of personnel and in none of them do not observe a surplus. Many researchers have noted a structural shortage of personnel: more than half of the respondents noted a shortage of personnel in certain specialties, and 36% declared insufficient skill level of workers.

A third of organizations-respondents declare insufficient inflow of young personnel and their weak training. On average, only half of young employees qualify for their positions.

On the other hand, annual sociological studies show that school graduates are poorly vocational. The absolute majority of graduates determine their future profession, relying on the “prestige” of work and not on the demands of the labor market and the interest of employers in it.

A graduate is guided by one or several motives in choosing a profession. Conventionally they can be divided as follows:

✓ material (the pursuit of high-paying jobs and benefits);
✓ moral (the desire to benefit humanity);
✓ social (the desire to occupy a worthy place in society);
✓ “prestige” (the desire to build a career);
✓ professional and cognitive (development in the profession);
✓ utilitarian (the desire to work in close proximity to home, in a clean office, etc.);
✓ creative (fantasy and creativity).

From the classification it is clear that in order to choose a profession that is related to industrial production, enterprises need to use certain methods of presenting information about themselves. Vocational orientation of teenagers is, as a rule, a program that includes several techniques. Let's give some for an example.

"Map of interests of A. Golomshtok". [1] The purpose of this technique is to determine the structure of interests of the graduate. The full methodology consists of 144 questions and correlates
the results in the following categories of knowledge: physics and mathematics; chemistry and biology; radio engineering and electronics; mechanics and design; geography and geology; literature and art; history and politics; pedagogy and medicine; entrepreneurship and home economics; sport and military affairs.

"Career anchors of E. Shane".[2] By responding to 41 statements, some career orientations are identified: professional competence; management; autonomy; stability; service; call; life style integration; entrepreneurship.

Differential diagnostic questionnaire of E. Klimov.[3], [4] The technique consists of 20 pairs of professions, of which a teenager chooses one in each pair. According to the test results, the scores correspond to five types of professions: “man-nature” - professions related to plant and animal husbandry, forestry; "Man-equipment" - technical specialties; “Person-to-person” professions built on communication and service for people; “Person-sign” - working with numbers and calculations; "Person-artistic image" – professions, which are based on creativity.

An objective picture of the vocational orientation of a teenager can be constructed by using several test methods, practical exercises and on the basis of an individual conversation with each subject.

However any testing gives little information if the senior student does not have a clue about what people of a particular profession do.

The purpose of this work is to analyze several interaction options in the “school-university-production” chain to increase the awareness of a graduate of any level when choosing a future profession.

2. State of the problem abroad.

Let us turn to the experience of solving personnel problems in some countries.

In Germany, the professional education system is based on the needs of business and government support. The training of working specialties in Germany is carried out by the Vocational Training and Skills Development Centers (ZAW Zentrum für Aus- und Weiterbildung), located in all major industrial regions of the country. Responsible for professional training is Chamber of Commerce (CCI). There are two main areas of industrial and technical training courses: training on the basis of industrial partnerships for enterprises and advanced training courses. Primary professional training is carried out in accordance with the protocol of professional training and production needs. In most cases, the student learns already from the specific enterprise that funds the training. Federal and regional authorities are actively stimulating enterprises. The formation of a set of training courses takes into account the orders of enterprises. Pupils are mainly students after the 10th grade (in Germany the thirteen-year study cycle). In Germany, the so-called dual training system operates. It involves two stages. At the first stage in an educational institution, a person will first master the theory, study the principles of work and labor law. The second stage will apply the knowledge gained in practice, and the focus is on practice. Training classes of such institutions are divided according to their functional characteristics and the level of equipment located in them. For example, from manual drawing of the simplest drawings to three-dimensional design on modern software. The development of working specialties by young people allows them to receive 1.500 Euros per month in a little over 20 years old and lead an independent life. Thus, the prestige of working professions is formed.

In the US, there is a Career Development course (career building), which has become a part of the educational system. It introduces the professions of children aged 5 to 14 years. Students learn their abilities and taking them into account will be able to plan a career. This program allows teenagers to try themselves in different professions during the summer holidays. It also pays great attention to the correct approach to the choice of profession and the ability to be ready to change their specialty. At the same time, a special monitoring of the student’s activity is conducted. On its basis, recommendations on professional readiness are given and an individual self-realization program is proposed. In Japan children are required to "try" different professions. There career guidance begins with the seventh grade. Each year a student must test himself in 16 professions and in various areas: business,
agriculture, and so on. As a result, during the school years, the graduate accumulates more than four dozen “samples” for all types of work.

3. Some ways to build communications in the system "school - university - production"

In the modern interpretation of the term communication has basically three interpretations: the medium; information transfer; exposure information. In all cases, the term communication is considered synonymous with the word connection.

Communicative event is a complex of communicative acts, united by a common task and situational conditions. Until recently, it was customary in the scientific literature to distinguish the domestic and industrial spheres of communication. However, in the conditions of wide spreading of professional communities on the Internet, household communications flow smoothly into professional ones. (Guskova, "Theory of Communications").

The sphere of industrial communication is in the field of view of the scientific interests of engineering psychology. The manager's style of communication with subordinates, employee interaction, office workflow and other aspects of production activity can both improve and ruin the work of the company.

From the point of view of the participation of industrial communications in the process of vocational guidance of schoolchildren, graduates, students, it is assumed that there is effective feedback.

All participants in the economic process are divided into large (FIG, concerns, consortia), medium, small enterprises and companies. Each of them has its own life in a particular sector, the path of development and degradation.

Large companies and companies with long-term development prospects can become participants in the school-university-production communication in the following way.

Firstly, to participate in the development of federal, regional, and regional sites of children's, youthful, and student scientific creativity (TSDOD, TSMIT, Kvantorium). On the basis of such sites it is effective to provide information about the enterprises of the high-tech manufacturing sector directly. Attracting talented and technically competent young professionals in this chain has a long-term perspective.

Secondly, to participate in the creation on the basis of specialized higher and secondary educational institutions of production departments and platforms for practices. In this case, the production division directly meets the alumni contingent and selects promising employees for its team.

Thirdly, to take an active part in job fairs, which are held on the basis of specialized educational institutions. The criterion of the effectiveness of an educational institution - the employment of graduates is a resource for production in communication with the university.

Fourth, use a promising social networking resource. Modern teenagers are the generation of gadgets, it is very important to teach them to properly use the possibilities of the Internet to choose their future profession.

Fifthly, to take an active part in the organization of dual training. Dual training is a type of vocational education, where the practical part of training takes place in the workplace, and the theoretical part is based on an educational organization. The system of dual training involves the joint financing of training programs for a specific workplace by commercial enterprises interested in qualified personnel and regional authorities interested in developing the economy and raising the standard of living in the region. Dual training is especially widely implemented in the system of secondary vocational education, focused on training workers and middle-level specialists. [5.]

In several regions of the country, a project was launched to train workers on the basis of dual education. Large and medium-sized industries, on the one hand, and the state as a whole, on the other hand, should be interested in introducing production-oriented practices in schools with the encouragement of student labor.
Our country in the past also had a positive experience. There were specialized vocational schools (VS), factories, training programs at workplaces in enterprises, there was a system of mentoring and apprenticeship. The stimulus to work and career growth of a worker was the policy of admitting to the Communist Party of the Soviet Union (hereinafter referred to as the CPSU), workers and collective farmers had an advantage in joining the CPSU. They formed the country's elite, which gave a number of social benefits and advantages of professional growth. Planning a career for a young worker: trainee - apprentice - young worker - experienced worker - party experienced worker - mentor. In case of successful completion of the previous stages, subject to higher education, a CPSU member mentor, became a site master or foreman, then deputy shop manager or shop foreman, and positions of chief mechanics or chief engineers were available to the most successful and interested in professional growth. A retraining program for workers also existed in the form of industry refresher courses where the best workers were sent on the recommendation of several heads of a plant, a workshop or a site. The increase in the level of work was a direct consequence of the results of compulsory education. The entire career path of the Soviet worker was accompanied by continuous on-the-job training based on the strategic goals of the enterprise. The system of education and training in the USSR was created from the very beginning as a unified system for the improvement and development of workers. The collapse of the USSR and long-term economic transformations changed the status of workers. Formed groups working in municipal, state, joint-stock enterprises, as well as in private business. Such a variety of forms of ownership could not but lead to a total differentiation of wages depending on the sector of industrial production and, especially, to differences in working conditions. All these circumstances have caused a decline in the socio-professional status of workers and the attitude of society to work.

For companies of all sizes and most directions, such forms of career guidance communications as excursions to production are available. We should not forget about the factor of continuity of generations, when children walk in the footsteps of their parents. This is how the dynasties of professionals are formed. This is, of course, a small percentage of the renewal of personnel, but high professionalism.

In large companies with a long-term development perspective, a strategic approach to the planning of personnel renewal is necessary. In this sense, it is difficult to overestimate the participation in the organization of children's art sites for primary and secondary schoolchildren. These are external centers on the basis of children's clubs, their own “laboratories of young engineers”, and the educational and entertainment sector (kinder malls, kinder - city, “cities of professions”). Business is ready to invest in career guidance for children. Companies help to create specialized playgrounds in the children's town so that children can try different professions. For example, in Tatarstan, for example, Tattelekom - partner of the Salon of Communications station, Unistroy - supervises the construction, Behetle created a mini-store, and Ak Bars Bank organized a children's bank and trains young visitors to financial literacy. In Volgograd, the City of Professions operates on the basis of the Kinder Mall shopping center. Here children can get acquainted with the professions of a doctor, photographer, banker, actor, hairdresser and fireman. It is too little. Russian President Vladimir Putin instructed to develop a national directory of professions in demand in the labor market, as well as a list of the most sought-after professions in the labor market and specialties requiring secondary vocational education, highlighting the 50 most promising and sought-after professions and specialties. This handbook includes information and communication technologies, construction, maintenance of transport and logistics, automation, radio engineering and electronics, services, engineering. As a region with a huge value of traffic intersection, the Volgograd region is interested in the influx of specialists in this industry and in the training of personnel for the future.

Small and medium-sized enterprises and companies interested in the influx of personnel should encourage employees to provide vocational guidance on the principle of mini-excursions of children to the workplace. To do this, a group of children (classmates of a son-daughter) is organized and, according to an agreed schedule, an event is held “find out what mom or dad are doing at work and try to replace parents in the workplace”. This format is effective in that children in a playful way get
acquainted with the main professions; get a basic understanding of the diversity of manifestations in the profession.

4. Conclusion
In our country at the moment there is already a shortage of personnel in high-tech industries. If the policy of the state and large companies does not change, this situation will only get worse. Currently a well-thought-out strategy in the development of personnel policy is needed.

References
[1] Golomshtok A E 1979 Career Choice and Personal Education of a Student (Moscow: Prosveshcheniye) p 235
[2] Chicker V A 2006 Psychological Diagnosis of the Organization and Staff (Saint-Petersburg: Rech)
[3] Klimov E A 1993 Person Developing in the World of Professions (Obninsk: Printer, Moscow State University) p 57
[4] Klimov E A 1993 Person Developing in the World of Professions (Obninsk: Printer) p 340
[5] Kutumova A A and Yarkova G A 2016 Dual Education System as a Methodology for Baccalaureate of Professional Education in the Modern Realia of the Pedagogical University Modern Science-Based Technologies 4-1 139-142