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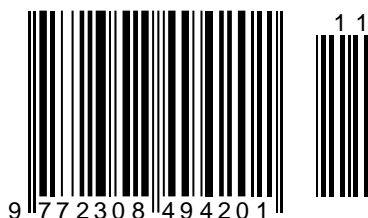
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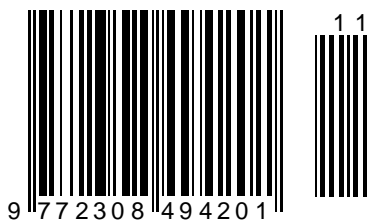
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PEDAGOGICAL THOUGHT IN THE JOURNALISM OF CHINGIZ AITMATOV

Abstract: This article examines the early journalism of the classic of world literature Chingiz Aitmatov. The analysis of the writer's articles gives a clear idea that Ch. Aitmatov, who used the journalistic arena to draw the attention of the world community to the pressing problems of our time, did not bypass pedagogy. The article substantiates the pedagogical nature of Chingiz Aitmatov's journalism.

Key words: journalism, problems of pedagogy, literary translation, terminology, printing, education, non-equivalent vocabulary.

Language: Russian

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ПЕДАГОГИЧЕСКАЯ МЫСЛЬ В ПУБЛИЦИСТИКЕ ЧИНГИЗА АЙТМАТОВА

Аннотация: В данной статье рассматривается ранняя публицистика классика мировой литературы Чингиза Айтматова. Проведенный анализ статей писателя даёт чёткое представление о том, что Ч. Айтматов, использовавший публицистическую арену для обращения внимания мировой общественности к насущным проблемам современности, не обошёл стороной и педагогику. В статье обосновывается педагогичность публицистики Чингиза Айтматова.

Ключевые слова: публицистика, проблемы педагогики, художественный перевод, терминология, книгопечатание, образование, безэквивалентная лексика.

Введение

Обращение к публицистике тем или иным писателем, прежде всего, объясняется его стремлением реагировать на события социально-политической жизни общества, его желанием и способностью жить «злойбой дня», и, наконец, в силу сложившихся обстоятельств. Отсюда и тематическое разнообразие, география публицистических выступлений.

Публицистика и публицистичность произведений Чингиза Айтматова объясняется еще и тем, что он вначале творческого пути профессионально занимался публицистикой, что дало ему возможность проникнуть далеко вглубь общественной жизни, много общаться и путешествовать по долгу службы, непосредственно соприкасаться с проблемами

современности, в том числе и педагогическими вопросами.

Известный узбекский литературный критик Сайди Умиров условно выделил шесть периодов в развитии публицистики Ч. Айтматова [1].

Об Айтматове-публицисте, журналисте впервые сказал П. Глинкин в книге «Чингиз Айтматов» [2]. Потом появилась научная статья «об Айтматове-правдисте» [3]. Значительным явлением стал выход в свет сборника очерков, статей, бесед, интервью писателя под названием «В соавторстве с землей и водою...» [4]. Эта книга содержит более семидесяти статей, бесед, интервью, которые публиковались в разные годы в разных изданиях, и представляет собой творческим отчетом писателя.

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Основная часть. Публицистика Ч. Айтматова на педагогическую тему начинается с самых первых его творческих шагов. Ещё будучи студентом, пишет в газету заметки, статьи, очерки. Среди студенческих материалов выделяется статья «О терминологии киргизского языка». Другая статья «Переводы, далекие от оригинала», написанная в 1953 году, тоже принадлежит «предписательской» деятельности Ч. Айтматова.

В названных материалах есть вполне обоснованный упрек в адрес книгопечатания, которая играет важную роль в образовании. Молодой публицист с горечью и болью говорит о плохом качестве учебников киргизских школ, переводов стихотворений русского поэта Н.А. Некрасова на родной язык. Тем самым он призывает бережно и чутко относиться к нуждам народного образования.

Педагогическая направленность ранних статей киргизского писателя объясняется его ревностным отношением к проблемам воспитания и образования. Кроме того, он нередко обращается к педагогическим проблемам в качестве философа и публициста. Это не просто мысли и высказывания, а именно анализ, систематизированный перечень выводов, вытекающий из проведенных исследований. В таком ракурсе писатель находит мотивы выражения фундаментальных идей, которые соотносятся с реальной жизнью и переключаются со статей в современность в качестве программ и догм по образованию и воспитанию молодежи. Не только итоговые идеи, родившиеся в течение всего творческого пути, но и мимолетно промелькнувшие ценные мысли-замечания, высказывания стали важными составляющими педагогической концепции писателя. Здесь важно единство замысла, форма и содержание философского подхода и мышления писателя, исходящая из его личных переживаний и осмысления современности.

Статья «**О терминологии киргизского языка**» (1952) начинается так: «Состояние терминологии любого языка имеет огромное значение для его развития, **в первую очередь – для преподавания**» [5] (выделено нами – Э.А.). Анализируя учебники русского языка 5-6 классов киргизских школ 1951 года издания, публицист обращает внимание на наименования глав и тем, обозначение и перевод синонимов понятий, о которых идет речь в учебнике. Писатель переживает, о том, что если с ранних лет дети получают неправильное представление о терминологии, то, естественно, у них сформируется соответствующее искажённое видение науки. А это чревато последствиями, связанными с трудностями усвоения дальнейшего научного материала по изучаемому предмету.

Ч. Айтматов не ограничивается обоснованной критикой учебников, а проводит настоящее научное исследование, обратившись к корням ошибок перевода терминологии на киргизский язык. Так, он исследует «Русско-киргизский словарь» 1944 года издания, учебники анатомии и физиологии человека для восьмых классов, ряд других пособий и книг. «В киргизской учебной и научной литературе спутаны такие простые понятия, как «гортань», «глотка», «трахея», «горло». В «Русско-киргизском словаре» дан такой перевод: «гортань» - «кекиртек», «горло» - «тамак», «глотка» - «кекиртек». В учебнике же зоологии для 6-7 классов (стр.10) глотка называется «алкым», что означает поверхность подбородочной области передней части лица» [5]. Сразу же публицист отвечает на естественно возникающий вопрос: что привело к такому искажению научной лексики? «Авторы некоторых учебников допускают две крайности: либо неправильно переводят русские термины, либо вовсе оставляют их без перевода, хотя в киргизском языке есть близкие по смыслу слова» [5].

Подобного рода ошибки Ч. Айтматов обнаруживает и в переводе художественных текстов. Так, он приводит анализ перевода произведения «Горе от ума» А.С. Грибоедова. Автор статьи отмечает ряд недочетов переводчика, который, искажая отдельные слова, невольно меняет высказывания героев произведения. Публицист требует от переводчика не механический перенос слов, а творческую обработку, свойственную художнику слова. Потому что этот текст ориентирован на ученика, у которого формируется представление не только о том или ином произведении и его авторе, но и о насущных общественных проблемах, содержащихся в тексте. От качества перевода зависит, насколько красочным либо, наоборот, искаженным будет это представление. Как правильно отмечает Ч. Айтматов, в процессе перевода художественных текстов нужно обращаться к основному словарному фонду и тщательно отбирать слова. То есть на передний план он выводит лексикографическое значение проведенных научных работ.

Анализ учебников продолжается раскрытием ошибок и в системе правописания. Публицист предлагает ввести активное использование твердого и мягкого знака для обозначения соответствующего произношения согласных в ряде слов на киргизском языке. Это, отмечает автор, даст возможность правильной интерпретации слов людьми, которые не являются носителями киргизского языка либо только знакомятся с ним, что немаловажно и для развития языка и культуры. «Должны быть предъявлены

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высокие требования к качеству учебников, к качеству преподавания, к качеству переводов...»[6] (выделено нами – Э.А.), делает выводы публицист.

Эти же мысли продолжает статья под названием «**Переводы, далекие от оригинала**» (1953). Высоко оценивая влияние художественной литературы на воспитание личности, особую роль автор отводит творчеству русских классиков. В то же время писатель обращает внимание на количество и качество переводов художественных произведений из русского на киргизский язык на примере творчества Н.А. Некрасова. «Из всего громадного наследия Некрасова переведено... ничтожно мало – всего семнадцать стихотворений поэта. Что же касается качества переводов, то оно оставляет желать лучшего» [6], говорится в статье. Дальше приводится анализ переводов поэмы «Железная дорога», стихотворений «Орина, мать солдатская», «Школьник», «Несжатая полоса», «Песня Еремушки», «Родина».

Отдавая должное поэтам-переводчикам, которые старались передать глубокую по содержанию, яркую и богатую по выразительным средствам, многообразную по сюжетным формам поэзию Некрасова на родном языке, публицист отмечает различия оригинала и перевода, допущения «отсебятины». Проявляется глубокое знание Ч. Айтматовым языков оригинала и перевода – русского и киргизского языков. Он требует у переводчиков более серьезного, творческого подхода к делу, поскольку посредством их материала молодежь знакомится с литературой и культурой другого народа. И эта ответственность определяет, насколько глубоко нужно анализировать и познавать переводимое произведение, не просто переводить, а передавать мысль автора оригинала в целостном виде, без ущемления и добавок. «Все эти и многие другие ошибки, неточности, искажения не дают возможности киргизскому читателю составить верное представление о творчестве великого поэта» [6], сетует публицист. Эти проблемы

волновали писателя ещё и потому, что они касались эстетического воспитания молодежи. И данный педагогический процесс не приемлет поверхностного отношения к делу.

Выводы.

Писатель в своих публицистических трудах не просто указывает на основные недостатки учебников, но и даёт рекомендации по их устранению. Таким образом, можно сказать, что Чингиз Айтматов с самого начала творческого пути не был равнодушным к решению концептуальных педагогических проблем.

Кстати будет заметить, художественные произведения самого Ч. Айтматова, будучи написанными на русском языке, чётко передают киргизскую картину мира, сущности и особенности киргизской культуры. К примеру, повесть «Ранние журавли» избилует безэквивалентной лексикой, которая придаёт звучащей на русском языке киргизской речи неповторимый характер лиричности, задушевности. Имена героев *Аджимура*т, *Айчурек*, *Анат*ай, *Аруу*кан, *Алмата*й, *Бар*пы, *Джаманкул*, *Инкам*ал, *Клички коней Акбайпак-кулюк*, *Алтын-туяк*, *Акбака*й, *Джелтаман*, *Жибек-жол*, *Октор*, *Чабдар*, *Чонтору*, *Слова*, *Обозначающие детали киргизского быта: аил, дувал, арык, кизяк, курай – они дают возможность* инокультурному читателю по-настоящему почувствовать самобытность киргизской жизни. Мастерство Айтматова-билингвиста в полной мере раскрывается именно благодаря такому плодотворному диалогу с читателем. Вкрапленные автором в русскоязычное повествование слова-реалии, содержащие духовную и материальную информацию, формируют этнокультурное пространство художественного текста, что служит еще и нравственно-эстетическому воспитанию читателя.

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SIGNIFICASE AND ROLE OF TEACHING LISTENING AND SPEAKING SKILLS IN ENGLISH

Abstract: In this article it was discussed some issues in learning English through listening and then speaking skills. Types of learning skills and their division as receptive and productive were also mentioned with examples. How these two types are important in teaching process and how to teach learners with them effectively. The author shared some ideas from own experience and tries to justify them with examples.

Key words: language learning, learning environment, approach, way of learning, real life environment, significance and role, to have some success, types of skills.

Language: English

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Introduction

The majority of people are considered as monolingual because they speak and understand only one language, but we are now working and studying in a global world where most of us can speak two, three or even four languages fluently. Especially most of our students are fond of learning languages and they manage to acquire them very well. In this article we want to share different ways in which researchers have observed and described what goes on in second language classroom. Before we do this, let us take a moment to reflect on differences classroom settings for language learning and other where people learn a new language without instruction.

Most people would agree that learning a second language in a non-instructional setting is different from learning in the classroom. Many believe that learning “on the street” is more effective. This belief may be based on the fact that most successful learners have had exposure to the language outside the classroom. What is special about this “natural” language learning? Can we create the same environment in the classroom? Is there some essential

contribution that only instruction and not natural exposure can provide? Which skills will be improved successfully in these two learning environments?

Main body.

In previous decades Russian language was very common in our life and each one from two people knew it perfectly. If you ask them how they learned this language, they will probably shrug their shoulders and then say just picked them up by communicative with others. Ask a little more about this process of picking up a language and you will find two common features. One of them for example a person was exposed to the language by people who were using it as they went about their daily lives. And other ones at the same point were required to do something which necessitated understanding and responding to meaningful messages in this language. Someone might have shouted at them to get out the way, they may have been asked to pay for a bus fare. They may have had to ask the price of food in the market. And though the person who was in such situation may not have understood every word that was said to him or

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her, but the content made the meaning perfectly clear. All these mentioned can be example for natural setting or we can call it as learning languages with the help of real life situations.

Second feature is learning languages with instructional environments. It is based on structures and the language is taught to a group of second or foreign language learners. The focus is on the language itself, rather than on the message carried by the language. The teacher's goal is to see to it that students learn the vocabulary and grammatical rules of the target language. Some students in structure-based classes may have opportunities to continue learning the target language outside the classroom; for others the classroom is only contact with that language. In these two language learning environments learners can learn English but their learning skills develop differently. In natural learning environment mostly listening and then speaking skills develop wider than the second one. Let us support our ideas. Not only Russian language but also in learning English and German languages those two features are very important. Imagine that you are working in a more formal environment, either in a classroom or giving lessons at someone's work place, but this does not mean that you should ignore the features that go into successful informal language learning. This same concept of listening in the early stages of language learning is very important. In this case we give this scientific experiment in order to confirm our meanings.

As we have learned, learners' brain is allowed to assimilate, store and process aural information. Think yourself that you are in a board country. If you do not know the language which is being spoken all around you, you probably cannot even tell where one word ends and another begins. But after a week or so, while still not understanding most of what is being said, you will have probably started to recognize units of sounds as individual words. So your brain had been registering, sorting and classifying thousands of impressions without your realizing it. And as language learner you begin to speak some word and sentences in this natural environment. This shows that your listening and speaking skills are developing.

When teaching English provide your students with similar opportunities absorb the sounds of English and to accumulate understanding talk a lot your class in English. So during the lesson even it is the structure based instructional environment we should keep our English if we want to develop our students listening and speaking skills.

According to the ancient Greek historian Herodotus, in the 7th century BC the king of Egypt, Psamtik I, decided to conduct a scientific experiment. Using his absolute power over his subjects, he took two newborn babies and handed them to a shepherd with instructions that they were to be brought up in total isolation. Most importantly, no-one was to speak in the babies' presence. Psamtik wanted to find out what language the children would speak if left to themselves. He thought that the language they produced would be the oldest in the world- the original language of the human race. After two years the shepherd heard that the two children repeatedly pronounce the word "becos". This was identified as meaning bread in the language of the Phrygians, people then living in central Turkey. From this experiment Psamtik deduced that the Phrygians language must be the first ever spoken. Nobody now believes Psamtik's conclusion – a few commentators suggest that the infants were imitating the sounds of the shepherd's sheep, but no-one since has had any better success in discovering what man's very first spoken language was like. From this example we can find out that language acquisition is the process of communicating two or more people with each other even they do not understand themselves.

Conclusion.

As we discussed above language environment plays an important role in the process of language learning. Especially listening and speaking deal with each other however listening is the type of receptive skills, and speaking is one of the productive skills. So if a learner wants to gain the language skills perfectly, it is better to try to learn it with the help of two ways, as we mentioned them instructional and non-instructional settings.

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“HUMĀYŪN-NĀMA” BY GULBADAN BEGIM IS A MAGNIFICENT CONTRIBUTION TO THE FIELD OF LITTERATURE

Abstract: This article tells us about historical events in Movarounnakh, in the Middle East, in Kabul, in India, which was reflected in “Humayun-nama” by Gulbadanbegim and shows the scientific researches in translations into English, French and Urdu. The great attention pays to up all the historical moments in period of the life of hero in “Humayun-nama” and masterfully delivers the translations of the work. The article has importance in developing of translation, textmaking and literature.

Key words: the article, importance, translation, scientific researches, historical events, life of hero.

Language: English

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Introduction

This article is about Babars daughter Gulbadan Begam’s book “Humāyūn-nāma” in which Gulbadan’s life and history of her book, the history of that time, traditions and life is described. Babar’s life is also shown here when you read the book, you will learn a little about Begam’s lives under Babar and then Humayun reign and the importance of Gul-Badan’s work in the world history.

Main part.

One of the most entire and unique historical works of Bābar’s time is considered to be “Humāyūn-nāma” written by Bābar’s daughter Gul-Badan Begam. The style of language used in the book is a simple colloquial language without any special affects. That’s why we are interested in it as historical memory, but not as literary work. By these reasons many interpreters tried to reproduce the exact copy of this text and to protect it from orthographic and stylistic characteristics. So it is important that British museum considers it unique and autobiographic.

Likewise, though the Book of Humayun resembles an historical chronicle in structure, it is much more than that best classed as historiography, Book of Humāyūn is a genre-crossing historiographic memoir.

As A.S. Beveridge states in her translation of “Humāyūn-nāma” Gulbadanbegam does not seem generally known to English students of this Mughul period in Hindustan”.

It was as not known to Mr. Ersbine or he would have given fuller and more accurate accounts of the families of Babar and Humayun. It escaped even Professor Blochman’s wider opportunities of acquaintance with Persian Miss.

It has certainly been overbooked that she wrote anything so well-worth reading as is her “Humāyūn-nāma”. But, maybe to a few students of Persian Mss. Gulbadan-begam’s book cannot be known, but, our learnings show that it is catalogued and described by Dr.Charles Riew, wich leave already appeared and in this articles we introduce of both book and author to the public.

Bayazid’s Tarikh-i-Humayun was reproduced several on its completion. Gulbadan Begam’s Humayun-nama was written under the same royal order and for the same end. It would have been natural to reproduce it also, but no second example of it can be discovered by us in any of the accessible book-catalogues of Europe or India.

“Humāyūn-nāma” tiedes integrally historical courses of Timūrids orientation which were written in Māwarā’u-n-nahr and Khurāsān in XV –XVI

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centuries by Persian historical chronicles, created in India in XV-XVII centuries attached to the palace of Great Mughals “Humāyūn-nāma” includes many interesting facts about the life of first Mughals in India.

Gul-Badan Begam unlike other court historians had a great influence in the palace of Humāyūn, treated her with great kindness and her opinion was always taken into account in discussion of many problems of state importance. She is also differed by poetic talent.

Probably all this distinguish her labor as an independent and objective exposition. The only list of “Humāyūn-nāma”¹ is situated in British museum. But the text is not entire and has defects, as it is interrupted by the informing about death during the time of intestine wars of Khindal-Mirza-Eldest, the son of Bābar.

But this list is the only witness of “Humāyūn-nāma”’s existence, as none of historical sources has information about it. It is not a literary work, but simple writing of all that knew or heard to help “Akbar- nāma”.

Nine copies of Bayazid’s “Humāyūn-nāma” were made by Gul-Badan Begam on the king’s order, and also by Jauhar. Two copies were sent to emperor’s library, three copies to princes to Abul-Faizl and one, probably, was left by author. This distribution tells that Gul-Badan Begam collected books.²

The MSS on wich this article is based on of the Hamilton collection in the British Museum. It was purchased in 1868 from the widow of W. Hamilton and is classed by Dr. Riew. Amongst the most remarkable of the 352 MSS. These were obtained in Dihli and Lucknow: “some bear the vermilion stamp of the king of Oncle”, but Gulbadan’s is not of these, states A.S. Beveridge. It is an unpretentions little volume, bound in ... leather and unadorned by the penman’s art in frontispiece or margin. It is written in Nasta’liq and apparent by dates from the 17 th century (Cat. Of Per. Miss.B. Museum). It does not seem altogether_improbable that the handwriting is the author’s own. If this were so, it would, perhaps, not necessarily affect Dr. Riew’s estimate of the date of the character, as the book could hardly have been written, i.e, composed before 1587 (995 H). That Gulbadan Begam was a penwoman, we know from her own words, and doubtless many other ladies of her day could write, for the ātun, the teacher of reading, writing and embroidery was a domestic personality named several times both by Babar and Gulbadan. The impression conveyed by Gulbadan’s narrative is of such unstudied and unrevised composition that it could hardly, it seems to a reader have been dictated even to an ātun , a woman and many of its little stories

would have shriveled up in the utterance. This seculation on a comparatively trivial matter would be disproved in all probability, if another of the Ms. were available for collation. Up to the time of writing this article, we have been unable to hear of a second MS. There may well be others in private collections in India and if so, news of their existence, would be most gratefully received by Babur’s International fond.

The content of the book: its earlier part is a reproduction of partions of Babar’s own Memoirs.

She was about 10, when her father Bābar died, for that reason she couldn’t exactly describe his life, events and probably she leant for “Bābar-nama”, which she read in original and also for those facts, that she could get directly from the events or its witnesses.

Gulbadan’s information about the inner policy of her father and brother Humāyūn attracts by the fact that with inquisitiveness characteristic of hers, she paid attention to facts that remained out of official historians of Mughals’ epoch.

An interesting story, for instance, about her travel from Agra to Dibalpur, her journey to Givalior.

She observed the construction expanded by Bābar on the bank of Djamna. As Gul-Badan said, in the year of her arrival to palace in Agra, Dibalpur and Sikri the constructions of several buildings and laying out of gardens were started.

As to Gul-Badan’s words, Bābar paid great attention to such occasions, and kept-up with his governor-generals to pay proper attention to them.

She bitterly experienced the death of her father. “The day became dark, she writes, -we spent that damned evening each is in distant corner”. Gul-Badan described Keen mental experiences, that Babar felt shortly before his death. For example he said that he wants to give up the throne to Humāyūn and live in solitude in Zarafshan’s garden.

In the same line with the political events in “Humāyūn – nāma” were reflected the diplomatic and trade relations in Bābar’s and Humāyūn’s state, and also were discussed the problems of way life and house-buildings of those times. The description of wedding ceremonies, family relations are written in details by Gul-Badan and are considered to be a rare material, missing in other east sources. In particular, it narrates of gifts and mercy from Bābar on honor of Humāyūn’s victory over Ibrāhim Lodī-the India’s emperor.

Gul-Badan tells about the gifts that were given to women, starting from special begams. They were splendid things from India, brought By Bābar’s friend given the gifts, and unlike other gifts, they were specially selected by her father. With gifts came messages, including remarks and edifications.

¹ Gul-Badan Begam . The history of Humāyūn (“Humāyūn-nāma”) Delhi. 1989

² The history of Humāyūn (“Humāyūn-nāma”) by Gul-Badan Begam. Translation By A.S. Beveridge. Delhi 1989.

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We can find interesting facts in “Humāyūn-nāma” about the role and place of women attached to the palace of first Mughals. They are the evidence of the fact that outstanding women in important matters, associated with the administrations of government. So were Gul-Badan Begam at Humāyūn’s time, Khānzāda Begam at Bābar’s time, Esan Davlat Begam, grandmother of Bābar’s time, Esan Davlat Begam, grandmother of Bābar and mother of Ibrāhim-Sultan-the governor of Badakhshān. All that we know about our princess is that she wrote in “Humāyūn-nāma”, and this book is the only witness of Gul-Badan’s life, as no one tells any thing about it, but it wasn’t the only work written by her, since she, following the traditions of those days, wrote poems.

Mir Mahdi Shirazi wrote 2 of her lines in “Tazkiratu-I-khirātin”.

“*Har pari ki au bā ‘ashaq khud yār nist,
Tū yaqin midān ki hech az ‘umr bar-khur-dār
nist*”.

Ҳар парӣ руҳсорига ошиқи ӯр йӯқ,
Билки унга ҳақ йӯлида мурод йӯқ.

The meaning of these two lines is: “ No love, no fruit of life”.

Conclusion.

All the facts given above let us come to a conclusion , that “Humāyūn-nāma”-as the most important source of India’s history in Bābar’s and Humāyūn’s times. Gul-Badan Begam as an author of this work, may be put in the same line with Mirkhand, Mukhammad Haydar, Abul-Fazl and Bābar the greatest historians of that time.

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THE METHOD OF DEVELOPMENT OF ENDURANCE SWIMMERS

Abstract: This article discusses distance training in the best possible way for the effective development of such an important quality as the ability to maintain high oxygen consumption values for a long time. Interval and variable training has less effective impact on the development of this quality.

Key words: Methodology, development, endurance, aerobic, exercise, swimming, method, learning, physical development, training, distance training, strength, start.

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МЕТОДИКА РАЗВИТИЯ ВЫНОСЛИВОСТИ ПЛОВЦОВ

Аннотация: В данной статье рассматриваются дистанционная тренировка в наилучшей мере способствует эффективному развитию такого важного качества как способность к длительному удержанию высоких величин потребления кислорода. Интервальная и переменная тренировки оказывает мене эффективное воздействие на развитие этого качества.

Ключевые слова: Методика, развития, выносливость, аэроб, упражнения, плавания, метод, обучения, физические развития, тренировка, дистанционная тренировка, сила, старт.

Введение

В процессе развития выносливости применяют разнообразные по характеру и продолжительности упражнения. В спортивном плавании для развития выносливости применяются упражнения из различных циклических видов спорта, спортивных игр, упражнений на силовых тренажерах и т.п.

Упражнения циклического характера, направленные на развитие общей выносливости по продолжительности могут достигать 2-х или 3-х часов. Упражнения направленные на развитие силовой выносливости (алактатно анаэробные или анаэробно гликолитические) имеют длительность от 30сек до 4-5мин.

Эффективность различных упражнений во многом зависит от методических условий их выполнения. Здесь также решающую роль имеют такие компоненты, как интенсивность работы, продолжительность и характер пауз между упражнениями, общее количество повторений др.

У пловцов специализирующихся на длинных и средних дистанциях, развитие общей выносливости должно быть связано с повышением возможностей организма к эффективному выполнению работы большой и умеренной интенсивности, требующей предельной мобилизации аэробных способностей.

В этом случае обеспечиваются условия для перенесения больших объемов тренировочной работы, эффективного восстановления после нагрузок, а также создаются необходимые предпосылки для проявления высокого уровня аэробной возможностей при специальной работе.

У пловцов специализирующихся на спринтерских дистанциях процесс развития общей выносливости значительно сложнее. Работа направленная на повышение аэробных возможностей должна выполняться лишь в том объеме, чтобы обеспечивать определенные предпосылки для эффективного выполнения специфической работы и протекания

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восстановительных процессов и, в то же время, не создавать препятствий для последующего развития скоростно-силовых качеств и совершенствование скоростной техники. Основной же упор при развитии общей выносливости у пловцов, специализирующихся на коротких дистанциях должен быть сделан на повышение работоспособности при выполнении различного рода обще-подготовительных и вспомогательных упражнений, направленных на воспитание скоростно-силовых качеств, гибкости,

координационных способностей, развитие анаэробных возможностей.

При планировании работы, направленной на развитие выносливости у квалифицированных пловцов, прежде всего нужно учитывать зависимость направленности этой работы состава средств и методов её, протяженности дистанции, на которой специализируется спортсмен.

В таблице №1 приводятся соотношения различных разделов развития общей выносливости в процентах от общего объема работы.

Таблица №1. Соотношения различных разделов общей выносливости при тренировке квалифицированных пловцов, специализирующихся на различных дистанциях (в % от общего объема работы) (по В.Н Платонову, 2000г.)

Дистанция	Разделы развития общей выносливости			
	Применительно к работе аэробного характера	Применительно к работе анаэробно гликолитического характера	Применительно к работе скоростного, скоростно-силового характера	Применительно к работе направленной на развитие гибкости и координационной способностей
100м	25	30	30	15
200м	40	25	20	15
400м	50	25	15	10
800м	60	20	10	10
1500м	70	15	5	10

Это соотношение разделов общей выносливости следует учитывать при планировании нагрузок в тренировочных структурах годичного цикла (макро-мезо и в микроструктурах).

Например: 1) Если в недельном микроцикле предназначенном для подготовки 15 летних пловцов – спринтеров специализирующихся на дистанции 100м величина нагрузки составит - 5100 условных единиц (баллов), то для развития аэробных способностей следует планировать - 1275 баллов, для развития анаэробно – гликолитических возможностей величина нагрузки составит - 1530 баллов, для развития анаэробно – алактатных возможностей также - 1530 баллов, а для развития гибкости и координационных способностей - 765 баллов. 2) В макроцикле (большом цикле) протяженностью около 5 месяцев предназначенном для подготовки 14 - летних пловцов, специализирующихся на дистанции 400м (средневики) общая величина нагрузки составляет 85000 условных единиц (баллов). В этом случае величина нагрузки для развития аэробных возможностей составит - 42500 условных единиц, для развития анаэробно – гликолитических

возможностей - 21250, для развития анаэробно – алактатных возможностей – 12750, а для развития гибкости и координированности величина нагрузок составит – 8500 условных единиц (баллов).

Для достижения высокого уровня развития специальной выносливости пловцов недостаточно иметь высокий уровень отдельных свойств и способностей её определяющих. Необходимо добиться их комплексного проявления в условиях характерных для конкретной дистанции. Это может быть достигнуто при широком применении соревновательных и максимально близких к ним специально – подготовительных упражнений, при создании комплекса условий характерных для планируемой соревновательной деятельности.

Эффективность развития специальной выносливости существенно зависит от сочетание отрезков различной длины при выполнении программы отдельных занятий (С.М Вайцеховский 1985г., В.Н Платонов 2000г. и др).

Наиболее перспективным здесь следует считать программы, в которых длина отрезков либо постоянная, либо постепенно убывающая. Интенсивность работы следует планировать таким образом, чтобы преодоление отрезков по

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уровню психологической направленности было близко к соревновательным. Прохождение отрезков следует осуществлять со скоростью, несколько превышающей планируемую соревновательную. В то же время нельзя забывать то, что если ставится задача повысить уровень развития специальной выносливости применительно к стайерским дистанциям, то преодоление значительного количества коротких отрезков с повышенной скоростью может привести к энергетически менее экономной работе на длинных дистанциях.

Наши наблюдения показывают то, что величина нагрузки применяемых отрезков с повышенной скоростью для подготовки стайеров не должна превышать 30-40% от общего объема.

Протяженность тренировочных отрезков, либо дистанций следует подбирать такой, чтобы пловец был в состоянии поддерживать скорость близкую к планируемой соревновательной: пловцам, готовящимся к выступлению на 100 или 200 метровых дистанциях следует рекомендовать отрезки протяженностью 25м, 50м, 75м, 100м и 200м; на 400метровой 50м, 100м, 200м, 400м; 1500метровой 50м, 100м, 200м, 400м, 800м.

Если протяженность отрезков значительно ниже предполагаемой соревновательной дистанции, то длительность интервалов отдыха между ними должна быть невелика. Следующее упражнение должно проводиться на фоне утомления от предыдущего.

Если пауза между упражнениями длительные то интервалы отдыха следует заполнять малоинтенсивной работой и восстановительными процедурами.

Существенное влияние на развития специальной выносливости оказывает сочетание отрезков различной протяженности при выполнении программы отдельного занятия.

В таблице №2 Приводятся примеры тренировочных серий применяемые пловцами высокого класса в тренировочном процессе. При этом необходимо строго придерживаться таких правил: паузы между отрезками должны быть непродолжительными (частота сердечного сокращения сердца не должна снижаться более чем на 10-15 ударов в минуту); каждый очередной отрезок должен быть короче предыдущего или иметь такую же длину; общее время серий должно быть близким к тому, которое планируется показать в соревнованиях.

Таблица № 2. Примеры тренировочных серий, рекомендованных для развития специальной выносливости у квалифицированных пловцов.

Общая дистанция (м)	Первый отрезок (м)	Отдых (с)	Второй отрезок (м)	Отдых (с)	Третий отрезок (м)	Отдых (с)	Четвертый отрезок (м)	Отдых (с)	Пятый отрезок (м)
100	50	5	25	5	25	-	-	-	-
200	100	10	50	5	25	5	25	-	-
400	250	10	100	5	50	-	-	-	-
800	300	15	200	10	100	5	100	5	100
1500	500	20	400	10	300	10	200	5	100

Количество отдельных упражнений зависит от их характера объема нагрузки в занятиях, квалификации и уровня тренированности пловцов, методики построения программы занятия и т.д. При прочих условиях количество упражнений может быть увеличено за счет серийного выполнения, а также разнообразия тренировочной программы отдельного занятия.

Для повышения анаэробных и аэробных возможностей основываясь литературными данными можно предположить следующую классификацию упражнений по длительности воздействия и интенсивности: 1) упражнения преимущественно способствующие повышению анаэробно – алактатных возможностей имеют продолжительность работы 5÷15с, интенсивность максимальную, где частота сердечного сокращения (ЧСС) при выполнении упражнений

достигает величины 200 уд/мин и выше; 2) упражнения позволяющие параллельно совершенствовать алактатные и лактатные возможности. Продолжительность работы 15-30с, при интенсивности (ЧСС 186÷192 уд/мин); 3) упражнения способствующие повышению лактатных анаэробных возможностей. Продолжительность работы 30÷60с, интенсивность 85-90% от максимальной допустимой (ЧСС 180÷186 уд/мин); 4) упражнения позволяющие параллельно совершенствовать анаэробные и аэробные возможности. Продолжительность работы 1÷5мин, интенсивность 80-90% от максимальной (ЧСС 174÷186); 5) упражнения для развития аэробных возможностей имеют продолжительность от 5мин и выше при частоте сердечных сокращении от 145 до 170 уд/мин.

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Развитие выносливости осуществляется использованием дистанционного, интервального и переменного методов тренировки. Наиболее широко применяется дистанционный метод в спортивном плавании. Дистанционное плавание способствует развитию всех основных свойств организма пловца, обеспечивающих поступление, транспорт и утилизацию кислорода. Дистанционная тренировка, которая предполагает проплывание дистанции при частоте сердечного сокращения от 140 до 170 ударов в минуту, является эффективной для повышения функциональных возможностей сердца, увеличения емкости капиллярной сети и повышения возможностей процессов, связанных с потреблением кислорода непосредственно в мышцах. Применяя дистанционный метод, необходимо учитывать следующие основные положения: интенсивность работы должна обеспечивать высокие величины ударного объема сердца и уровень потребления кислорода, по возможности близкий к максимальному. Этим условиям отвечает работа продолжительностью от 10 до 30÷40 минут. В плавании – это дистанции протяженностью от 800 до 3000м, проплываемые при частоте сокращений сердца в пределах 150-175 ударов в минуту, т.е. в том диапазоне, при котором регистрируются максимальные величины ударного объема. Протяженность тренировочных дистанций определяется квалификацией и тренированностью пловцов, поэтому пловцы высокого класса, обладающие высоким уровнем аэробной производительности, эпизодически могут проплывать дистанции большей длины, до 4000-5000м.

Другим методом повышения аэробной производительности пловцов является переменный метод тренировки. Суть переменного метода заключается в чередовании отрезков, проплываемых с относительно высокой и низкой скоростями в режимах, вызывающих максимальную активизацию деятельности систем кровообращения и дыхания.

Методические условия, характерные для переменной тренировки предполагают такую организацию работы, при которой к концу “интенсивного” отрезка частота сердечных сокращений увеличивается до 160-170 ударов в минуту и снижается к концу проплывания “мало интенсивного” отрезка до 140-175 ударов в минуту. В качестве упражнений, выполняемых в процессе проплывания “мало интенсивного” отрезков может быть использовано и плавание тем способом, который применялся во время проплывания “интенсивного” отрезка, и плавание иными способами с работой одними руками, или одними ногами, с изменением величины усилия гребковых движений, длины шага и тому подобное.

Направленность воздействия варьируется длиной отрезков, проплываемых в повышенной темпе, интенсивностью и продолжительностью по следующей более легкой работы.

Периоды активного отдыха во время переменного плавания смягчают воздействия скоростной работы. переменное плавание целесообразно также планировать для активизации восстановительных процессов после занятий с большими нагрузками.

В основу интервального метода тренировки положено то, что ударный объем сердца достигает максимальных величин во время пауз после относительно напряженной работы. Таким образом во время пауз сердечная мышца испытывает специфическое воздействие, имеющее место при работе. Методические условия характерные для интервальной тренировки, предполагают такую организацию работы и отдыха, при которой на протяжении большей части работы в течении всего времени интервалов отдыха сердце работает при максимальных величинах ударного объема. При этом следует учитывать, что максимальный ударный объем является основным стимулом для увеличения размеров сердечных полостей.

При использовании интервального метода обычно рекомендуют следующие правила: 1) продолжительность проплывания отдельных отрезков не должна превышать 1 минуты; 2) продолжительность интервалов отдыха колеблется в зависимости от длины тренировочного отрезка, обычно в пределах 45-90 секунд; 3) интенсивность работы характеризуется частотой сердечного сокращения 170-180 ударов в минуту к концу паузы.

Несмотря на то, что каждый из указанных методов эффективен для повышения аэробной возможностей в целом, следует акцентировать внимание на необходимость их комплексного использования в тренировочном процессе.

Дистанционная тренировка в наилучшей мере способствует эффективному развитию такого важного качества как способность к длительному удержанию высоких величин потребления кислорода. Интервальная и переменная тренировки оказывает менее эффективное воздействие на развитие этого качества. Однако наибольшее сокращение периода развертывания функциональной возможностей системы дыхания происходит под воздействием интервального метода тренировки. В отличие от дистанционного метода тренировки, применение переменного и особенно интервального метода, способствует достоверному увеличению уровня выносливости пловцов к работе анаэробного характера. Это объясняется тем, что при интервальном плавании, а также во время прохождения “интервального”

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отрезка при переменном плавании работа в значительной мере обеспечивается анаэробными поставщиками энергии в сопровождении значительными величинами кислородного долга.

Приведены комплексы упражнений способствующие развитию выносливости к работе аэробного характера, которые составлены на основе ранее описанных методов:

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CONCEPT OF TECHNOLOGY OF PHYSICAL EDUCATION OF CHILDREN OF SENIOR PRESCHOOL AGE 5-6 YEARS BY MEANS OF NATIONAL AND OUTDOOR GAMES OF SPORTS ORIENTATION

Abstract: This article examines the results of this training periodically assessed in specially organized all-around competitions. For children of senior preschool age, they resemble games, diverse in content and emotional in nature. As an example, 3 options for the optimal ratio of the types of tests by the type of all-around are given.

Key words: Concept, game, motor activity, organization, occupation, structure, classification, health improvement, physical activity, physical culture.

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КОНЦЕПЦИЯ ТЕХНОЛОГИИ ФИЗИЧЕСКОГО ВОСПИТАНИЯ ДЕТЕЙ СТАРШЕГО ДОШКОЛЬНОГО ВОЗРАСТА 5 – 6 ЛЕТ СРЕДСТВАМИ НАЦИОНАЛЬНЫХ И ПОДВИЖНЫХ ИГР СПОРТИВНОЙ НАПРАВЛЕННОСТИ

Аннотация: В данной статье рассматриваются результаты этой подготовки периодически оцениваются в специально организованных соревнованиях по многоборью. Для детей старшего дошкольного возраста они напоминают игры, разнообразные по содержанию и эмоциональные по характеру проведения. В качестве примера приводится 3 варианта оптимального соотношения видов испытаний по типу многоборья.

Ключевые слова: Концепция, игра, двигательная деятельность, организация, занятие, структура, классификация, оздоровление, физическая нагрузка, физическая культура.

Введение

Сотрудничество нами трактуется как идея совместной развивающей деятельности воспитателя и детей, скрепленной взаимопониманием, проникновением в духовный мир друг друга, совместным анализом хода и результатов этой деятельности.

Как система отношений сотрудничество много аспект но важнейшее место в нем занимает отношение воспитатель -дошкольник. Традиционное обучение основано на положении воспитателя в качестве субъекта, а дошкольника-объекта педагогического процесса. В концепции

сотрудничества это положение заменяется представлением о дошкольнике как о субъекте в процессе игровой деятельности.

Поэтому два субъекта одного процесса должны действовать вместе, быть сотоварищами, партнёрами, составлять союз более старшего и опытного с менее опытным, но обладающим преимуществами молодости ; ни один из них не должен стоять над другим.

Сотрудничество в отношениях воспитатель-дошкольник реализуется в общей жизнедеятельности дошкольных коллективов, принимая различные формы (содружества,

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соучастия, сопереживания, сотворчества, со управления).

В рамках дошкольного образовательного учреждения отношения сотрудничества устанавливаются между воспитателями и администрацией, принцип сотрудничества распространяется на все виды отношений дошкольников и руководителей с окружающей социальной средой (родителями, общественными и трудовыми организациями).

Особенности содержания педагогики сотрудничества, в которой выделяются три направления:

- гуманно-личностный подход к ребёнку.
- дидактический, активизирующий и развивающий комплекс.
- концепция воспитания.

Гуманно-личностный подход.

Гуманно-личностный подход ставит в центр дошкольной образовательной системы развитие всей целостной совокупности качеств личности. Мера этого развития провозглашается главным результатом дошкольного образования, критерием качества работы воспитателя, руководителя, дошкольного учреждения в целом.

Такой подход обращает дошкольные учреждения к личности ребёнка, к его внутреннему миру, где таятся ещё не развитые способности и возможности, нравственные потенции свободы и справедливости, добра и счастья. Цель дошкольного учреждения - разбудить, вызвать к жизни эти внутренние силы и возможности, использовать их для более полного и свободного развития личности средствами национальных и подвижных игр.

Гуманно-личностный подход к ребёнку в физкультурно-оздоровительном процессе – это ключевое звено, коммуникативная основа личностно ориентированных педагогических технологий. Он объединяет следующие идеи:

- новый взгляд на личность как цель физического развития, двигательной подготовленности, оздоровительного процесса;
- гуманизацию и демократизацию педагогических отношений;
- отказ от прямого принуждения как метода, не дающего результатов в современных условиях;
- новую трактовку индивидуального подхода;
- формирование положительной Я - концепции.

Новый взгляд на личность представляют следующие позиции:

- личность проявляется, выступая в раннем детстве, ребёнок в дошкольном учреждении - полноценная человеческая личность;
- личность является субъектом, а не

объектом в педагогическом процессе;

– личность - цель образовательной системы, а не средство для достижения каких - либо внешних целей ;

– каждый ребёнок обладает способностями, многие дети талантливы;

– приоритетными качествами личности являются высшие этические ценности (доброта, любовь, трудолюбие, совесть, достоинство).

Гуманизация и демократизация педагогических отношений.

Личностные отношения являются важнейшим фактором, определяющим результаты физкультурно-оздоровительного процесса.

Гуманное отношение к детям включает:

- педагогическую любовь к детям, заинтересованность в их судьбе;
- оптимистическую веру в ребёнка;
- сотрудничество, мастерство общения;
- отсутствие прямого принуждения;
- терпимость к детским недостаткам.

Демократизация отношений – утверждает

- право ребенка на свободный выбор;
- право на ошибку;
- право на собственную точку зрения;
- соблюдение Конвенции о правах

ребенка;

– стиль отношений воспитателя и дошкольника не запрещать, а направлять; не управлять, а соуправлять; не принуждать, а убеждать; не командовать, а организовать; не ограничивать, а предоставлять свободу выбора.

Игра без принуждения характеризует:

- требовательность без принуждения, основанная на доверии;
- увлеченность, рожденная интересным преподаванием;
- замена принуждения желанием, которое порождает успех;
- ставка на самостоятельность и самодеятельность детей;
- применение косвенных требований через коллектив.

Новая трактовка индивидуального подхода

Суть нового индивидуального подхода в том, чтобы в процессе двигательной активности в системе не от игры к ребенку, а от ребенка к игре, идти от тех возможностей, которыми располагает ребенок, учить его с учетом потенциальных возможностей, которые необходимо развивать, совершенствовать, обогащать.

Новая трактовка индивидуального подхода включает:

- отказ от ориентировки на среднего дошкольника;
- поиск лучших качеств личности;
- применение психолого-педагогической диагностики личности (интересы, способности,

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направленность, Я -концепция качества характера, особенности мыслительных процессов);

- учёт особенностей личности в физкультурно-оздоровительном процессе;
- прогнозирование развития личности.
- конструирование индивидуальных программ развития и его коррекция.

Формирование положительной Я-концепции личности.

Я-концепция – это система осознанных действий и она строит свое поведение. В дошкольные годы Я-концепция - основа внутреннего стимулирующего механизма личности. Положительная, мажорная Я-концепция (Я нравлюсь, Я способен, Я значу) способствует успеху, эффективной деятельности, положительным проявлениям личности. Отрицательная Я-концепция (Я не нравлюсь, не способен, не нужен) мешает успеху, ухудшает результаты, способствует изменению личности в отрицательную сторону.

Личностный подход включает, как одну из важнейших задач, формирование у ребёнка положительной Я-концепции. Для этого в первую очередь необходимо:

- видеть в каждом дошкольнике уникальную личность, уважать её, понимать, принимать, верить в неё («Все дети талантливы - вот убеждение воспитателя);
- создавать личности ситуацию успеха, одобрения, поддержки, доброжелательности, чтобы дошкольная жизнедеятельность приносила ребёнку радость;
- исключить прямое принуждение, а также акценты на отставание и другие недостатки ребёнка; понимать причины детского незнания и неправильного поведения и устранять их, не нанося ущерба достоинству, Я-концепции ребенка («Ребёнок хорош, плох его поступок»);
- предоставлять возможности и помогать детям реализовывать себя в положительной деятельности «В каждом ребёнке – чудо; ожидай его!»).

Дидактический активизирующий и развивающий комплекс

Дидактический активизирующий и развивающий комплекс педагоги сотрудничества открывает новые принципиальные подходы и тенденции в решении вопросов «чему» и «как» учить сегодня детей средствами игровой деятельности.

Содержание игр спортивной направленности рассматривается как средство развития личности, а не как самодовлеющая цель дошкольного учреждения.

Концепция воспитания

Концептуальные положения педагогики сотрудничества отражают важнейшие тенденции, по которым развивается воспитание в современном дошкольном учреждении:

- постановка личности дошкольника в центр всей физкультурно-оздоровительной воспитательной системы;
- гуманистическая ориентация воспитания, формирование общечеловеческих ценностей;
- развитие физических способностей ребенка, его индивидуальности;
- возрождение Узбекских национальных и культурных традиций средствами национальных подвижных игр;
- сочетание индивидуального и коллективного воспитания;
- постановка трудной цели.

Идеология и технология педагогики сотрудничества служат не только основанием целой системы, но и определяет содержание физического воспитания детей дошкольного возраста.

Подготовка к сдаче нормативов комплекса «Алпомииш» и «Барчиной» 1 степени (возраст 5-6 лет)

Для более активного привлечения детей к выполнению упражнений комплекса, их следует вводить и в содержание национальных и подвижных игр, которые проводятся в игровом часе. Этот методический приём очень эффективен, так как эмоциональный фон игровой обстановки стимулирует двигательную активность, способствует совершенствованию функциональных возможностей, в наибольшей степени отвечает запросам детской психологии, содействует формированию детского коллектива.

При подготовке к сдаче нормативов комплекса следует использовать те игры, в которых двигательная активность детей наиболее адекватна соответствующим упражнениям комплекса. В связи с этим игры систематизированы с преимущественной направленностью на развитие физических качеств или на совершенствование двигательных навыков, необходимых для сдачи нормативов комплекса. Оптимальными вариантами игрового часа и в том и в другом случае следует считать занятие высокой и средней интенсивности продолжительностью 30 минут.

Примерная группировка национальных и подвижных игр (по преимущественному проявлению физических качеств, используемых в процессе подготовки к сдаче нормативов 1 степени 5-6 лет)

В таблице 1 приведены национальные и подвижные игры, используемые для подготовки к сдаче нормативов.

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Таблица 1. Группировка национальных и подвижных игр, направленных на развитие физических качеств для подготовки сдачи нормативов комплекса

№	Преимущественно проявляемые качества	Название национальных и подвижных игр	Нормативы комплекса
1.	Быстрота	«День и ночь» «Вызов номеров» «Наступление» «Перебежки с выручкой» «Охотники и утки»	Челночный бег 3×10м
2.	Скоростно-силовые	«Скакуны» «Перетягивание в парах» «Перемена мест» «Бой петухов» «Тяни в круг» «Выталкивание из круга» «Пушкари»	Многоскоки (прыжки с ноги на ногу), прыжки со скакалкой, прыжки в длину с места. Метание малого мяча в цель.
3.	Выносливость	«Гонка с выбыванием» «Сумей догнать» «Мяч ловцу» «Борьба за мяч»	Прогулки по пересеченной местности
4.	Ловкость, координация	«Бег командами» «Попади мяч» «Защита укрепления» «Подающая палка» «Защита товарища»	Челночный бег 3×10м Прыжки со скакалкой

При проведении национальных и подвижных игр с целью подготовки детей старшего дошкольного возраста к сдаче нормативов комплекса соблюдаются следующие требования:

1. Игры, включающие элементы техники отдельных видов спорта применяются в том случае, когда эти элементы предварительно изучены.

2. Контрольные расстояния в играх типа эстафет должны соответствовать нормам комплекса.

3. Выполнению двигательных тестов даётся качественная оценка, элементы техники должны возможно более точно воспроизводиться детьми в процессе эстафетных игр (преодоления препятствий и в играх с ациклической структурой игра с отягощениями).

4. Подготовка к выполнению норм комплекса ведётся круглогодично, чтобы физическая работоспособность детей не

снижалась.

Результаты этой подготовки периодически оцениваются в специально организованных соревнованиях по многоборью. Для детей старшего дошкольного возраста они напоминают игры, разнообразные по содержанию и эмоциональные по характеру проведения. В качестве примера приводится 3 варианта оптимального соотношения видов испытаний по типу многоборья. В соревнованиях определяется результат по сумме 3-4 упражнений.

1 Вариант – метание теннисного мяча в цель (количество попаданий), челночный бег и бег на 30 м с высокого старта (сек), подтягивание на низкой перекладине из виса лежа (количество раз).

2 вариант – челночный бег или бег на 30 м с высокого старта (сек) метание мешочка с песком 200г на дальность (м).

3 вариант – прыжок в длину с места (см); много скоки, прыжки, бег на 500 м.

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ON THE FORMATION OF EFFECTIVE PURCHASING BEHAVIOR AMONG CONSUMERS OF HIGH-QUALITY AND AFFORDABLE PRODUCTS ON THE DOMESTIC AND INTERNATIONAL MARKET

Abstract: In the article, the authors analyze the effectiveness of the software developed by them for forming the technological process of production of import-substituting products and determining the specific reduced costs, which allows calculating the statistical parameters of the effective technological process of production of high-quality products in various forms of production organization, and the software developed by the authors for calculating the receipt of funds from the technological process of production of quality products guarantees light industry enterprises to obtain stable TA and prevent them from bankruptcy providing them with financial stability.

Key words: financial stability, stability, profitability, profit, demand, availability, quality, demand, competitiveness, import substitution, Union of Federal, regional and municipal branches of government; innovation, economic policy, industrial policy, assortment, assortment policy.

Language: English

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Introduction

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A prerequisite for the effective operation of the enterprise is the rational planning of production that meets the needs of the market.

The formation of the assortment of light industry enterprises should be based on representative information about the current requirements, their possible dynamics and customer preferences.

Marketing research is used to improve the efficiency of the existing management system at enterprises, adjust production and implementation programs, allowing them to respond to changes in the market.

Marketing research is the main regulator of the company's product policy when choosing directions for development. Marketing research should be understood as a systematic definition of the range of data required in connection with the marketing task facing the enterprise, their collection, analysis and report on the information received, conclusions and recommendations.

A survey was chosen as a method of marketing research. The survey, used most often in various types of research, is a universal method of conducting marketing research. It has a high degree of objectivity, high accuracy of the data obtained, and a relatively low cost. The most accurate data has a mass survey, i.e. polling a large number of respondents.

One of the most important steps in planning a mass survey is sampling. A separate representative of a certain population group acts as a unit.

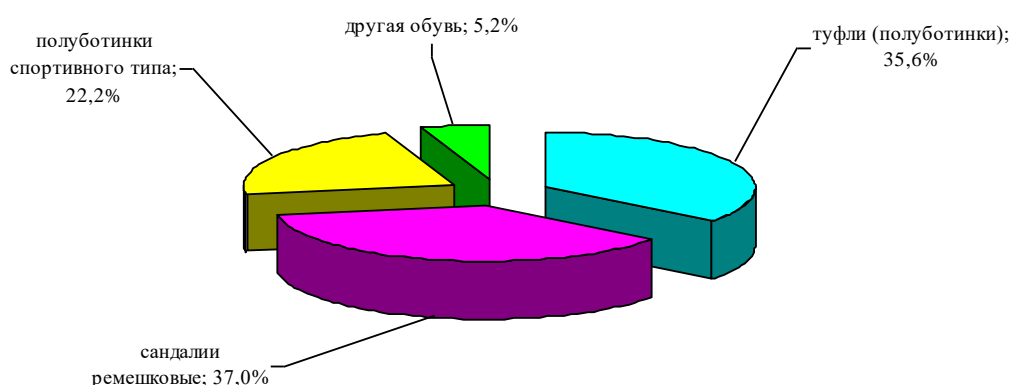
When determining the sample size, it should be borne in mind that the purpose of the survey is to obtain data characterizing the so-called general population, i.e. all carriers of any important trait.

The main idea of the sample is to judge the general in part, so the sample size should be such that it is representative. Questioning is a kind of survey method. The study involved a hundred randomly selected men aged 18 to 55 years, the survey was conducted in the shops of Shakhty and Rostov-on-Don.

The purpose of the survey is to identify preferences in men's shoes for further research of the technological processes of its production for the population of the South - North - Caucasian federal districts and, in particular, the Rostov region. Shoes should be in real demand, and its design and aesthetic characteristics most fully correspond to the consumer preferences of this population group.

The results of data processing are presented in Tables A.1 - A.8 of Appendix A and Figures 1-8.

Seasonal preferences by type of footwear are as follows: shoes (low shoes) occupy a significant place in the wardrobe of a modern man regardless of the season, sports shoes are also a necessary element, especially for respondents of the first age category (18-24 years old). Thong sandals and boots in the corresponding seasons of use were given considerable preference (Fig. 9).



a)

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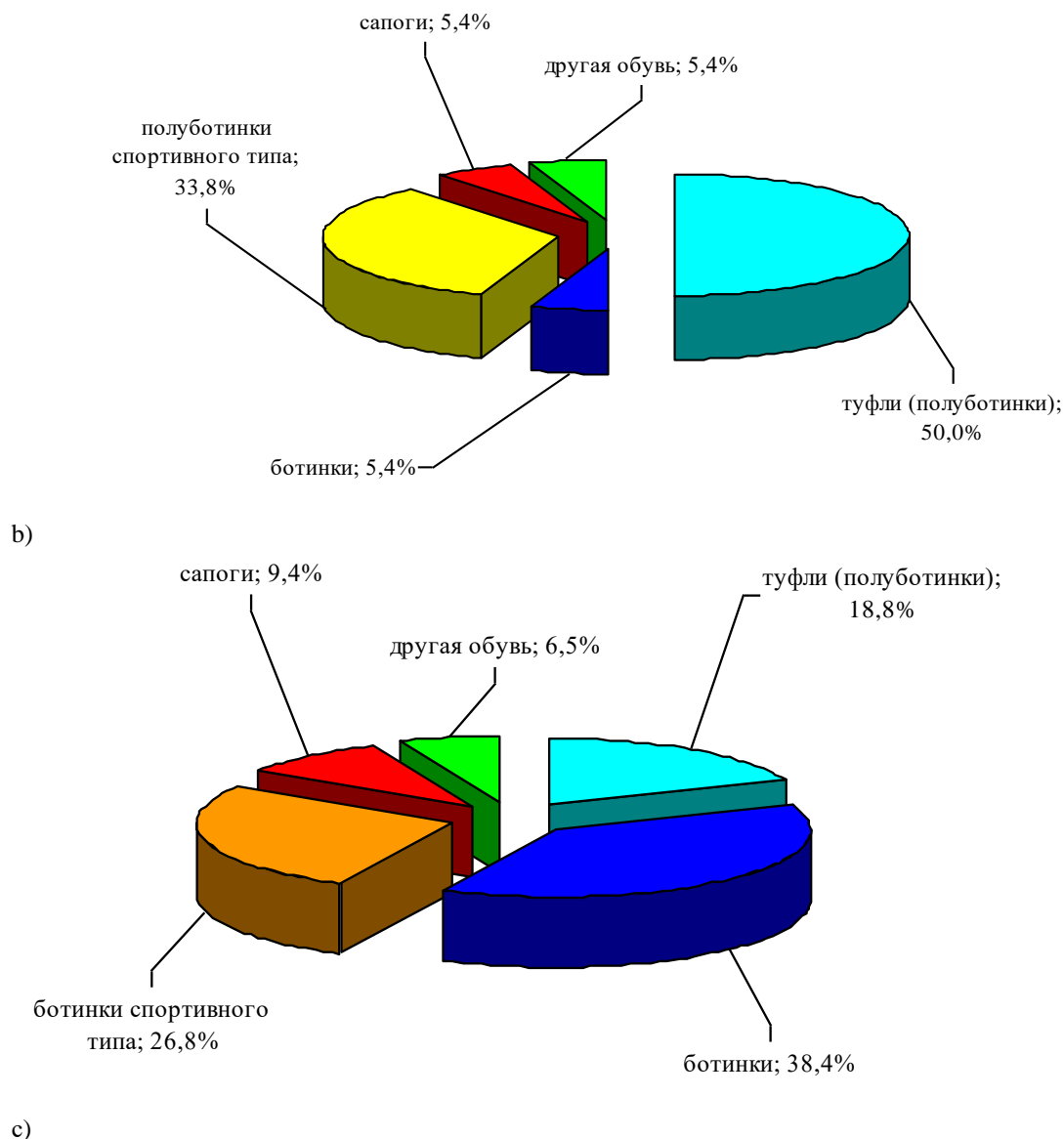


Figure:1 - Purchasing preference charts different types of shoes according to the seasons: a) summer socks; b) autumn-spring socks; c) winter period of wear

Most often the respondents buy shoes of black and brown colors. in general, the color choice of shoes is as follows (Fig. 4.21).

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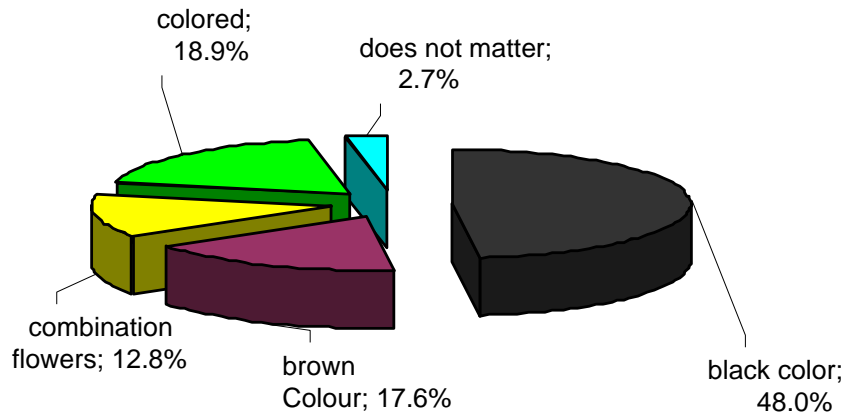


Figure: 2 - Color preferences in shoes

The overwhelming majority of respondents prefer to buy shoes with uppers made from natural materials, which, in their opinion, are more comfortable and prestigious (Fig. 1). If natural materials were almost unanimously chosen for the upper of the shoe, then in the materials of the bottom of the shoe, attention was paid to the seasonality of

operation, which was expressed in approximately equal shares of the presented diagram. Most of the respondents showed significant awareness of the purpose of sole materials, but at the same time, about a tenth found it difficult to answer the question posed (Fig. 3).

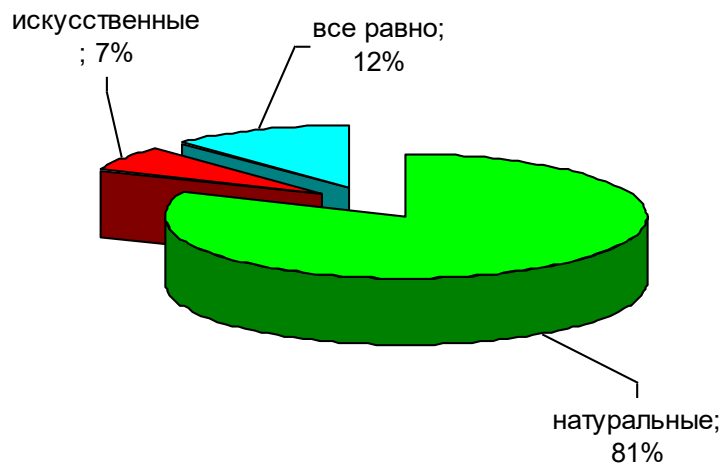


Figure: 3 - Characteristics of shoes by upper materials

More than half of the respondents prefer laces as a way of fixing shoes on the feet, and in the second

and third places with a significant margin - elastic bands and Velcro tape (Fig.).

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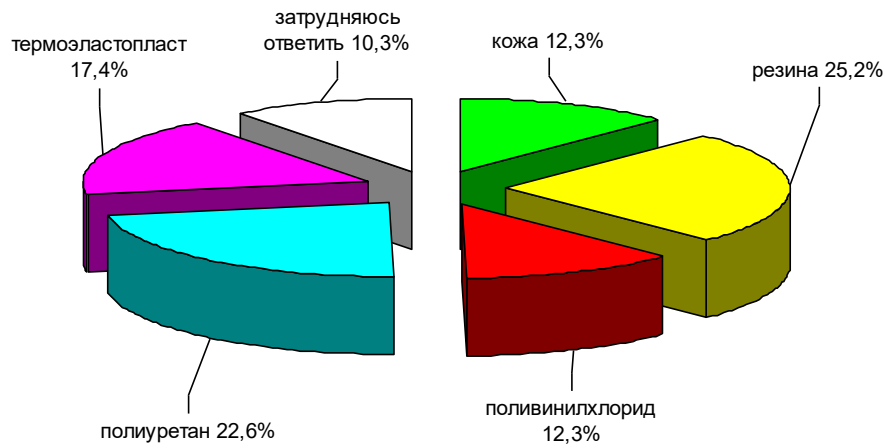


Figure: 4 - Characteristics of shoes by bottom materials

According to the survey results, the optimal number of outer parts in the shoe upper was found to be the smallest and the average, which is probably

explained by the respondents' gravitation towards the classic trends in shoe fashion (Fig. 5).

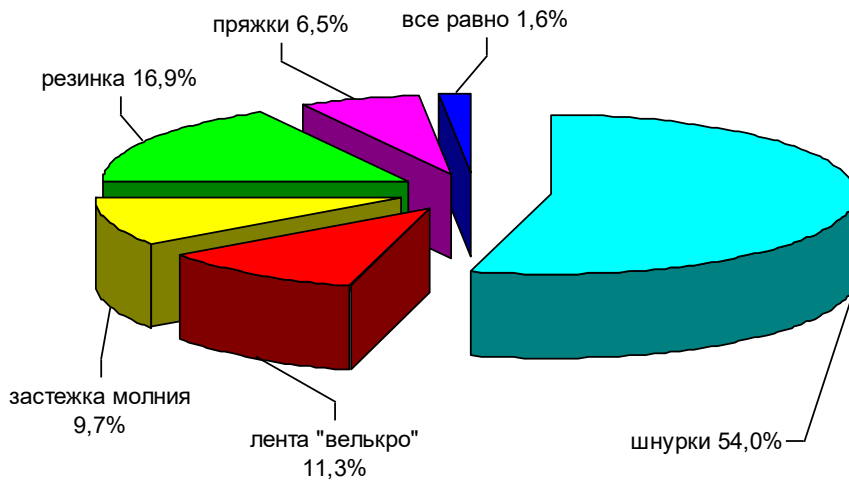


Figure: 5 - Characteristics of preferences for ways of fixing shoes on the foot

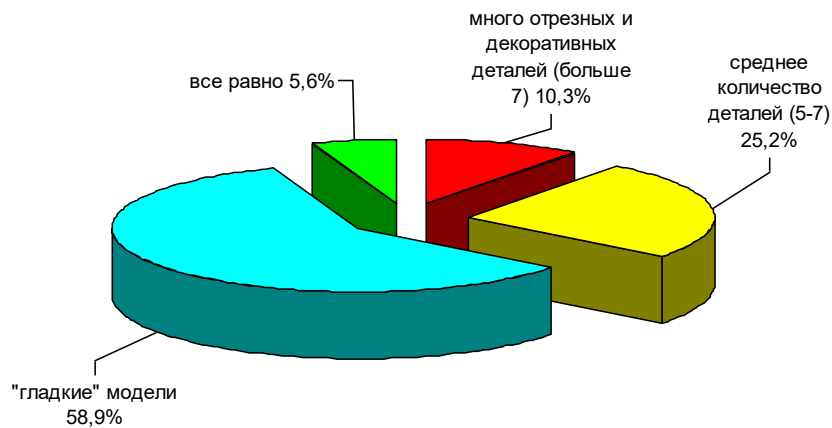


Figure: 6 - The number of outer parts in the shoe upper blank

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The distribution of preferences by the types of finishing of the outer parts of the shoe upper blank is shown in Figure 7.

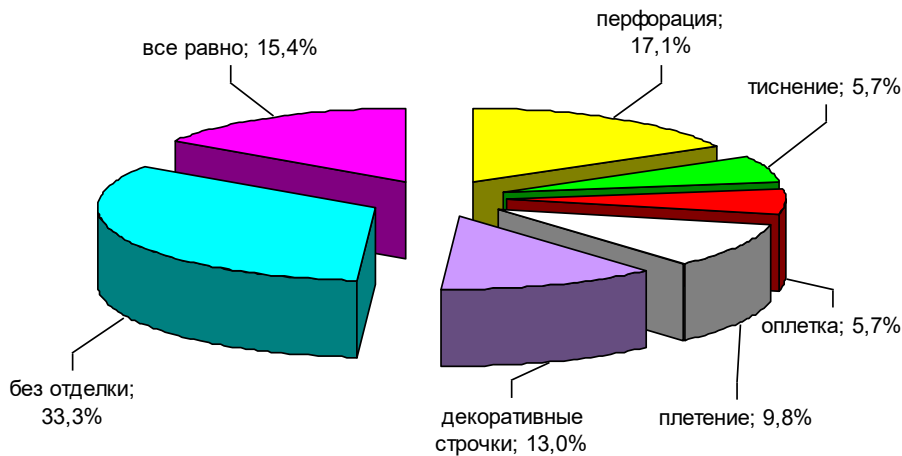


Figure: 7 - Types of finishing of the outer parts of the shoe upper blank
The diagram of the age categories of the respondents is shown in Figure 8

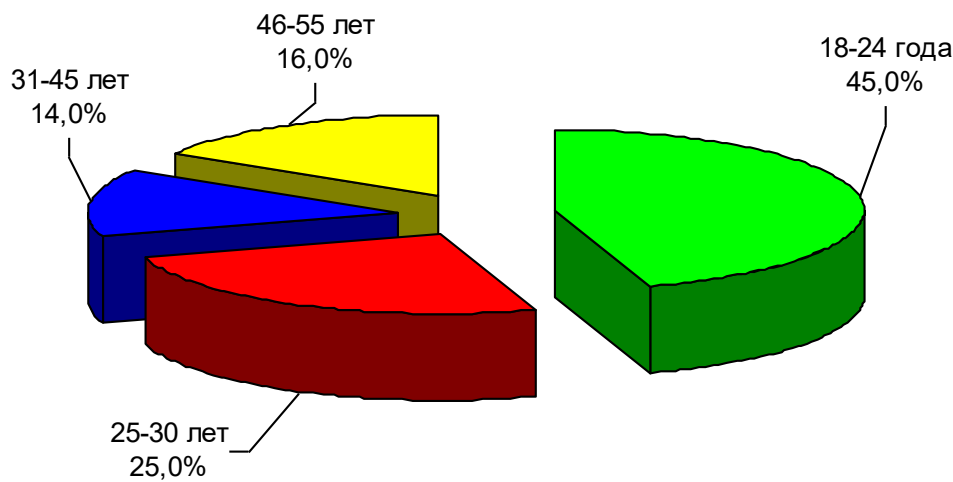


Figure: 8 - Distribution of respondents by age category

Based on the results of the study of consumer preferences, a range of shoe models was proposed that meets the requirements of consumers.

Models on a single base differ in the materials used for the top and bottom of the shoe and the degree of processing of parts and assemblies. In addition, a change in the color scheme of each of the presented models will allow you to transform the presented assortment endlessly, instantly reacting to market demands, and correspond to the fashion trend.

Thus, outwardly similar models are manufactured using various technological processes, which has a significant impact on their cost. As a result, the price of manufactured models varies in a wide range, which allows the company to respond more quickly to fluctuations in demand and increase

its market share, and, consequently, improve its economic performance.

Development of elements of the expert system operational management of multi-assortment production

The footwear market of the South and North Caucasian Federal Districts is oversaturated with types of footwear for the same purpose. Therefore, the head of the enterprise needs to know exactly what will be in demand on the market and how it should be implemented so that the developed range of footwear is chosen by the buyer, withstanding the fiercest competition that generates new proposals.

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For all this, it is important to build an assortment policy in such a way that, if footwear of the same type arrives on the market, it should differ significantly in price, but meet the requirements of the standard.

The most important task of building the elements of the operational management system for the assortment of a shoe enterprise is the choice of technology that can effectively implement the intended goals in a complex multi-level hierarchical management system. The use of mathematical methods and optimization theory makes it possible to effectively make decisions not only in those conditions when the parameters of the system are known, or they can be represented as fixed values.

The paper proposes new approaches to determining the total number of footwear produced depending on the market situation, prevailing prices and demand, and developing an optimal plan for the production of footwear models.

To determine the total number of shoes produced depending on the market situation, prevailing prices and demand, it is proposed to apply elements of the theory of fuzzy sets. The theory of fuzzy sets has long been applied, mainly for use in systems that imitate human behavior, such as pattern recognition systems, linguistic analysis, search for solutions and others, in which there is no access to the complex mathematical apparatus necessary to describe complex industrial control systems and were highly specialized systems. This approach allows in each case to agree on the requirements of the problem and the required degree of accuracy of its solution.

Techniques based on the theory of fuzzy sets make it possible to use approximate, but at the same time, methods of describing nondeterministic systems that are sufficiently effective, for the analysis of which it is impossible to use standard quantitative mathematical methods. At the same time, all theoretical substantiations of this approach are quite accurate and are not in themselves a source of uncertainty (fuzzy logic and IS).

Unlike traditional mathematics, which requires precise and unambiguous formulations of patterns at each step of modeling, fuzzy logic offers a completely different level of thinking, thanks to which the creative process of modeling occurs at the highest level of abstraction, at which only a minimal set of patterns is postulated.

The basic idea behind fuzzy logic is that you cannot define rules for all occasions. These rules are discrete points in a continuum of possible situations and decisions are made by approximating them. For each case, the known rules for similar situations are combined. This approximation is possible only in cases where there is flexibility or blurring in the words with which these rules are defined. To use the power of human logic in production processes, a mathematical model is needed. To implement such a model, fuzzy logic was developed, which allows you

to describe the decision-making process and its search in an algorithmic form.

When solving problems that contain fuzziness in their formulation and have ambiguity of goals (multicriteria) "maximum income with minimum costs", it is possible to operate with fuzzy input data, namely:

- values continuously changing in time (dynamic tasks);
- values that cannot be set unambiguously (results of statistical surveys, advertising campaigns, etc.).

There is a possibility of a fuzzy formalization of the evaluation and comparison criteria: operating with the criteria "majority", "possibly", "predominantly", etc.; the ability to quickly simulate complex dynamic systems and their comparative analysis with a given degree of accuracy. Using the principles of system behavior described by fuzzy methods, it does not take a lot of time to find out the exact values of variables, compose describing equations and evaluate different variants of output values.

The developed system allows you to build a control model with an unlimited number of input parameters and control blocks and thereby describe the behavior of fairly complex control objects.

Let's consider the construction of elements of a fuzzy expert system. The control algorithm is implemented programmatically using the MATLAB extension package - Fuzzu Logic Toolbox; the assessment of the planned production of footwear is made according to the standards for the removal of footwear from 1 m² of the footwear assembly area and ranges from 0 to 2.8 pairs / m²; shoe price, demand, and market saturation are estimated from 0 to 1 (0 is the worst estimate, 1 is the best).

The system under development has three inputs and one output. Based on well-established customs and intuitive ideas, we will assume that the problem of finding the optimal release is described by the following assumptions:

1. If the demand is low, the price is high and the market saturation is high, the assortment needs to be renewed and the output is reduced to 20-50% of the standard.
2. If the demand is average, the price is average and the market saturation is average, the assortment requires some modification and the output is up to 40-70% of the standard.
3. If the demand is high, the price is low and the market saturation is low, the assortment does not require changes and the output is up to 60-100% of the standard.

The construction of this system is performed using the Mandani inference algorithm.

The structure of the expert system and the resulting set of rules are shown in Figures 9 - 10.

The logical conclusion of any case (Fig. 9) is carried out in four stages: the introduction of fuzziness

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(fuzzification), inference, composition, reduction to clarity - defuzzification.

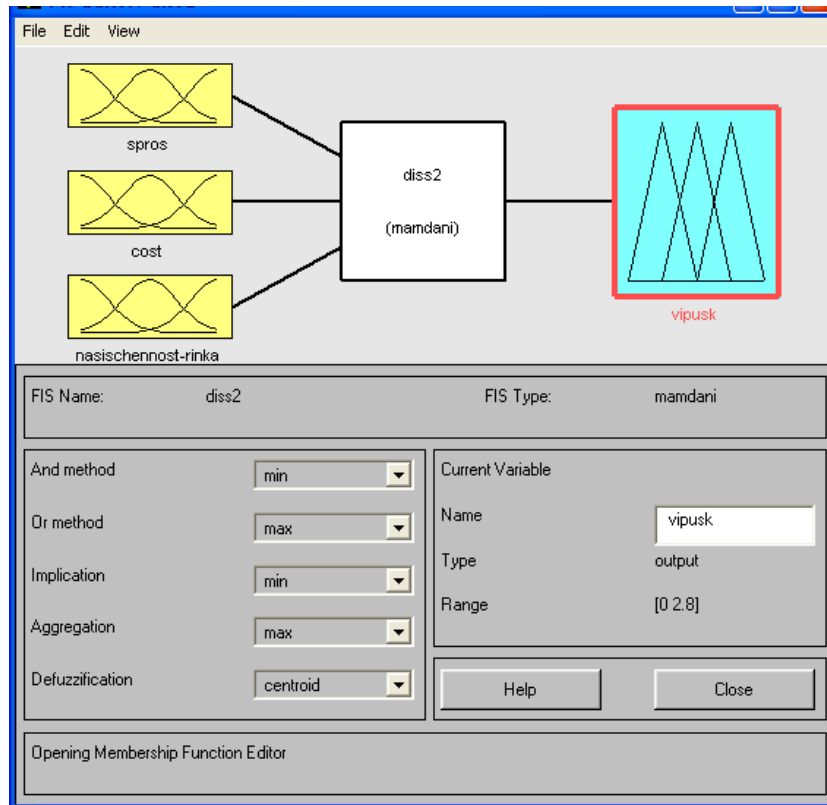


Figure: 9- The structure of the expert system

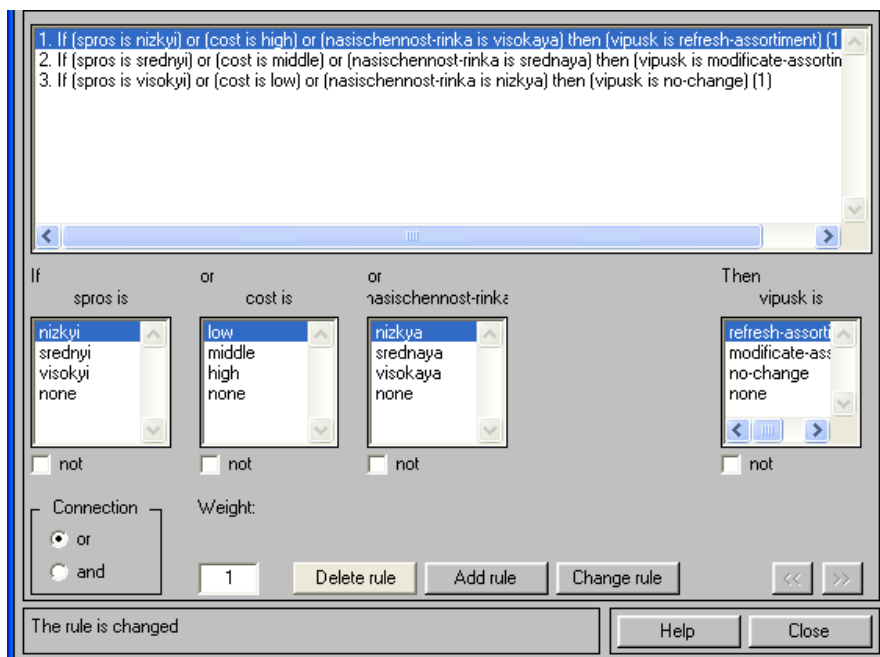


Figure: 10 - Final rule set

For greater reliability of the results obtained when optimizing the total number of shoes produced, depending on the market situation, prevailing prices and demand using modern mathematical methods, it

is necessary to construct a geometric image of the process under study and use it to choose the most rational decision on the volume of output (Fig.11,12) ...

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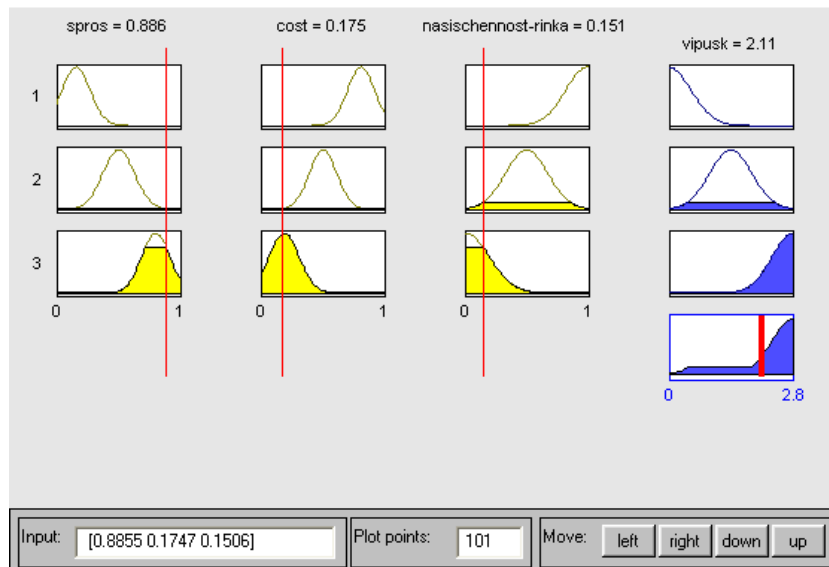


Figure: 11 - Mandani inference routine
 (high demand $S = 0.886$, low price $C = 0.175$, market saturation low $N = 0.151$, estimated output - 2.11 pairs / m2)

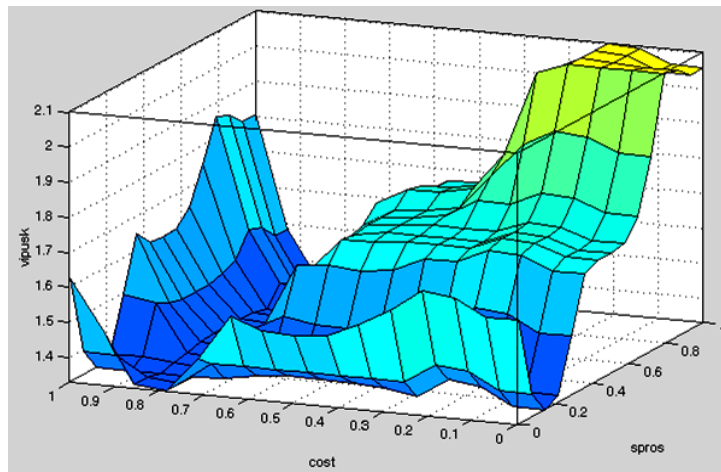


Figure: 12 - Geometric image of the dependence of the estimated output on demand and price with a fixed variable "market saturation" $N = 0.151$

The constructed geometric image of three factors with a fixed value of one factor makes it possible to establish the influence of two other factors on the output volume and to choose an extreme ratio between the number of shoes produced and the value of price, demand and market saturation factors within the

allowed price and marketing constraints. the volume of footwear production with a fixed market saturation at a low level, an enterprise needs to achieve high demand for products and reduce its cost by regulating pricing.

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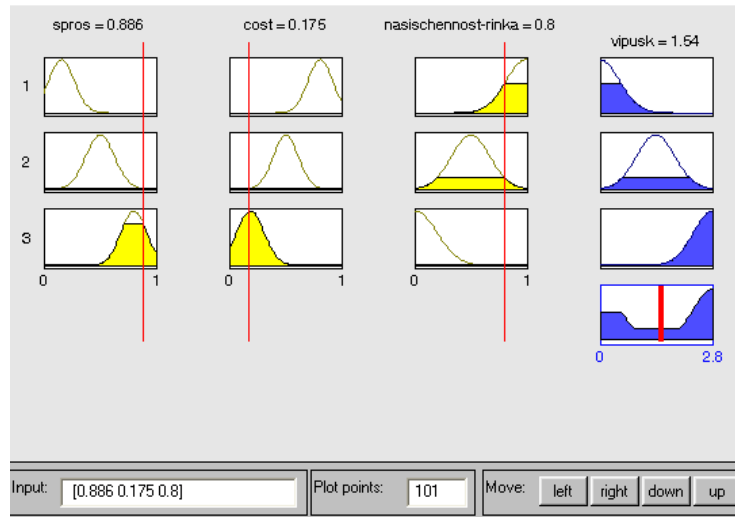


Figure: 13 - Inference procedure according to the Mandani algorithm (demand is high S = 0.886, price is low C = 0.175, market saturation is high N = 0.8, estimated output - 1.54 pairs / m2)

With a high market saturation, the maximum production volume is at 1.4–1.5 pairs / m2 and can be regulated by the introduction of new types of footwear into production. With high cost and low demand for

manufactured models, consideration should be given to reducing production costs through design updates and the use of new materials.

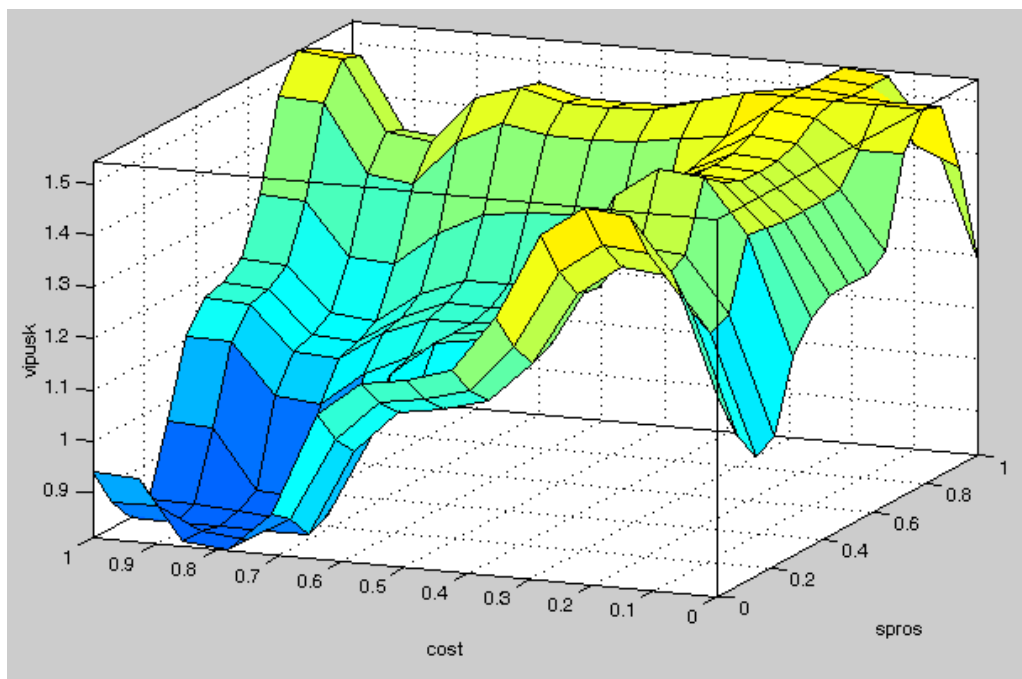


Figure: 14- Geometric image of the calculated output dependence on demand and price with a fixed variable "market saturation" N = 0.8

Determining the production plan in order to maximize the profit from the sale of manufactured products is a linear programming task and is solved using the "Search for a solution" option in Microsoft® Excel. Development of the optimal production plan for shoe models is based on the profitability ratio and production costs of specific models that occupy the greatest share in the cost of production and are

conditionally variable costs. These include the following costs:

- costs of raw materials and basic materials;
- costs of auxiliary materials;
- costs of basic and additional wages of production workers with deductions for the unified social tax.

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Table 1 - Initial data and functional dependencies

	types of products			maximum share in structure cost	maximum value in cost products
	model 1	mode 1 2	mode 1 3		
coefficient of consumption of basic materials per unit of production	0.78	0.75	0.7	0.86	= MIN (\$ B \$ 8: \$ D \$ 8) * E3
coefficient of consumption of auxiliary materials per unit of production	0.04	0.03	0.04	0.05	= MIN (\$ B \$ 8: \$ D \$ 8) * E4
coefficient of expenditure of deductions for labor remuneration of production workers	0.07	0.08	0.06	0.09	= MIN (\$ B \$ 8: \$ D \$ 8) * E5
profitability ratio	0.3	0.2	0.3	0,4	= MIN (\$ B \$ 8: \$ D \$ 8) * E6
cost of 1 pair	1200	1250	1050		
initial values	0	0	0		
target cell	= B8 * B9 + C8 * C9 + D8 * D9				
limitation of main materials	= B3 * B9 + C3 * C9 + D3 * D9				
limitation of auxiliary materials	= B4 * B9 + C4 * C9 + D4 * D9				
limitation of wages	= B5 * B9 + C5 * C9 + D5 * D9				
profit limitation	= B6 * B9 + C6 * C9 + D6 * D9				

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B10		=B8*B9+C8*C9+D8*D9					
	A	B	C	D	E	F	G
1		виды изделий					
2		модель 1	модель 2	модель 3	максимальная доля в структуре себестоимости	максимальное значение в себестоимости продукции, руб.	
3	коэффициент расхода основных материалов на единицу продукции	0,78	0,75	0,7	0,86	903	
4	коэффициент расхода вспомогательных материалов на единицу продукции	0,04	0,03	0,04	0,05	52,5	
5	коэффициент расхода отчислений на оплату труда произв. рабочих	0,07	0,08	0,06	0,09	94,5	
6	коэффициент прибыльности	0,3	0,2	0,3	0,4	420	
7							
8	себестоимость 1 пары, руб.	1200	1250	1050			
9	выпуск, пар	132	1062	5			
10	целевая ячейка	1491150					
11	ограничение "основные материалы, руб."	903					
12	ограничение "вспомогательные материалы, руб."	37					
13	ограничение "оплата труда, руб."	95					
14	ограничение "прибыль, руб."	254					

Figure: 15 - Results of calculating the optimal assortment

Figure: 16 - Entering initial parameters

The price of one pair of shoes, the cost factors in the cost structure, the profitability factor are presented in Table 1, the maximum percentages for the calculation items in the cost of production and the total price of the manufactured product (output) are also

given - the objective function, which should take the maximum value.

As a result of solving the problem for three types of models, the numerical value of the objective function was obtained, namely: the total production

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cost of the entire assortment range of models and the optimal number of produced shoe models.

Justification of the choice of shoe manufacturing technologies

and requirements for the designed technological processes

The beginning of modeling the development of any organizational system is structural modeling, which is necessary to optimize projects (Figure 4.36). For structural modeling of the designed technological processes for the manufacture of a new range of shoes and optimization of existing technological processes, the procedure for preparing technological documentation is considered (Fig. 17).

The main feature of this procedure is that when preparing sets of design technological documentation, it is planned to develop not only promising, but also directive technological processes. Let us consider in more detail the main goals, objectives and differences of such technologies that allow, in the technological part of a reconstruction or technical re-equipment project, to reasonably answer the main questions:

- about new technological solutions;
- mechanization and automation of technological processes;
- the composition of the applied technological equipment, including imported;
- the use of low-waste and non-waste technological processes;
- the use of more progressive transport and technological schemes for the movement of packaged goods;
- new methods of technical control and testing of products;
- minimization of production waste, emission of harmful substances;
- determination of the composition of production processes for waste disposal.

In addition, a set of design technological documentation, promising and directive technological processes allow you to answer other important questions:

- on the calculation of fuel and energy and material balances of technological processes;
- assessing the need for basic types of resources for technological needs;
- labor input, machine input and maintenance output;
- calculations of the number of pieces of equipment, areas, number of employees;
- execution of drawings of technological layouts and equipment layouts.

Let's characterize the essential content and distinctive features of the technologies used in projects. Let's start this analysis with the definitions of the concepts of "project", "prospective" and "directive

technological process". They are defined in the Unified Process Documentation System as follows.

1. A promising technological process is a technological process corresponding to the modern achievements of science and technology, the methods and means of implementation of which, in whole or in part, have to be mastered at the enterprise. 2. A set of directive technological documentation is a set of sets of documents for individual technological processes necessary and sufficient for carrying out preliminary enlarged engineering, organizational and economic tasks, when deciding on the launch of new products into production in relation to the conditions of a particular enterprise.

3. A set of design technological documentation is intended for use in the design or reconstruction of an enterprise. Working technological processes, ie technological processes carried out according to working technological and (or) design documentation during reconstruction and (or) technical re-equipment should be revised and replaced by new, more advanced technologies.

In the technological document flow diagram (Fig. 4.38), in accordance with the Unified System for Technological Documentation (ESTD), the following rules for the use of sets of technological documentation are adopted, which are linked to the stages and stages of design preparation for production.

In a typical shoe manufacturing technology, there are ready-made recommendations for performing the operations of making shoes for some of the most common types. However, in practice, there are often cases when it is required to develop a new technological process for making shoes, choose the most effective from the existing set of technological processes, or perform a comparative analysis of technologies at the cost of making shoes. All this is especially important in modern conditions of meeting market demand with a frequently changing assortment of shoes, the emergence of new types of shoe machines, technologies, forms of organization of production, etc.

Each production process is considered either as a set of changes that the objects of labor undergo, or as a set of actions of workers aimed at an expedient change in the objects of labor. In the first case, they talk about the technological process, in the second - about the labor process.

The technology determines the structure of the technological process, which allows, if necessary, to divide the main and auxiliary operations into elementary ones.

Given the variety of technologies, equipment, characteristics and types of raw materials, the organization of shoe production with a wide range of products, it is advisable to combine shoe assembly operations into the following groups:

- preparatory operations preceding molding;
- molding the upper blank on the last;

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- processing of a tightened shoe upper;
- attaching details of the bottom of the shoe;
- finishing of shoes.

A detailed description of these groups by operations is presented in the diagrams (Fig. 4.39–4.43).

Table 4.3 shows a generalized technological process for assembling shoes, a list of equipment and its characteristics.

At the present stage of economic development, technology has acquired particular importance in concretizing the strategy of resource consumption, reducing their scarcity, and increasing the efficiency of their use.

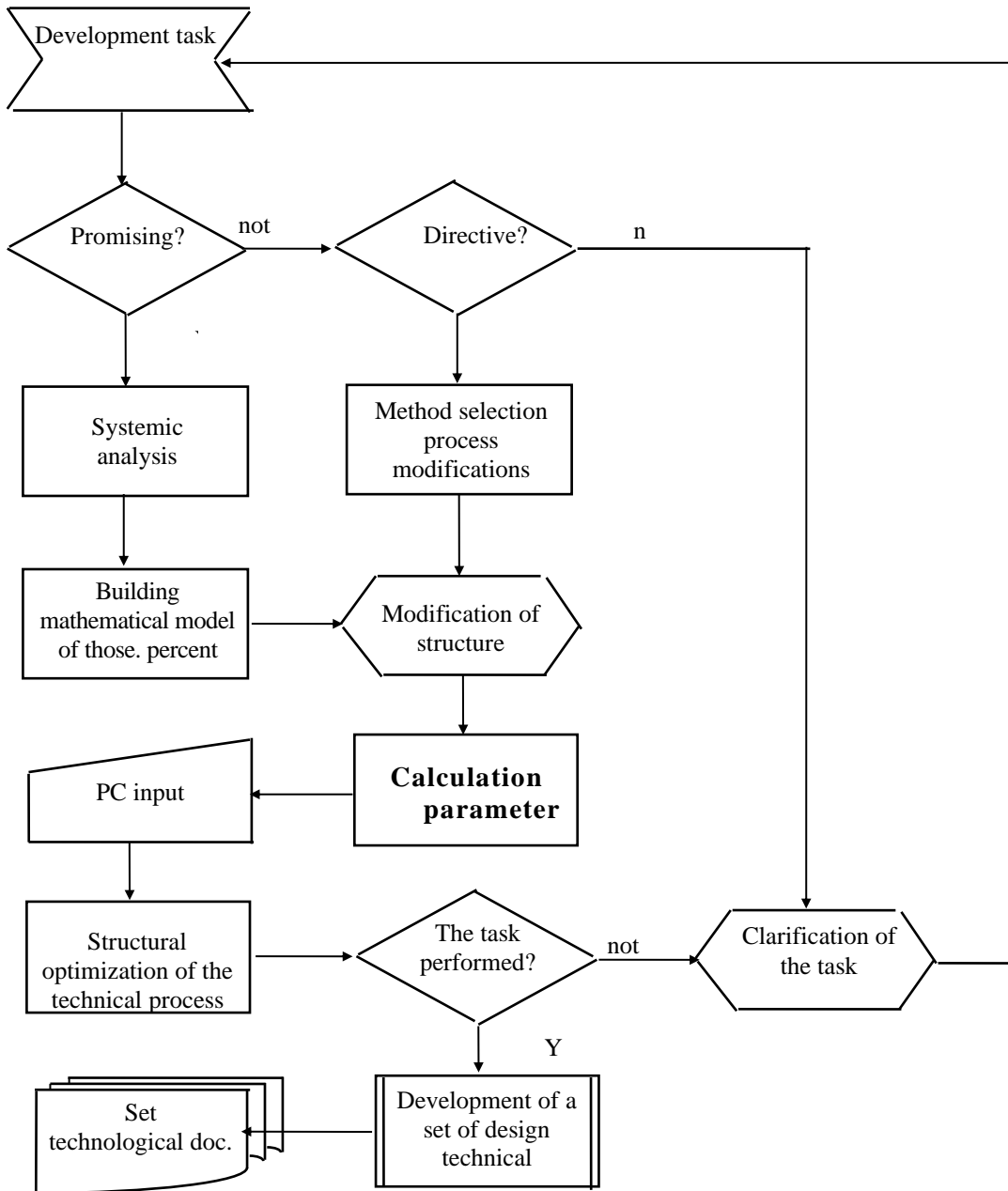


Figure: 17 - Information and functional design diagram technological processes

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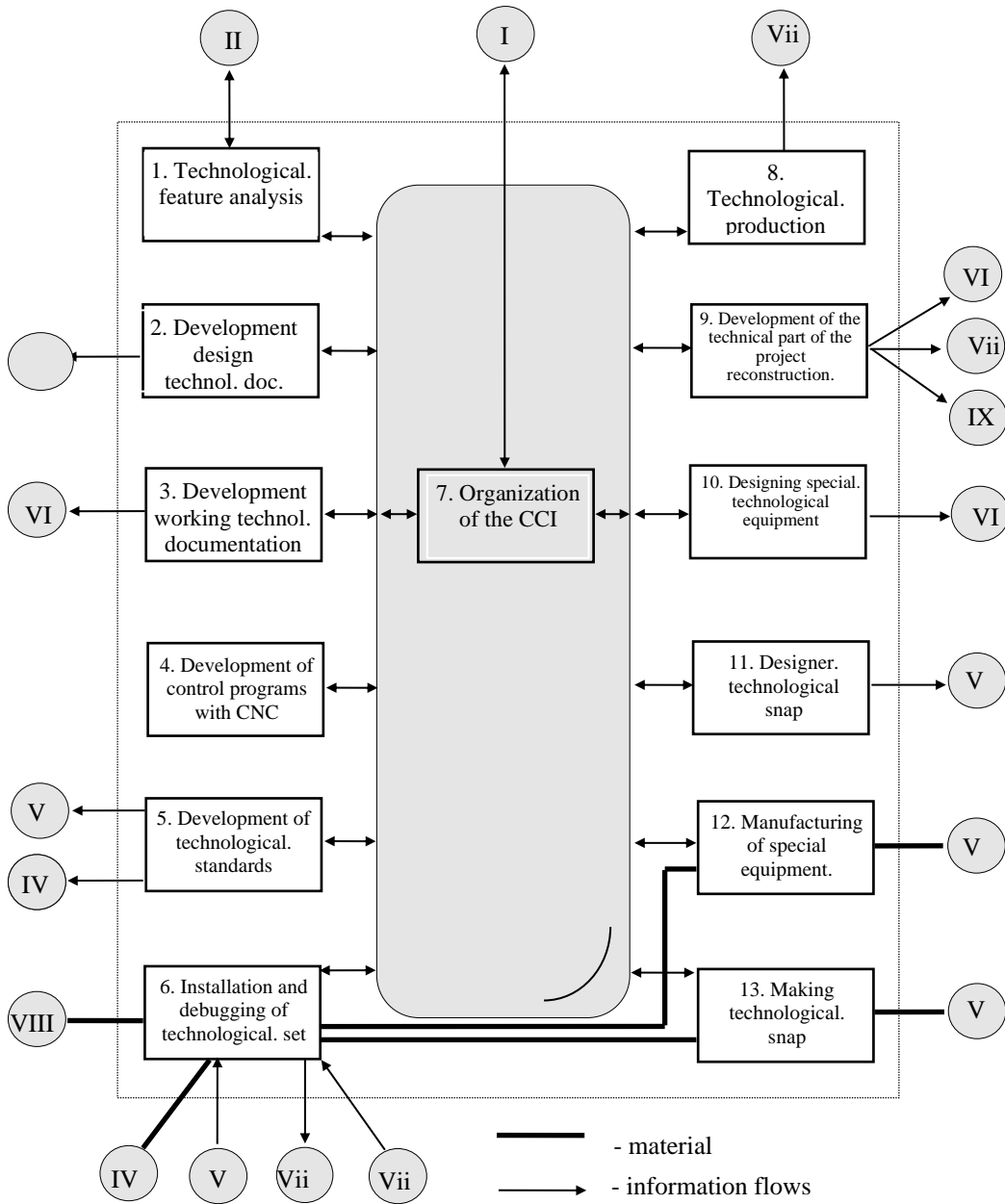


Figure:18 - Block diagram of the functions of technological preparation of production

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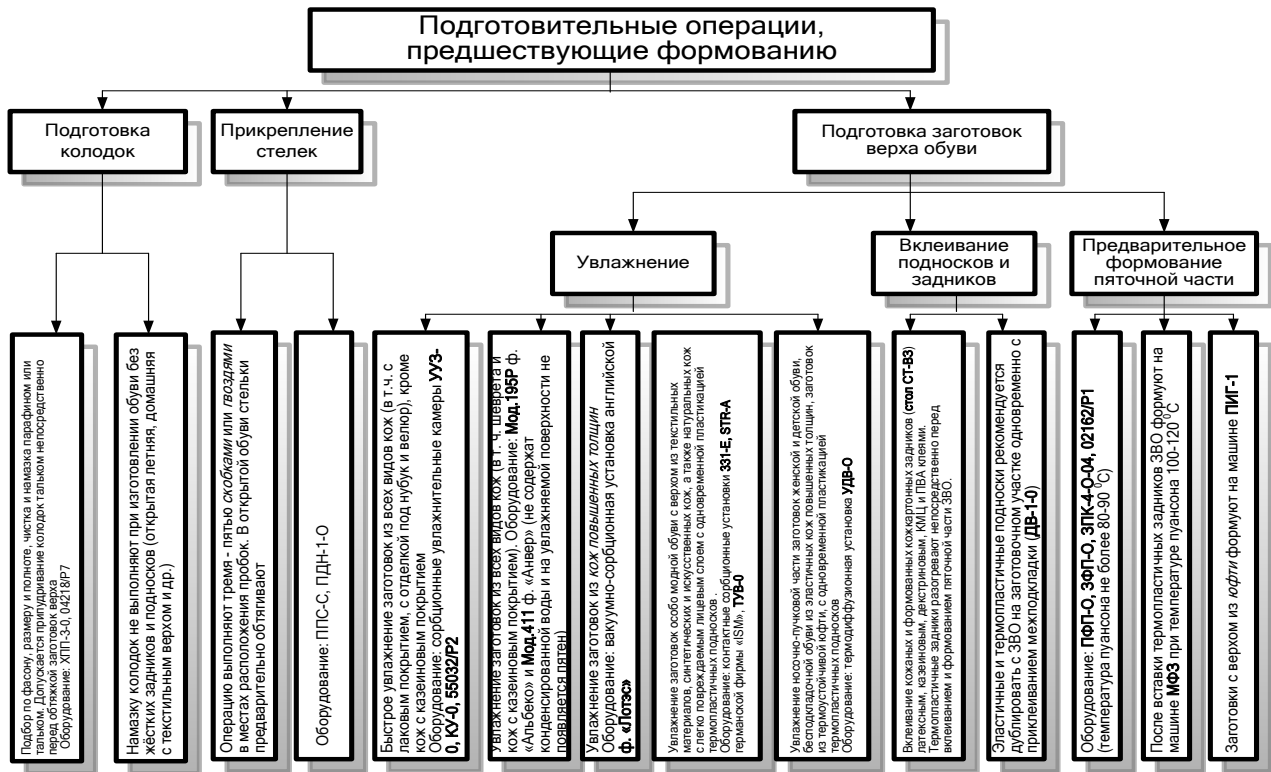


Figure 19 - Preparatory operations prior to forming



Figure: 20 - Molding operations of the shoe assembly technological process

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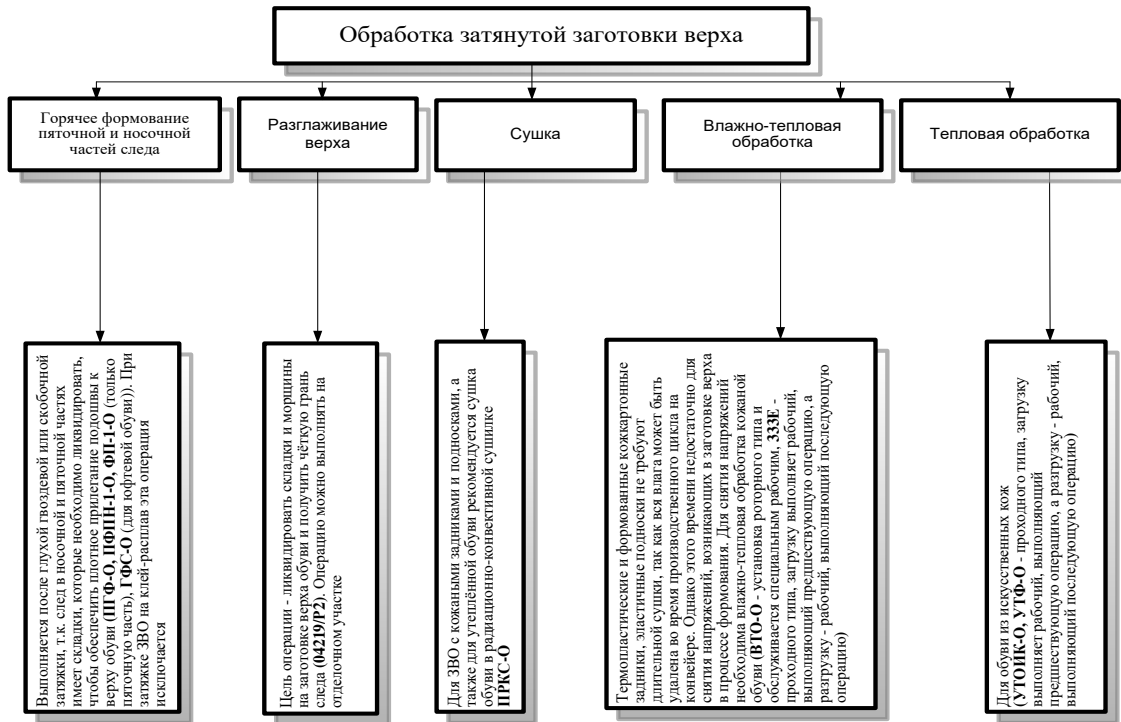


Рис. 3.41. Операции фиксации формы ЗВО технологического процесса сборки обуви

Figure: 21 - Operations for fixing the form of the ZVO of the shoe assembly technological process

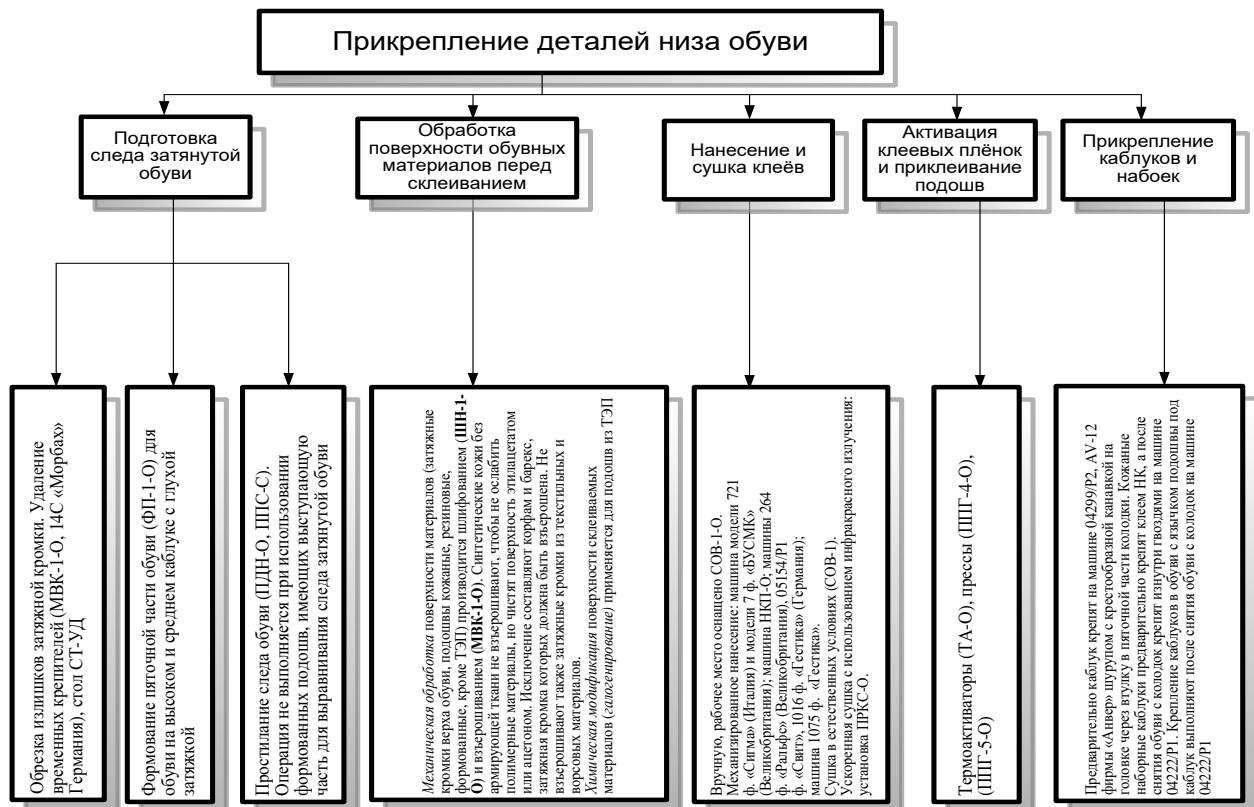


Figure: 22 - Periods of attaching details of the technological process of shoe assembly

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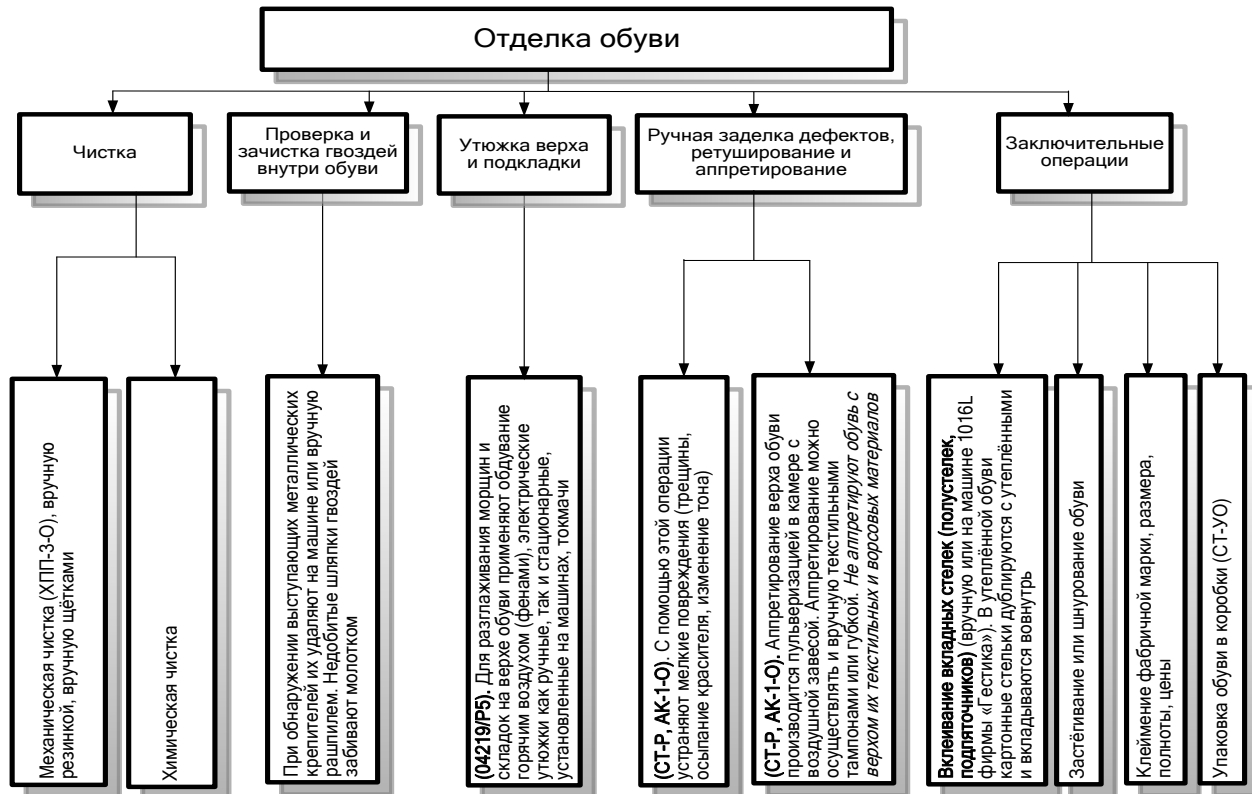


Figure: 23 - Finishing operations of the shoe assembly technological process

Table 2 - Generalized technological process of shoe assembly

N o.	the name of the operation	Discharge		Time rate, min (mash / manual)		Production rate, steam (machine / manual)	amount workers, people	Equipment	Capital investments for equipment, rubles	Area, occupied (sq.m)	Power engine	Performance equipment
		m	R	m	R							
1	2	3	4	5	6	7	8	9	10	11	12	13
1.	Launching blanks on the conveyor	2		0.33		1454.55	0.55	conveyor	500,000	57,360	1.1	150
2.	Moistening the workpiece	3		0.14		3428.57	0.23	URP / 2	150,000	1.603	26.12	
3.	Attaching the insoles to the last	2		0.28		1714.29	0.47	10/11 / C	250,000	0.720	0.5	250
4.	Spreading talcum powder		2	0.55		872.73	0.92	ST-B		0.360		96
5.	Toe insertion, overlap and pre-molding of the toe section of the ZVO with thermoplastic toe cap	3		0.59		813.56	0.98	02253 / P1	254000	0.265	0.3	250
6.	Bonding leather-cardboard backs		2	0.62		774.19	1.03	ST-VZ		0.507		175
7.	Pre-molding of the heel	3		0.60		800.00	1.00	02021 / P2	168000	1,360	five	150
8.	Insertion of thermoplastic heels and	3		0.94		510.64	1.57	G504CF	110,000	0.5670	1,2	350

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	pre-molding of the heel of the ZVO											
9.	Putting the workpiece on the last and installing the heel	4		0.44		1090.91	0.73	02015 / P5	250,000	0.598	0.23	270
10.	Tightening and tightening of the toe-bundle part of the ZVO with preliminary moistening and plasticization of the sock	6		0.62		774.19	1.03	K73STIK	1576800	1,436	5.5	90
11.	Tightening the glue part with hot melt glue with templates	6		0.46		1043.48	0.77	01211 / P1	1,200,000	1.011	7	270
12.	Heel tightening	4		0.39		1230.77	0.65	640 C	1,150,000	0.861	1.5	90
13.	Tightening the nose-beam part of the ZVO with melt glue	6		0.39		1230.77	0.65	PAL-G	1,500,000	1,500	4.86	140
14.	Tightening of the heel with tex and the heel with hot melt glue	6		0.39		1230.77	0.65	PIC K 24SZ, Cerim	1,851,000	1,715	5.5	120
15.	Covering ZVO		fi ve	1.73		277.46	2.88	ST-R		0.360		
16.	Glueing the lingering edge and insoles with glue, drying		2	0.54		888.89	0.90	ST-R		0.360		
17.	Heel tightening		4	8.00		60,000	13.33	ST-R		0.360		
18.	Hauling bundles and stretching		4	2.83		169.61	4.72	ST-R		0.360		
19.	Tightening the toe-beam part of the ZVO		4	9.90		48.48	16.50	ST-R		0.360		200
20.	Tightening the gel part of the ZVO		4	2.92		164.38	4.87	ST-R		0.360		113
21.	Wet-heat treatment of shoes	2		0.80		600.00	1.33	wet heat treatment chamber "Granucci"	142840	1,766	27.9	200
22.	Hot air wrinkle removal	2		0.83		578.31	1.38	04219 / P5	154740	0.353	0.18	113
23.	Removing staples or tex from insoles		2	0.36		1333.33	0.60	ST-UD		0.992		130
24.	Hot molding of footprint	2		0.91		527.47	1.52	04286 / P22	140350	0.671	2.7	125
25.	Trimming and tufting excess trailing edge, dust removal	3		0.64		750.00	1.07	automatic K71S	165000	0.855	2.7	240
26.	Attaching the shank	2	2	0.51		941.18	0.85	02015 / P5	105000	0.299	0.7	175
27.	Forgiveness of the footprint	2	2	0.81		592.59	1.35	02015 / P5	105000	0.299	0.7	150
28.	First glue on the tightening edge, drying	2		0.87		551.72	1.45	02068 / P4, COB	127900	2,582	2.7	150

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29.	Second spreading with glue on the tightening edge, drying	2		0.87	551.72	1.45	02068 / R4, PRKS-O	173900	4.442	15.38	125
30.	Treatment of the slow surface of the soles	3		0.89	539.33	1.48	MVK-1-O	174700	0.671	2.7	one hundred
31.	Solvent treatment of non-running soles (halogenation)	2		0.30	1600,00	0.50	A200 / D	100,000	0.661	0.08	
32.	Glue soles (soles and heels)	2		1.30	369.23	2.17	car 1066 "Fortuna " German y	80,000	0.671	2.7	300
33.	Thermal activation of adhesive films	4		0.94	510.64	1.57	133, Italy	130,000	0.528	0.16	125
34.	Bonding soles and heels	4		0.93	516.13	1.55	press AS 1800K	127000	0.280	0.16	150
35.	Cooling shoes	3		0.50	960,00	0.83	refrigera tor compart ment FR3200	198000	0.409	4,3	75
36.	Milling the edge of the sole (lateral surface of the heel)	6		1.39	345.32	2.32	04105 / P6	58500	0.657	2.2	75
37.	Attaching heels	2		1.89	253.97	3.15	ST-B		0.360		
38.	Milling heels	3		0.47	1021.28	0.78	04105 / P6	58500	0.657	2.2	75
39.	Sanding the edge of the soles and the side of the heel	3		1.91	251.31	3.18	04059 / P1	95000	0.528	0.75	138
40.	Sanding soles	3		1.81	265.19	3.02	04059 / P1	95000	0.533	0.75	138
41.	Cleaning the top and bottom of shoes	2		0.87	551.72	1.45	04207 / P1	84790	0.650	1.9	198
42.	Removing shoes from the last	3		0.54	888.89	0.90	1200, Italy	186000	0.459	1.1	250
43.	Attaching the plastic heel from the inside	4		0.77	623.38	1.28	04222 / P1	238740	0.440	0.42	250
44.	Checking and cleaning nails inside shoes	2		0.50	960,00	0.83	device PES-R		0.360		
45.	Bonding of heels and insoles	2		0.58	827.59	0.97	car 1066 "Fortuna " German y	80,000	0.671	2.7	300
46.	Inserting insoles	2		0.32	1500.00	0.53	ST-B		0.360		
47.	Hand finishing shoes	fi ve		0.83	578.31	1.38	ST-B		0.360		
48.	Lacing, fastening finished shoes	2		0.65	738.46	1.08	ST-B		0.533		
49.	Shoe packaging	2		0.44	1090.91	0.73	ST-UO		0.533		

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The output parameters of the technological process of shoe manufacturing are described by complex multifactorial dependencies and are influenced not only by deterministic, but also by random parameters and their interconnections, therefore, the technological processes of shoe

assembly were chosen as the object under study as the most theoretically and experimentally studied, the most acceptable for setting and solving the problem of forming and evaluating the effectiveness of an agile workflow.

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SIRAJ AL-DIN USHI'S TEACHERS ON HADITH

Abstract: *The science of hadith is an important part of the field of Islamic studies, in which the words, verbs, affirmations, and qualitative messages attributed to Muhammad (pbuh) are studied. Scholars of the Movarounahr region are the leaders in the study of hadiths, and the first reliable collection of hadiths is the Sahih of Imam Bukhari, written in the ninth century. The tradition of writing hadith collections continued in the twelfth century. In particular, the collection of hadiths "Nisab al-Akhbar" written by Fergana scholar Siraj al-din Ushi has collected valuable information about the field, especially about the teachers who learned hadith from them. This article is based on Siraj al-din Ushi's Nisab al-Akhbar and about his teachers.*

Key words: Hadith, fiqh, Nisab al-akhbar, hanafi, Ferghana, Semarkand, Bukhara, Fatawa al-sirajiyya.

Language: English

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Introduction

Siraj al-din Ushi Fergani, is leading scholar in the fields fiqh and poetry, the author of the book "Bad' al-Amaliy" and which for several centuries has been an important guide to the beliefs of Muslims in the traditional madrassas of religious education in Central Asia. His works on Hanafi jurisprudence include Fatawa, Jawami al-Ahkam, Sharh Manzuma an-Nasafiyya, Gurar al-Akhbar and Nisab al-Akhbar. The full name of the scholar is Abu Muhammad or Abulhasan 'Ali ibn 'Uthman Ushi and his nickname is Siraj al-din [4, p. 1200]. There is no information about the date of birth of 'Ali ibn 'Uthman Ushi. The date of death of the faqih is 575/1179 [13, p. 367].

Siraj al-din Ushi's scientific legacy in the field of hadith can be found in the book Nisab al-Akhbar. The play contains valuable information about the author's method of quoting hadiths, a series of teachers who received an "ijazah" in the science of hadith, and the sources used by Ushi in writing the book.

The role of "Nisab al-Akhbar" in the study of the legacy of Siraj al-din Ushi in the science of hadith

Nisab al-Akhbar is a short form of Ghurar al-Akhbar. The scholar says about this in the collection of Nisab al-Akhbar: Unfortunately, Gurar al-Akhbar has not reached us. Tahqiq, modern editions of his manuscripts of the work prepared by the researcher Mehmet Sait Toprak According to the report, "Gurar al-Akhbar", is difficult to take advantage of its large size and reduced due to the selection of the author's work in the hadith and through which he brought it into a form that could be understood by the common people [18, p. 504].

This work is a collection of hadiths that come from mystical themes and the virtues of things. The author relied on fifteen hadith sources in compiling it (11, pp. 3-5). In Nisab al-Akhbar, along with the authentic hadiths, there are also weak and mawdu hadiths. This is because the author has compiled the hadiths in the play not based on jurisprudential themes, but based on themes such as mysticism and various virtues. Therefore, he narrated a series of authentic and weak hadiths that could not be judged from them. In fact, Ushi is one of the mujtahid faqihs whose fatwas are widely used in the Hanafi School. The scholar has studied in depth the methods of

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judging from the hadiths. He emphasizes that the purpose of quoting unruly hadiths is to encourage the seeker of knowledge to morality [12, p. 602]. For this reason, the author focuses not on the isnad of the hadiths in the work, but on the topics covered in them.

Scientist used the main points in the game unit on the basis of the Arabic letters instead of symbols from the preamble of the work. According to him, “ع” points to the work of Muhammad Marwazi’s “Iqna”, “ت” to the work “at-Tanbih”, “ج” to Imam Tirmidhi’s “al-Jami”, “ز” to Zandavisti’s “Rawza al-Ulama”, “س” and “ص” to the “Sahih of Imam Bukhari”, “ط” to Qazi Tusi’s “Tabaqat”, “ن” to “Uyun al-masail”, “ا” to Abu Abdullah’s “Gharib”, “ف” to “Firdavs al-akhbar”, “ل” to “al-Lu’luyyat”, “م” to the “Musnadu Anas” written by Ushi himself, “و” to the work of Wasiti’s “Matnu al-Wasiti”, “ك” to “Kanz al-Akhbar” and “ي” to Ahmad ibn Abdullah Haffaf Sarakhsi’s “Kitab al-Yawaqit” [11, p. 3].

Comments on Nisab al-Akhbar include Mashariq al-Anwar’s commentary on Nisab al-Akhbar, Sawaqib al-Akhbar, and Yawaqit al-Akhbar. However, it is assumed that these interpretations belong to Siraj al-din Ushi himself [12, p. 18].

Siraj al-din Ushi’s teachers on hadith

The importance of this book can be seen in the author description of his teachers on the science of hadith. Through the study of these series, one can learn about the development of the science of hadith in Movarounnahr in the XI-XII centuries, as well as about the scholars who directly studied the hadiths of Ushi, up to the author of the narrated sources.

Except “Nisab al-Akhbar” there is no information about his teachers. Only in his work “Fatawa” in one place, he mentions about one of the famous Fuqaha Nasir al-Din Muhammad ibn Yusuf Samarkandi as a “Teacher,” [12, p. 29]. Since the biography of Ushi is not widely covered in the works of Manoqib and Tarajum, some modern researchers recognize the above-mentioned scholar Nasir al-Din Muhammad ibn Yusuf Samarkandi as the only known teacher of Siraj al-din Ushi. In particular, a research co-authored by Kemal Yildiz and Jarqinbay Sebetov lists Nasir al-din Samarkandi as the sole known teacher of Ushi [8, p. 54]. However, without agreeing with this conclusion, we would like to point out that there is information that Siraj al-din Ushi was educated by many scholars in the field of hadith and other fields.

In addition to Nisab al-Akhbar, Siraj al-din Ushi narrated about 300 hadiths from Anas ibn Malik in two ways: Nasir al-Din Muhammad ibn Suleyman and Abdullah ibn ‘Umar ibn Sa’d at-Talqani in his Musnad Anas ibn Malik. [5, pp. 39-40]. In these two works, in the process of quoting the hadiths, he mentions the names of the narrators who heard the hadith. Therefore, it can be concluded that Ushi heard hadiths from many narrators when he became a muhaddith

scholar and that his teachers in this field constituted the majority.

While commenting on the authors books included in the preface of Nisab al-Akhbar, Ushi, he also lists their narrations one by one. If it is accepted that the last narrator received the permission of the narrator based on that book of hadith, or that the narrator heard the book of hadith in the presence of his teacher, and then these narrators can be recognized as the teachers of Ushi. However, since the identities of the narrators mentioned by Ushi have not yet been fully studied, it is not yet known which of them had sufficient knowledge in the science of hadith. This issue is one of the research works that needs to be studied in the course of covering Siraj al-din Ushi and his activities in the science of hadith, and it is expedient to dwell on this information in more future research.

Along with the study of Siraj al-din Ushi’s teachers, it is also possible to form a map of the cities on which he organized his journey on the path of knowledge. Therefore, it is appropriate to enumerate the great muhaddith teachers who were educated in the science of hadith by the faqih based on the classification of cities. From Alauddin Abul Mahamid Muhammad ibn Abdulhamid Samarkandi (d. 552/1157) Ushi narrated “al-Jami al-Sahih of Imam Tirmidhi” (d. 279/892) and from Nasir al-Din Muhammad ibn Yusuf of Samarkandi (d. 556/1161) he narrated three books: Ibn Yahya Bukhari Zandavisti’s (d. 400/1010) “Rawza al-Ulama”, Muhammad ibn Ahmad Marwazi’s “al-Iqna” and Abu Ubayd Qasim ibn Salam al-Baghdadi’s “Gharibu Abu Ubayda” [11, 1173, pp. 2-5]. The scholar also used the jurisprudential views of Nasir al-Din Samarkandi in many places in the Fatwa, quoting his master’s works al-Multaqot fi al-fatovo al-Hanafiyya and al-Jame ‘al-kabir fi al-fatwa [12, pp. 29, 33, 83, 96].

Scholars from Nasaf

Abu Thabit Hasan ibn ‘Ali Pazdawi (d. 557/1161) and Abul Qasim Mahmud ibn ‘Ali al-Nasafi (d. 555/1160) were among the Nasaf teachers of ‘Ali ibn ‘Uthman Ushi. There are contradictions in the works of Abu Thabit Pazdawi about his personality. Mansur ibn Ghulam Nahlawi, in his “Tabaqat ruwat al-hadith bi Khurasan fi al-qorn al-khamis”, overcame this contradiction and named Abu ‘Abid Pazdawi in Sam’ani’s al-Ansab. ‘Ali ibn Muhammad al-Nasafi mentions that he was Pazdawi and gives several proofs of this [10, 2004, p. 405]. According to Abdulkadir Qurashi, Abu Thabit Pazdawi was born in Samarkand. After the death of his father, his uncle Qazi Abul Yusr took him to Bukhara and took him into his care. For this reason, Pazdawi became a leading scholar in the hands of the sheikhs of Bukhara and for some time lived in Merv. After the death of his cousin, Qazi Abul Ma’ali Ahmad ibn Abul Yusr, he was elected judge of Bukhara, and

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some time later he moved to the village of Pazda near Nasaf, where he lived until his death (d.557 / 1161) [13, p. 468].

Ushi studied from Abu Thabit Pazdawi Abu Abdullah Tahir Marwazi's (d.410/1019) "Uyûn al-Majalis" and Abu Muti 'Makhul Nasafi's (d.218 / 833), "al-Lu'lu'iyot" works [11, p. 3]. Since Abu Thabit Pazdawi lived in different cities, it is difficult to guess where Siraj al-din Ushi studied under this teacher. However, given the fact that Pazdawi was engaged in science during his stay in Samarkand, there is no information about his activities in Merv, and he moved to the village of Pazda at the end of his life, his teacher from Osh Pazdawi during his judicial career in Bukhara and it can be concluded that he was educated there.

Abul Qasim Mahmud ibn 'Ali Nasafi was scholar Ushi's another teachers. He was the author of Abul Lays Samarkandi's (v. 373/983) "at-Tanbeh al-Ghafilin" and Shiruya ibn Shahrador Daylami's (v. 373). 509/1115) studies Firdavs al-akhbar bi masur al-khitab and Muhammad ibn Bishrovayh Balkhi's Kanz al-akhbar [11, p. 3]. According to Sam'ani al-Ansab, Abul Qasim Nasafi was one of the great hadith scholars who lived in Samarkand, and in his time the people of Samarkand referred to him in the science of hadith [15, p. 123]. According to Mansur Nahlawi, Abul Qasim Nasafi lived in Samarkand for a long time, where he died in the month of Sha'ban, 555 AH [10, p. 435]. According to this information, it is appropriate to conclude that he met with the teacher of Ushi Abul Qasim Nasafi in Samarkand.

Scholars from Bistam

Ali ibn 'Uthman Ushi studied Shihab al-Ahbar by Imam Bukhari (d. 256/870) from Qazi Zuhruddin Abul Qasim 'Ali ibn al-Hasan Bistami [11 p. 3]. No information about the life and work of this genius was found in the sources as a result of research. There is no information in the Nisab al-Akhbar that Ushi received permission from Qazi Abul Qasim Bistami for Shihab al-Akhbar, except for the author's own statement. Jarkinbay Sebetov of Kyrgyzstan and Kamol Yildiz, a Turkish researcher, cite Abul Qasim Bistami's father's name as "Hussein" and mention that Ushi met his teacher in Bistom [8, p. 504]. However, in Nisab al-Akhbar, the author mentions the name of his mentor as Qazi Abul Qasim 'Ali ibn Hasan Bistami [11, p. 4]. For this reason, it should be noted that the conclusion reached by the above researchers is not valid. Since no information has been found about this teacher of Ushi, it is difficult to give a definite opinion as to where the faqih learned from him.

Scholars from Ferghana valley

Among the scholars who grew up in the Fergana Valley and who were of Siraj al-din Ushi's teachers and were educated in his native Fergana can be listed as Abul Mahosin Zahiruddin Kabir Hasan ibn Ali Marghinani, Abu Abdullah Muhammad ibn Suleyman

Ushi and Sayfuddin Muhammad ibn Muhammad Khojandi. It should be noted that Zahiruddin Marghinani is undoubtedly one of the leaders in science among the teachers of Siraj al-din Ushi. This teacher of the scholar is one of the sons of Ali ibn Abdulaziz Marghinani, known as "al-fuzalo sitta". Zahiruddin Marghinani studied jurisprudence in Bukhara from Abdulaziz ibn Umar ibn Moza, the father of Sadr sa'id Ahmad Mutaqaddim, and Shamsulislam Mahmud Uzgendi, the grandfather of Fakhruddin Qazikhan. Shamsulislam Mahmud Uzgandi is one of the leading students of Imam Sarahsi. In al-Fawaid al-Bahiyya, Abdulhay Laknavi, in compiling a series of Fakhruddin Qazikhan's teachers, links him to Imam Muhammad, a disciple of Abu Hanifa, through Shamsulislam Mahmud Uzgandi [9, p. 62]. Based on the above information, it is possible to compile a series of Siraj al-din Ushi's fiqh teachers, considering that Zahiruddin Marghinani was also educated by Shamsulislam Mahmud Uzgendi. This is because Siraj al-din Ushi referred to Zahiruddin Marghinani's fatwas in many places when writing his Fatawa [12, pp. 204, 216, 232]. Hence, the series of Siraj al-din Ushi in Hanafi jurisprudence reaches Imam Muhammad Shaybani through Zahiruddin Marghinani. Ushi also studied Sahih Bukhari in the presence of this teacher [17, p. 149].

Abdulhay Laknavi wrote about Zahiruddin Marghinani: "He was a jurist and muhaddith who spread knowledge through spelling and classification, and wrote the books al-Aqziya, al-Shurut, al-Fatawa, al-Fawaid, and others." [9, p. 62]. However, in Khairuddin Zirikli's (1893-1970) "Alam" it is stated that the work "al-Fawaid" did not belong to Zahiruddin al-Kabir Marghinani, but to the Bukhara jurist Zahiruddin Abu Bakr Muhammad ibn Ahmad ibn Umar Bukhari (d. 619/1222) writes [20, p. 320]. German researcher Karl Brokelman echoes this view, noting that al-Fawaid mentioned in al-Fawaid al-Bahiyya belongs to Bukhari, but that al-Fatawa was written by Zahiruddin Marghinani [2, p. 246].

It should be noted that Burhanuddin Marghinani, along with the author of the book "Khulasa al-fatawa" Iftikharuddin Tahir ibn Ahmad ibn Abdurashid, received permission from his cousin Zahiruddin Marghinani on "Sunani Termizi" [14, pp. 256, 273]. About this Burhanuddin Marghinani's student Burhanulislam Zarnuji mentions and praises Zahiruddin Marghinani in his "Ta'lim va al-muta'allim tariq at-ta'allum" as "the Mufti of al-umma" (the Ummah) [19, p. 71]. Fakhruddin Qazikhan is also a student of Zahiruddin Marghinani [13, p. 466]. Based on these sources, it can be known that Zahiruddin Marghinani was a mentor to Fakhruddin Qazikhan, Siraj al-din Ushi, Burhanuddin Marghinani and Iftikharuddin Tahir ibn Ahmad, respectively. Unfortunately, there is no clear information on when and where these students were trained by their

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teachers. However, due to the fact that all of the above students of Zahiruddin Marghinani were from Fergana and they were equal in terms of age, in the early period of their scientific activity it can be assumed that they studied from Zahiruddin Marghinani in the city of Marginan in the Fergana Valley.

Siraj al-din Ushi in his hadith collection "Musnad Anas bin Malik", one of the teachers reported is Abu Abdullah Muhammad bin Suleyman Ushi [11, p. 4]. There is not enough information in the sources about the identity of Muhammad ibn Sulayman Ushi. Nevertheless, the Turkish researcher Yusuf Ziya Kavakchi wrote that the year of his death was 592/1195 [7, pp. 129-130]. Kyrgyz researcher Jarkinbay Sebetov argues that Yusuf Kavakchi's conclusion is based on the fact that Kinalizada's *Tabaqat al-Hanafiyya* mentions the year of Muhammad Ushi's death along with the death of Fakhruddin Qazikhan (d. 1196), but this view is incorrect [16, p.68; 4, p.125]. As a result of the research, it is known that the conclusion of the researcher Jarkinbay Sebetov is valid, as no information about the death of the scientist was found.

Given that Siraj al-din Ushi's full name is 'Ali ibn 'Uthman ibn Muhammad, Muhammad Ushi can most likely be called the paternal grandfather of this faqih. Although the sources do not mention the relationship between the two scholars, Siraj al-din Ushi reported in *Nisab al-Ahbar* that he narrated some of the hadiths from Muhammad ibn Sulayman Ushi in the *Musnadu Anas ibn Malik* and Abu Bakr Muhammad bin Abu 'Ali al-Khulusi's "*Kitab at-Tabaqat*", was his grandfather [11, p. 4).

Burhanuddin Marghinani also mentioned Muhammad ibn Sulayman Ushi as one of his teachers in his *Mashyaha al-Fuqaha*, and called the scholar Shaykh al-Islam, Nasruddin, and Ahad az-Zuhhad (one of the ascetics) [14, p. 256]. This means that Burhanuddin Marghinani and Siraj al-din Ushi were students who were educated by Muhammad ibn Suleyman Ushi in addition to their contemporaries, Zahiruddin Marghinani, and that the Ushi's family were mujtahid jurists, such as the Marghinani.

In Kinalizada's *Tabaqat al-Hanafiyya*, Zahiruddin Marghinani and Ibrahim ibn Ismail Saffar (d. 534/1139) were the mentors of Muhammad ibn Suleyman Ushi [4, p. 98]. Considering the fact that Siraj al-din Ushi and Burhanuddin Marghinani were educated by Zahiruddin Marghinani and, as noted in Kinalizada, that Ushi's grandfather also learned from Zahiruddin Marghinani, Muhammad ibn Sulayman Ushi's life it can be seen that he did not stop studying in his last years.

Information about the years of birth and death of Muhammad ibn Suleyman Ushi is not found in any

source other besides Kinalizada's book. According to Yusuf Kawakchi, Muhammad Ushi died in 1195 [6, p. 130]. However, this idea suggests that he died in 1173, twenty-two years after his grandson Siraj al-din Ushi, who is known to have died. It can be said that this conclusion is not logically correct. Because, according to Katib Chalabi, Siraj al-din Ushi was born between 490-500 / 1096-1106 and lived for about 80 years [3, p. 1200]. It turns out that Burhanuddin Marghinoni, born in 1118, was about twenty years younger than Ushi. Therefore, it is far from the truth that Muhammad Ushi died at the age of about 130, in the same year as his disciple, who was about twenty years younger than his grandson was. Therefore, it is clear that the year of his death in 1096, which was attributed to Muhammad ibn Sulayman Ushi, and that the works believed to belong to him by Yusuf Kawakchi actually belonged to Fakhruddin Qazikhan. In short, Siraj al-din Ushi lived for about eighty years. The scholar's grandfather, Muhammad Ushi, is believed to have died before 1096. Based on the above information, there is confusion in the information of Yusuf Kawakchi and Kinalizada, on which he relies, in *Tabaqat al-Fuqaha*.

Another of Fergana's teachers of hadith, Siraj al-din Ushi, was Sayfuddin Muhammad ibn Muhammad Khojandi, from whom he studied the book *Kitab al-Yawaqit* by Ahmad ibn Abdullah Haffaf Sarakhsi in Khojand, [11, p. 3]. The scholar writes in *Nisab al-Akhbar* that he recited *Yawaqit* twice at his teacher's house in Khojand. There is no information about the years of birth and death of Sayfuddin Muhammad ibn Muhammad Khojandi.

Conclusion

In conclusion, it should be noted that Siraj al-din Ushi organized trips to Marginan, Khojand, Samarkand and Bukhara, in addition to Osh, in order to study the science of hadith. During these travels, he memorized hadiths from many hadith scholars in *Movarounnahr* [2, p. 3]. As a muhaddith, he wrote such works as *Nisab al-Akhbar li Tazkira al-Ahjar*, *Ghurur al-Akhbar* and *Durar al-Ash'ar*, and *Musnadu Anas ibn Malik*. These works are based on fifteen collections of hadiths that Ushi memorized. Therefore, it is possible to be acquainted with these fifteen collections of hadiths on the science of hadith and their series of memorizations in the region of *Movarounnahr* through the work "*Nisab al-Akhbar*" alone. On this basis, the study of manuscripts of the work "*Nisab al-Akhbar*", the preparation of its modern edition based on critical texts is one of the research works that should be studied today.

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ABOUT THE ADVANTAGES OF INNOVATIVE TECHNOLOGIES FOR MANUFACTURING COMPETITIVE HIGH QUALITY AND AFFORDABLE PRODUCTS

Abstract: In the article, the authors analyze the effectiveness of the software developed by them for forming the technological process of production of import-substituting products and determining the specific reduced costs, which allows calculating the statistical parameters of the effective technological process of production of high-quality products in various forms of production organization, and the software developed by the authors for calculating the receipt of funds from the technological process of production of quality products guarantees light industry enterprises to obtain stable TA and prevent them from bankruptcy providing them with financial stability.

Key words: financial stability, stability, profitability, profit, demand, availability, quality, demand, competitiveness, import substitution, Union of Federal, regional and municipal branches of government; innovation, economic policy, industrial policy, assortment, assortment policy.

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Introduction

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The beginning of modeling the development of any organizational system is structural modeling, which is necessary to optimize projects (Figure 4.36). For structural modeling of the designed technological processes for the manufacture of a new range of shoes and optimization of existing technological processes, the procedure for preparing technological documentation is considered (Fig. 1).

The main feature of this procedure is that when preparing sets of design technological documentation, it is planned to develop not only promising, but also directive technological processes. Let us consider in more detail the main goals, objectives and differences of such technologies that allow, in the technological part of a reconstruction or technical re-equipment project, to reasonably answer the main questions:

- about new technological solutions;
- mechanization and automation of technological processes;
- the composition of the applied technological equipment, including imported;
- the use of low-waste and non-waste technological processes;
- the use of more progressive transport and technological schemes for the movement of packaged goods;
- new methods of technical control and testing of products;
- minimization of production waste, emission of harmful substances;
- determination of the composition of production processes for waste disposal.

In addition, a set of design technological documentation, promising and directive technological processes allow you to answer other important questions:

- on the calculation of fuel and energy and material balances of technological processes;
- assessing the need for basic types of resources for technological needs;
- labor input, machine input and maintenance output;
- calculations of the number of pieces of equipment, areas, number of employees;
- execution of drawings of technological layouts and equipment layouts.

Let's characterize the essential content and distinctive features of the technologies used in projects. Let's start this analysis with the definitions of the concepts of "project", "prospective" and "directive

technological process". They are defined in the Unified Process Documentation System as follows.

1. A promising technological process is a technological process that corresponds to the modern achievements of science and technology, the methods and means of implementation of which, in whole or in part, have to be mastered at the enterprise.

2. A set of directive technological documentation is a set of sets of documents for individual technological processes necessary and sufficient for carrying out preliminary enlarged engineering, organizational and economic tasks, when deciding on the launch of new products into production in relation to the conditions of a particular enterprise.

3. A set of design technological documentation is intended for use in the design or reconstruction of an enterprise. Working technological processes, i.e. technological processes carried out according to working technological and (or) design documentation during reconstruction and (or) technical re-equipment should be revised and replaced by new, more advanced technologies.

In the technological document flow diagram (Fig. 2), in accordance with the Unified System for Technological Documentation (ESTD), the following rules for the use of sets of technological documentation are adopted, which are linked to the stages and stages of design preparation for production.

In a typical shoe manufacturing technology, there are ready-made recommendations for performing the operations of making shoes for some of the most common types. However, in practice, there are often cases when it is required to develop a new technological process for making shoes, choose the most effective from the existing set of technological processes, or perform a comparative analysis of technologies at the cost of making shoes. All this is especially important in modern conditions of meeting market demand with a frequently changing assortment of shoes, the emergence of new types of shoe machines, technologies, forms of organization of production, etc.

Each production process is considered either as a set of changes that the objects of labor undergo, or as a set of actions of workers aimed at an expedient change in the objects of labor. In the first case, they talk about the technological process, in the second - about the labor process.

The technology determines the structure of the technological process, which allows, if necessary, to divide the main and auxiliary operations into elementary ones.

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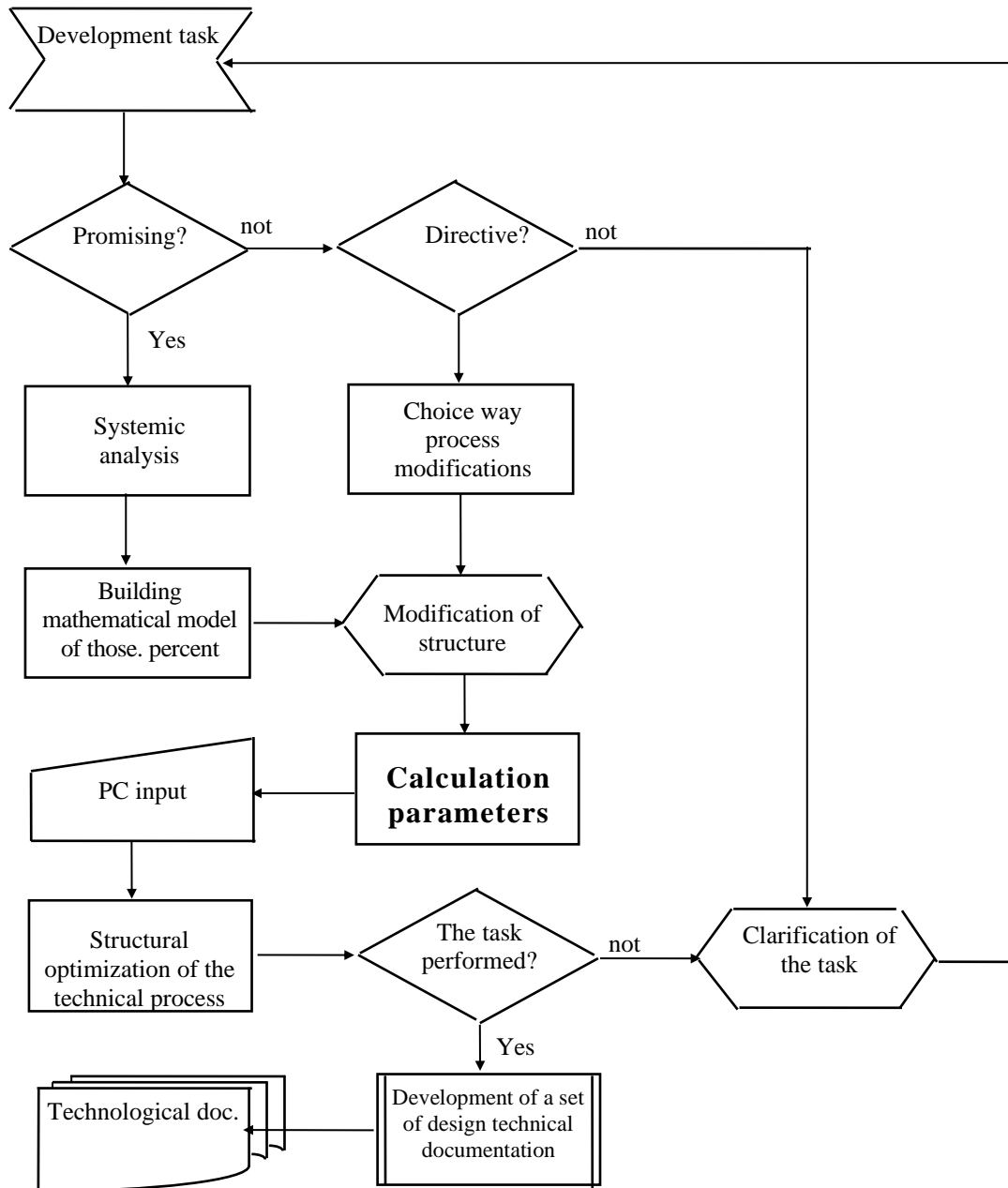


Figure: 1 - Information and functional diagram of the design of technological processes

Given the variety of technologies, equipment, characteristics and types of raw materials, the organization of shoe production with a wide range of products, it is advisable to combine shoe assembly operations into the following groups:

- preparatory operations preceding molding;
- molding the upper blank on the last;
- processing of a tightened shoe upper;
- attaching details of the bottom of the shoe;

- finishing of shoes.

A detailed description of these groups by operations is presented in the diagrams (Fig. 2-6).

Table 1 shows a generalized technological process for assembling shoes, a list of equipment and its characteristics.

At the present stage of economic development, technology has acquired particular importance in concretizing the strategy of resource consumption, reducing their scarcity, and increasing the efficiency of their use.

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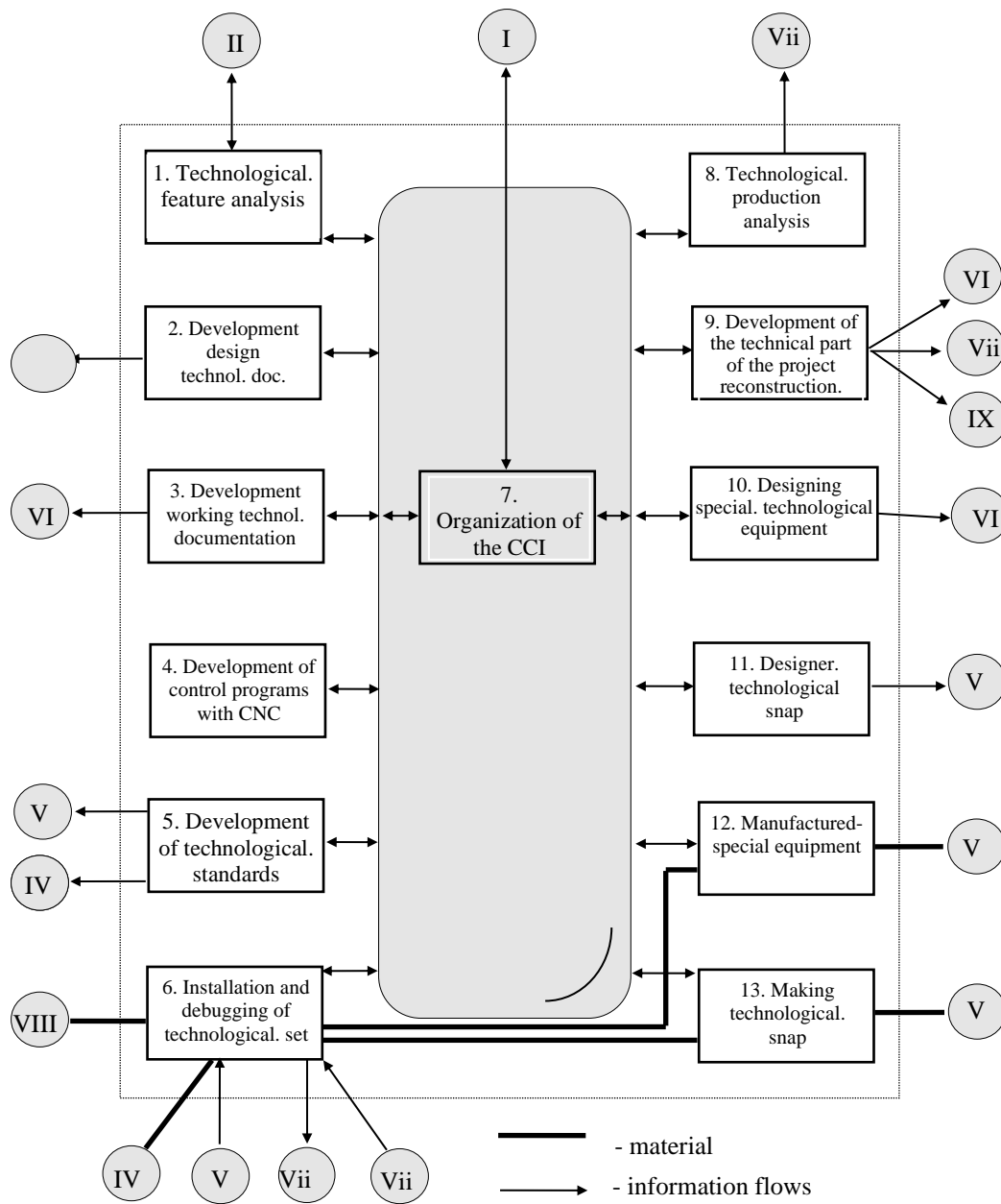


Figure: 2- Block diagram of technological preparation functions production

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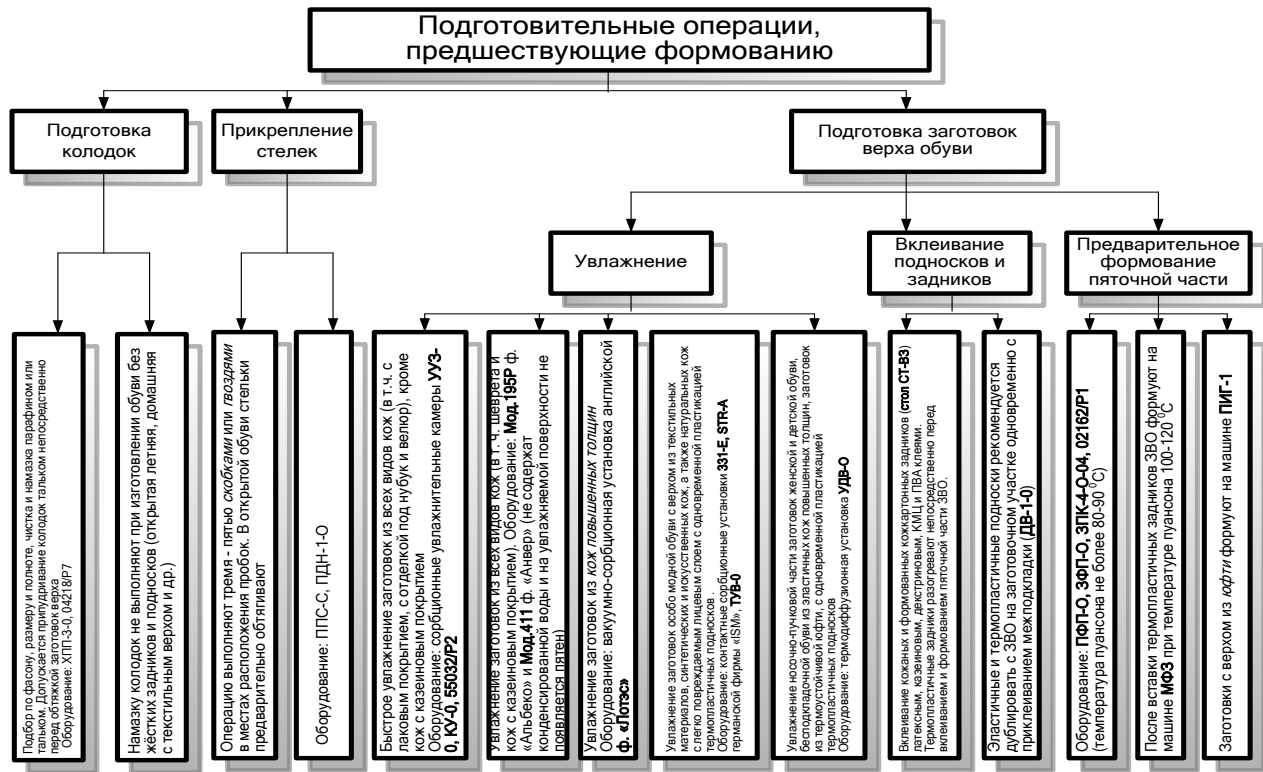


Figure 3- Preparatory operations prior to forming



Figure 4 - Molding operations of the shoe assembly technological process

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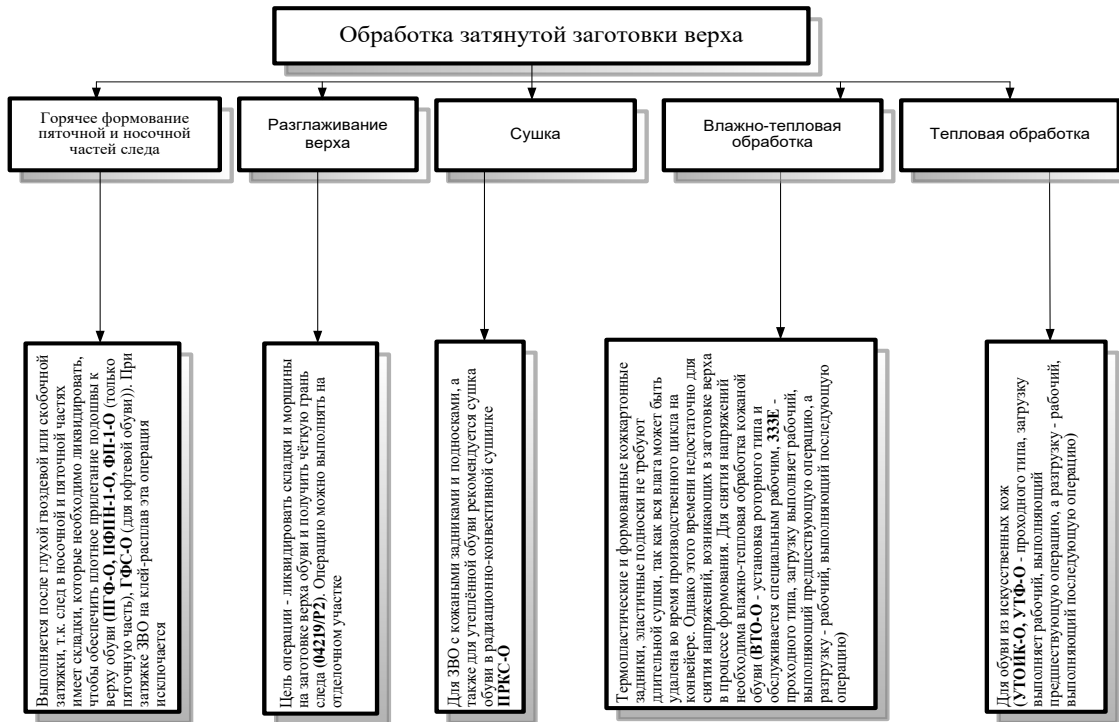


Рис. 3.41. Операции фиксации формы ЗВО технологического процесса сборки обуви

Figure: 5 - Operations for fixing the form of the ZVO of the shoe assembly technological process

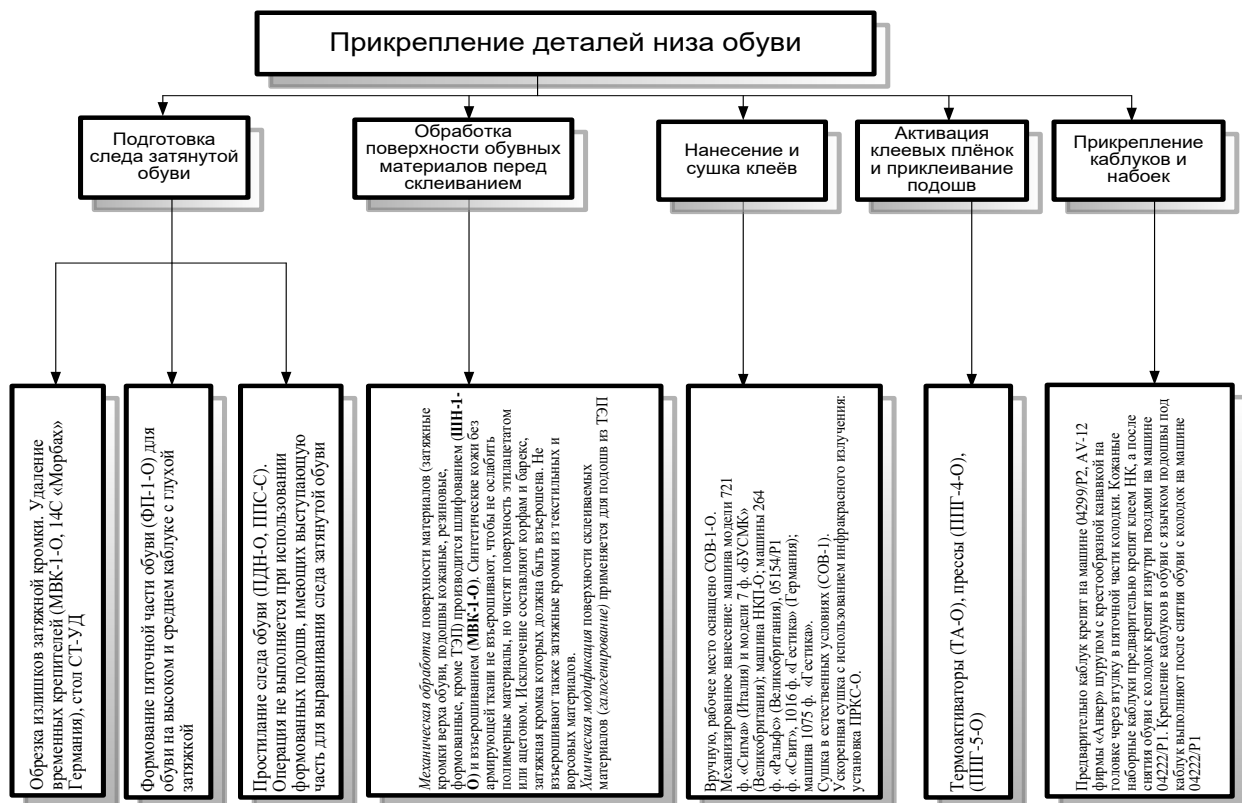


Figure: 6- Periods of attaching details of the technological process of shoe assembly

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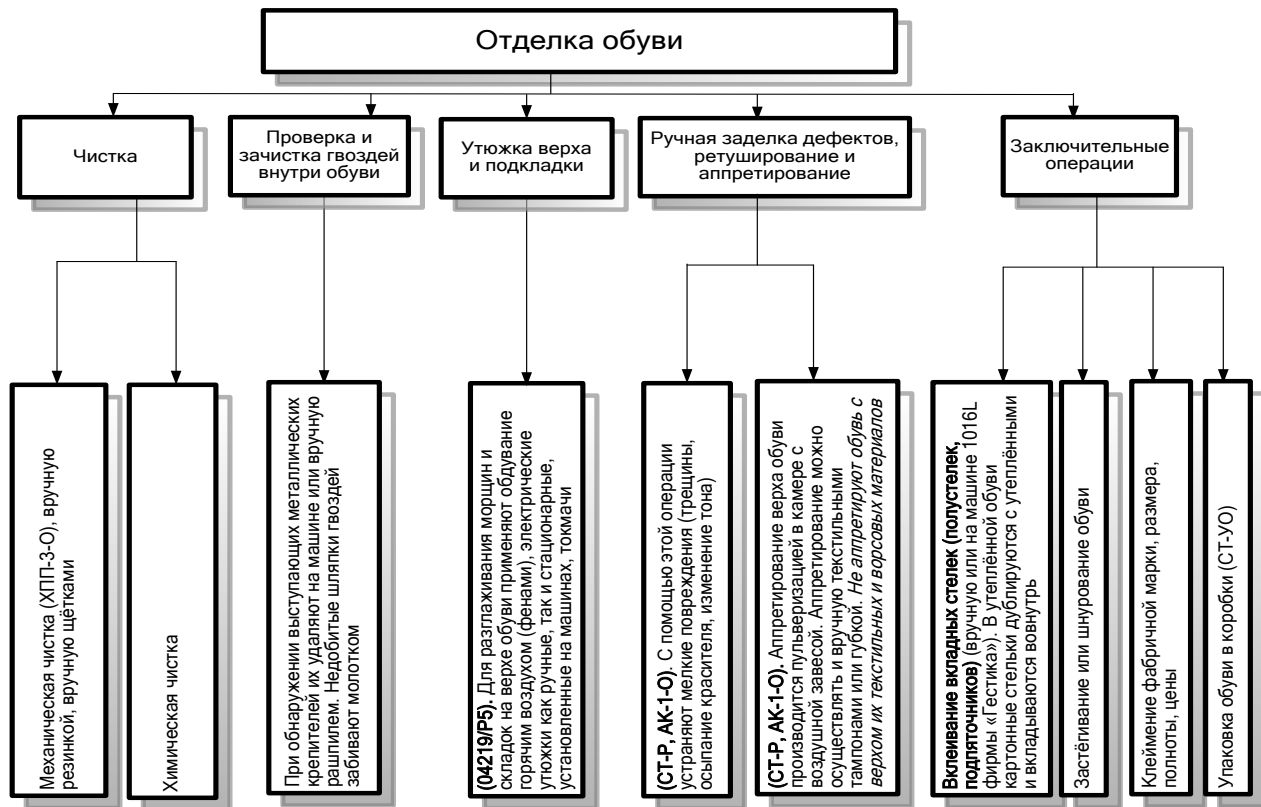


Figure: 7 - Finishing operations of the shoe assembly technological process

Table 1- Generalized technological process of shoe assembly

N o.	the name of the operation	Discharge		Time rate, min / mash / manual		Production rate, steam (machine / manual)	amount workers, people (machine / manual)	Equipment	Capital investments for equipment, rubles	Area, occupied equipment (m2)	Power engine	Performance equipment
		m	R	m	R							
1.	Launching blanks on the conveyor	2		0.3	3	1454.55	0.5	conveyor	500,000	57,360	1.1	150
2.	Moistening the workpiece	3		0.1	4	3428.57	0.2	URP / 2	150,000	1.603	26.12	
3.	Attaching the insoles to the last	2		0.2	8	1714.29	0.4	10/11 / C	250,000	0.720	0.5	250
4.	Spreading talcum powder		2	0.5	5	872.73	0.9	ST-B		0.360		96
5.	Toe insertion, overlap and pre-molding of the toe section of the ZVO with thermoplastic toe cap	3		0.5	9	813.56	0.9	02253 / P1	254000	0.265	0.3	250
6.	Bonding leather-cardboard backs		2	0.6	2	774.19	1.0	ST-VZ		0.507		175
7.	Pre-molding of the heel	3		0.6	0	800.00	1.0	02021 / P2	168000	1,360	five	150

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8.	Insertion of thermoplastic heels and pre-molding of the heel of the ZVO	3		0.94	510.64	1.57	G504CF	110,000	0.5670	1,2	350
9.	Putting the workpiece on the last and installing the heel	4		0.44	1090.91	0.73	02015 / P5	250,000	0.598	0.23	270
10.	Tightening and tightening of the toe-bundle part of the ZVO with preliminary moistening and plasticization of the sock	6		0.62	774.19	1.03	K73STI K	1576800	1,436	5.5	90
11.	Tightening the glue part with hot melt glue with temples	6		0.46	1043.48	0.77	01211 / P1	1,200,000	1.011	7	270
12.	Heel tightening	4		0.39	1230.77	0.65	640 C	1,150,000	0.861	1.5	90
13.	Tightening the nose-beam part of the ZVO with melt glue	6		0.39	1230.77	0.65	PAL-G	1,500,000	1,500	4.86	140
14.	Tightening of the heel with tex and the heel with hot melt glue	6		0.39	1230.77	0.65	PIC K 24SZ, Cerim	1,851,000	1,715	5.5	120
15.	Covering ZVO		five	1.73	277.46	2.88	ST-R		0.360		
16.	Glueing the lingering edge and insoles with glue, drying	2		0.54	888.89	0.90	ST-R		0.360		
17.	Heel tightening	4		8.00	60,00	13.33	ST-R		0.360		
18.	Hauling bundles and stretching	4		2.83	169.61	4.72	ST-R		0.360		
19.	Tightening the toe-beam part of the ZVO	4		9.90	48.48	16.50	ST-R		0.360		200
20.	Tightening the gel part of the ZVO	4		2.92	164.38	4.87	ST-R		0.360		113
21.	Wet-heat treatment of shoes	2		0.80	600.00	1.33	wet heat treatment chamber "Granucci"	142840	1,766	27.9	200
22.	Hot air wrinkle removal	2		0.83	578.31	1.38	04219 / P5	154740	0.353	0.18	113
23.	Removing staples or tex from insoles	2		0.36	1333.33	0.60	ST-UD		0.992		130
24.	Hot molding of footprint	2		0.91	527.47	1.52	04286 / P22	140350	0.671	2.7	125
25.	Trimming and tufting excess trailing edge, dust removal	3		0.64	750.00	1.07	automatic K71S	165000	0.855	2.7	240
26.	Attaching the shank	2	2	0.51	941.18	0.85	02015 / P5	105000	0.299	0.7	175
27.	Forgiveness of the footprint	2	2	0.81	592.59	1.35	02015 / P5	105000	0.299	0.7	150
28.	First glue on the tightening edge, drying	2		0.87	551.72	1.45	02068 / P4, COB	127900	2,582	2.7	150

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29.	Second spreading with glue on the tightening edge, drying	2		0.87		551.72	1.45	02068 / R4, PRKS-O	173900	4.442	15.38	125
30.	Treatment of the slow surface of the soles	3		0.89		539.33	1.48	MVK-1-O	174700	0.671	2.7	100
31.	Solvent treatment of non-running soles (halogenation)	2		0.30		1600,00	0.50	A200 / D	100,000	0.661	0.08	
32.	Glue soles (soles and heels)	2		1.30		369.23	2.17	car 1066 "Fortuna" Germany	80,000	0.671	2.7	300
33.	Thermal activation of adhesive films	4		0.94		510.64	1.57	133, Italy	130,000	0.528	0.16	125
34.	Bonding soles and heels	4		0.93		516.13	1.55	press AS 1800K	127000	0.280	0.16	150
35.	Cooling shoes	3		0.50		960,00	0.83	refrigerat or compartment FR3200	198000	0.409	4,3	75
36.	Milling the edge of the sole (lateral surface of the heel)	6		1.39		345.32	2.32	04105 / P6	58500	0.657	2.2	75
37.	Attaching heels	2		1.89		253.97	3.15	ST-B		0.360		
38.	Milling heels	3		0.47		1021.28	0.78	04105 / P6	58500	0.657	2.2	75
39.	Sanding the edge of the soles and the side of the heel	3		1.91		251.31	3.18	04059 / P1	95000	0.528	0.75	138
40.	Sanding soles	3		1.81		265.19	3.02	04059 / P1	95000	0.533	0.75	138
41.	Cleaning the top and bottom of shoes	2		0.87		551.72	1.45	04207 / P1	84790	0.650	1.9	198
42.	Removing shoes from the last	3		0.54		888.89	0.90	1200, Italy	186000	0.459	1.1	250
43.	Attaching the plastic heel from the inside	4		0.77		623.38	1.28	04222 / P1	238740	0.440	0.42	250
44.	Checking and cleaning nails inside shoes	2		0.50		960,00	0.83	device PES-R		0.360		
45.	Bonding of heels and insoles	2		0.58		827.59	0.97	car 1066 "Fortuna" Germany	80,000	0.671	2.7	300
46.	Inserting insoles	2		0.32		1500.00	0.53	ST-B		0.360		
47.	Hand finishing shoes	5		0.83		578.31	1.38	ST-B		0.360		
48.	Lacing, fastening finished shoes	2		0.65		738.46	1.08	ST-B		0.533		
49.	Shoe packaging	2		0.44		1090.91	0.73	ST-UO		0.533		

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The output parameters of the technological process of shoe manufacturing are described by complex multifactorial dependencies and are influenced not only by deterministic, but also by random parameters and their interconnections, therefore, the technological processes of shoe assembly were chosen as the object under study as the most theoretically and experimentally studied, the most acceptable for setting and solving the problem of forming and evaluating the effectiveness of an agile workflow.

Influence of the organization of production and manufacturing technology on the cost of shoes

The process of technological preparation of shoe production has an equifinal character. So, each model of footwear can be made according to several different technological processes, and the finished footwear will be included in the same classification group and have the same cost. Of all these options, it is necessary to select exactly the one technological process that allows you to make shoes of the required design and get the best performance of the assembly flow.

In the general case, the technological process of assembling shoes is a discrete movement of the object of labor (parts, semi-finished products) with a change in its characteristics at various stages of processing. The technological process consists of a number of operations, the interconnection system between which corresponds to their sequential execution. Moreover, each subsequent operation is a continuation of the previous one, i.e. indicators of this operation are a function of not only time, but also one or more indicators of the previous operation.

The technology of manufacturing footwear with the given means of production determines both the required raw materials and the cost of labor resources. From the point of view of efficiency, an important role is played by the cost indicator per unit of output, taking into account the range of options for its quantitative and qualitative indicators within the framework of the technology under consideration.

The effectiveness of organizing a flexible technological process for a multi-assortment flow is estimated by the period of time the product is in production and sale, i.e. the longer the life cycle of a leather product, the more efficiently their production is organized.

The organization of production is designed to determine effective relationships between individual elements of the production process and create conditions for increasing the competitiveness of the manufactured footwear and the enterprise as a whole.

The degree of perfection of forms, methods and ways of implementing production processes in space and time characterizes the level of production organization. The nature of specific measures to improve the organization of production is largely determined by the characteristics of the enterprise and the current state of affairs.

Most of the activities for organizing production are complex and affect all elements of the production process: performers, tools and objects of labor. The effectiveness of work to improve the organization of production manifests itself after a more or less long period of time and affects a number of production links.

Depending on the sources of education, the results of organizational activities can be obtained in the following areas:

- improving the use of labor instruments;
- improving the use of labor resources;
- improving the use of objects of labor;
- improving product quality;
- increased production flexibility.

The effect of improving the use of labor instruments is ensured by increasing the continuity and proportionality of production processes by: more complete loading of equipment and reduction of equipment downtime for organizational and technical reasons; more complete use of the technical capabilities of the equipment, reducing the time of adjustment, changeover and stay in repair; release of equipment and production space.

With the improvement of the use of labor resources, the economic effect is determined by the possibilities of increasing labor productivity on the basis of a more complete workload of workers, taking into account their qualifications, improving the structure of personnel, as well as reducing losses and unproductive costs of working time.

The effect arising from the improvement of the use of objects of labor is characterized by a reduction in the duration of the production cycle by reducing the time spent on parts, products and their transportation.

The economic effect of improving the quality of products provides an opportunity to increase the output of high-quality products, improve the technical and economic parameters of manufactured products by reducing losses from intra-production defects, defects, complaints and reducing the cost of quality control.

One of the important factors in increasing production efficiency is the improvement of the forms of its organization, providing monetary savings for a number of cost items and profit growth.

Improvement of the forms of organization of production provides an increase in productivity and creates conditions for reducing losses associated with refueling streams in the development of a new range of footwear. At the same time, prerequisites are created for the conditional release of the number of employees and the receipt of monetary savings on wages.

At the same time, a reduction in losses associated with the development of new types of products, an increase in labor productivity with a constant number of employees contributes to an increase in production volumes and, as a result, obtaining additional profits.

With the RINK-system, conditions are created for differentiating the time for processing different pairs of shoes at a given operation, depending on the properties

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of semi-finished products arriving for processing, and make it possible to provide organizational conditions for a better performance of the operation in relation to each pair of shoes. This contributes to creating conditions for improving the quality of shoes and reducing the cost of claims. The same possibilities of time differentiation in a number of cases allow working with minimal technological allowances, which contributes to a certain reduction in the cost of basic materials.

In addition, the creation of organizational conditions for the multi-assortment production of footwear and the timely renewal of the assortment, of course, helps to accelerate the sale of competitive footwear.

At present, the following are used on the assembly lines of shoe enterprises: the in-line method

of organizing the main production using non-conveyor production lines; conveyor and RINK systems.

General cost price changes depend on the ratio of cost changes for each costing item. Let's trace the change in cost items as a result of improving the organization of production (Table 2).

Labor costs directly determine the efficiency of production, measured by the ratio of results to costs, as well as the amount of wages of workers. The degree of this influence is determined mainly: the lower the cost per unit of output, the higher the production results, since the reduction in labor costs (labor intensity of production) is one of the main factors in reducing the cost. Therefore, competition, forcing manufacturers to reduce prices, gives rise to an interest in reducing the labor intensity of products.

Table 2- Change in cost items depending on the forms of organization of production

Key figures / costing items	Production organization form		
	pipelineless	Conveyor flow	rink system
1	2	3	4
1. Raw materials and basic materials	Zm	Zm	Zm·f where f<1
2. The main and additional wages of production workers with OESN	RFP	RFP·fromwhere<1	RFP·fromwhere "<c
3. Costs for fuel and electricity, for technological needs	Zel.en.	Zel.en·m where m>1, because ∃ conveyor flow motor	Zel.en·m 'where m '>mf the level of mechanization is higher than in the conveyor stream
4. Costs for RSEO	ZRSEO	ZRSEO·n where n>1, because the cost of the conveyor stream is added	ZRSEO, if the technological process does not change (ZRSEO·k where k>1)
5. General production costs	Ztseh	Ztseh	Ztseh·and where a>1
6. General business expenses	General farm	General farm	General farm
7. Selling expenses	Zkomm	Zkomm	Zkomm

In turn, the reduction in labor intensity is due to the use of modern materials and new equipment, more productive, versatile, and often more expensive than existing ones, which ultimately will affect the increase in the cost of shoes due to an increase in equipment acquisition costs and depreciation charges. In each case, a careful study of the results obtained and the choice of the best solution in terms of achieving the ultimate goal of the enterprise is required. Optimal, economically justified mechanization and automation of the technological process of shoe production will reduce losses due to defects and the need for rework, but also prevent losses from excessive processing. The task is relevant both for established enterprises with a formed equipment park, and for new enterprises with

an unlimited choice of equipment. Both the first and the second contributes to a reasonable choice of technology for the manufacture of a new range of shoes. To solve the problem, it is necessary to determine the degree of influence of the fullness of the technological process on all items of the enterprise's costs. Based on the results obtained, the most important indicators are selected, and then, on their basis, a list of indicators is formed that characterizes the advantages or disadvantages of a particular technological scheme for the manufacture of shoes, equipment, technological objects, etc. To solve the problem, it is necessary to determine the degree of influence of the fullness of the technological process on all items of the enterprise's costs. Based on the results obtained, the most important

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indicators are selected, and then, on their basis, a list of indicators is formed that characterizes the advantages or disadvantages of a particular technological scheme for manufacturing shoes, equipment, technological objects, etc. To solve the problem, it is necessary to determine the degree of influence of the fullness of the technological process on all items of the enterprise's costs. Based on the results obtained, the most important indicators are selected, and then, on their basis, a list of indicators is formed that characterizes the advantages or disadvantages of a particular technological scheme for the manufacture of shoes, equipment, technological objects, etc.

In market conditions, the main criterion for the viability and profitability of an enterprise is profit, one of the main factors for increasing which is a decrease in production costs. Therefore, an important lever of market influence on the cost price to maximize profit is the positive results of one of the organizational forms for determining the range and output.

Specific changes for each article depend on many factors:

- type and kind of footwear;
- categories of complexity of the top preparation;
- materials used;
- method of fastening the bottom of the shoe;
- way of work, power, etc.

All costs for the production and sale of footwear shows the full cost, which reflects qualitative changes in technology, technology, organization of production and labor.

The largest share in the costs of industrial production falls on raw materials and basic materials, and then on wages and depreciation deductions. In light industry, the share of raw materials and basic materials is 86%, and wages with OESN are about 9%. Changes in the nomenclature and assortment of footwear produced is an important factor affecting the level of production costs.

With different profitability of certain types of footwear (in relation to the cost price), shifts in the composition of products associated with an increase in production efficiency can lead to both a decrease and an increase in production costs.

With the help of the Maple 9.5 software package, the paper analyzes the costs of producing men's closed shoes with thermoplastic elastomer soles according to calculation items, taking into account the production program (Tables 3-4)

With an increase in the shift program from 500 to 1000 pairs per shift, the cost of a costing unit decreases, as can be seen from the graph of changes in the cost of a costing unit (100 pairs), taking into account the production program (Fig. 8).

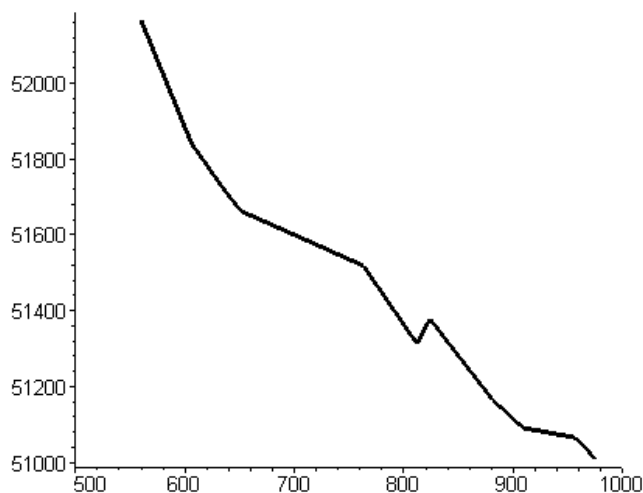


Figure: 8 - Cost of a costing unit (100 pairs) taking into account the production program

Table 3- Calculation of the cost of a costing unit (100 pairs)

Name of articles	The amount of costs, taking into account the production program, rubles										
	560	606	636	651	763	812	824	881	909	957	975
1. Raw materials and basic materials	363	363	363	363	363	363	363	363	363	363	363
	83.3	83.3	83.3	83.3	83.3	83.3	83.3	83.3	83.3	83.3	83.3
	4	4	4	4	4	4	4	4	4	4	4
2. Supporting materials	207	207	207	207	207	207	207	207	207	207	207
	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14

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3. Fuel and electricity for technological needs	548.56	506.92	483.01	483.45	414.32	411.64	405.65	379.40	367.72	475.44	466.66
4. Basic and additional remuneration of production workers with OESN	2934.97	2927.55	2945.49	2945.39	2988.98	2954.82	2993.12	2987.55	2992.10	2972.76	2971.27
5. Expenses for development and preparation of production	23.29	23.23	23.38	23.38	23.72	23.45	23.75	23.71	23.75	23.59	23.58
6. Expenses for the maintenance and operation of equipment (RSEO)	2621.31	2470.26	2383.52	2357.07	2334.58	2291.46	2267.29	2161.45	2114.32	2077.43	2050.73
7. General production costs	1377.28	1272.73	1212.70	1185.11	1012.66	952.40	938.81	878.07	851.03	809.06	794.13
8. General operating expenses	5280.85	5267.48	5299.76	5299.57	5377.99	5316.51	5385.43	5375.39	5383.58	5348.78	5346.10
Production cost	51241.75	50923.66	50803.34	50749.45	50607.73	50405.77	50469.54	50261.05	50187.96	50162.54	50107.96
9. Selling expenses	922.35	916.63	914.46	913.49	910.94	907.30	908.45	904.70	903.38	902.93	901.94
Full cost	52164.10	51840.28	51717.80	51662.94	51518.67	51313.07	51377.99	51165.75	51091.34	51065.47	51009.90

Table 4 - Items of calculation in percentage terms

Name of articles	The amount of costs, taking into account the production program, rubles										
	560	606	636	651	763	812	824	881	909	957	975
1	2	3	4	five	6	7	8	nine	ten	eleven	12
1. Raw materials and basic materials	69,748%	70.184%	70.350%	70.424%	70.622%	70.905%	70.815%	71.109%	71,212%	71,248%	71.326%
2. Supporting materials	3.972%	3.997%	4.007%	4,011%	4.022%	4.038%	4.033%	4,050%	4,056%	4,058%	4,062%
3. Fuel and electricity for technological needs	1.052%	0.978%	0.934%	0.936%	0.804%	0.802%	0.790%	0.742%	0.720%	0.931%	0.915%
4. Basic and additional remuneration of production workers with OESN	5.626%	5.647%	5.695%	5.701%	5.802%	5.758%	5.826%	5.839%	5.856%	5.821%	5.825%
5. Expenses for development and preparation of production	0.045%	0.045%	0.045%	0.045%	0.046%	0.046%	0.046%	0.046%	0.046%	0.046%	0.046%
6. RSEO	5.025%	4.765%	4.609%	4.562%	4.532%	4.466%	4.413%	4.224%	4.138%	4,068%	4,020%
7. general production costs	2,640%	2,455%	2,345%	2,294%	1.966%	1,856%	1,827%	1.716%	1,666%	1,584%	1.557%
8. General operating expenses	10.124%	10,161%	10.247%	10.258%	10.439%	10.361%	10.482%	10.506%	10.537%	10.474%	10.481%

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Production cost	98,23 2%	98,23 2%	98,23 2%	98,23 2%	98, 23 2%	98,23 2%	98,23 2%	98,23 2%	98,23 2%	98,23 2%	98, 23 2%
9. Selling expenses	1,768 %	1,768 %	1,768 %	1,768 %	1,7 68 %	1,768 %	1,768 %	1,768 %	1,768 %	1,768 %	1,7 68 %
Full cost	one hundr ed %	one hundr ed %	one hundr ed %	one hundr ed %	on e hu ndr ed %	one hundr ed %	one hundr ed %	one hundr ed %	one hundr ed %	one hundr ed %	on e hu ndr ed %

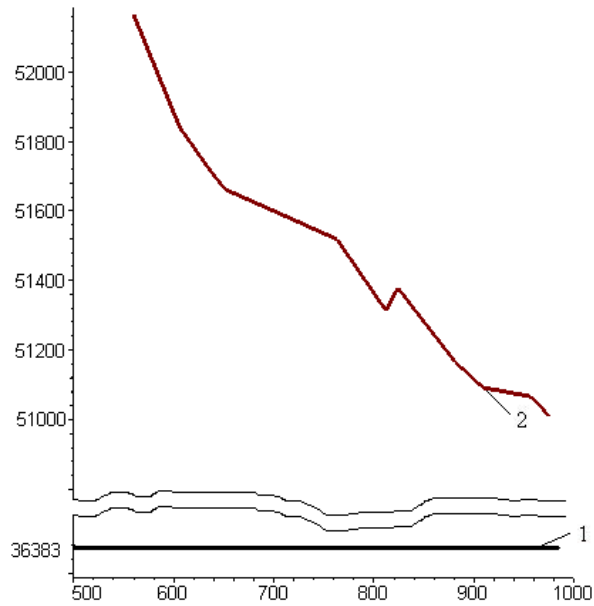


Figure: 9 - Cost ratio by item "Raw materials and basic materials" and cost in kind: 1 - raw materials and basic materials; 2 - cost price

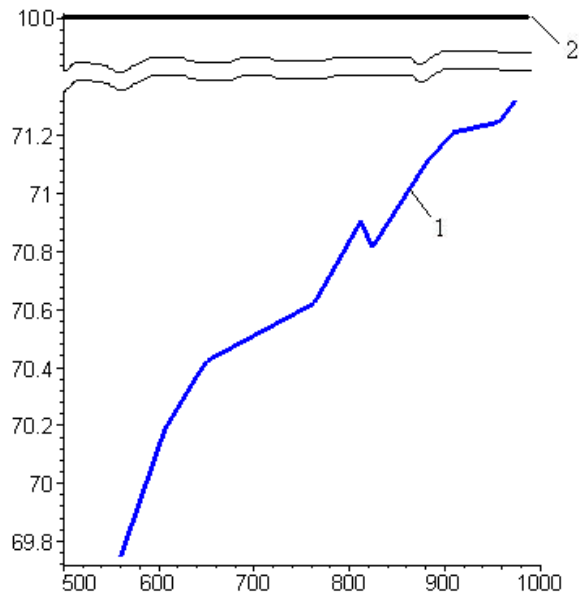


Figure: 10 - Percentage of costs for article "Raw materials and basic materials" in the composition cost price: 1 - raw materials and basic materials; 2 - cost price

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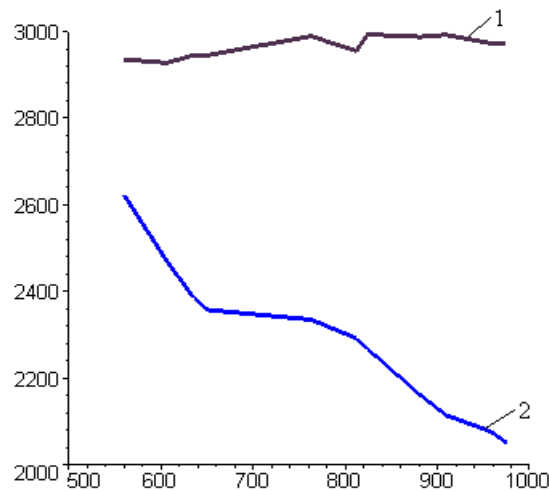


Figure: 11 - Costs per cost unit (100 pairs) under the articles "Basic and additional remuneration of production workers with OESN" (1) and "Expenses for the maintenance and operation of equipment" (2) in kind:

- 1 - expenses for the maintenance and operation of equipment;
- 2 - basic and additional wages of industrial workers with a deduction for the unified social tax

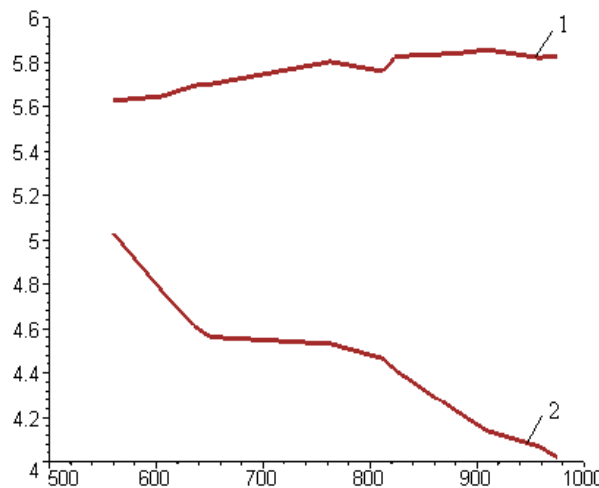


Figure: 12 - Costs per cost unit (100 pairs) according to the articles "Main and additional remuneration of production workers with OESN (1) and "Maintenance and operating costs equipment "(2) in percentage terms from the cost:

- 1 - expenses for the maintenance and operation of equipment;
- 2 - basic and additional wages of production workers with deductions for the unified social tax

With an increase in the shift program from 500 to 1000 pairs per shift, the number of workers increases from 27 to 40 people (labor intensity remains constant); the cost of a calculating unit (100 pairs) is reduced due to the attribution of conditionally fixed costs to a larger volume of output, the costs under the item "Raw materials and basic materials" in the cost price do not change, which is a natural phenomenon.

The ratio of costs for the item "Raw materials and basic materials" and the cost in kind is shown in Figure 9, in percentage terms - in Figure 10. A visual representation of how the cost is reduced is shown in

Figures 11 and 12 for the example of changes in the cost items "Basic and additional wages of production workers with OESN" and "Expenses for the maintenance and operation of equipment".

As a percentage of the cost, the increase in labor costs for workers is expressed in the amount of 0.2% with an increase in the number of workers by 13 people. The cost of maintaining and operating equipment per calculation unit decreased by an average of 1–1.5% with an increase in the number of equipment from 39 to 49 units. In general, the decrease in the cost

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of making shoes with an increase in output from 500 to 1000 pairs is 2%.

Considering that the total cost of the considered types of footwear includes both direct costs for their manufacture and indirect costs, usually not directly related to a specific type of product. when making a final decision on the release of a particular type of footwear, they are guided by the situation that is dictated by the demand for it.

If the demand is significant, then even with high costs for the manufacture of shoe models, an increase in its production is economically profitable. As soon as the demand for a particular type of product began to decline, the decision is again made to release another or several models at the same time in order to ensure their best life cycle. But at the same time, it is already necessary to strive to reduce the share of costs under the item "Raw materials and basic materials", assuming the production of summer unlined shoes, footwear using artificial and synthetic leather and textile materials. It is always more profitable because the assortment of these materials is much wider, diversified, and cheaper, which allows, while reducing the total cost, to get a greater profit, provided there is a steady demand.

The validity of such a decision is also justified by the fact that the use of these materials creates the prerequisites for a significant reduction in costs for the second, no less important item of costs for the main and additional wages of production workers with deductions for the unified social tax. In this case, it is supposed to use efficient and flexible technological processes of their production based on highly efficient technologies. Constant monitoring of the share of costs for the manufacture of the proposed multi-assortment production of footwear in a market economy will allow the enterprise to independently plan the amount of profit based on forecasting the cost of production and sales of products, market conditions, inflation growth, tax policy at the federal, regional and municipal levels, ensure a significant increase in the life cycle of products and get the highest profit. Only then should one expect that the existing and newly created enterprises and firms in the South of Russia will be able to produce competitive footwear in the required volume to meet the demand of various groups of the population.

Development of functional models of business processes production of leather goods

Functional modeling methodology SADT (Structured Analysis and Design Technology) is a set of methods, rules and procedures designed to build a functional model of an object of any subject area. The SADT functional model reflects the functional structure of the object, i.e. the actions it performs and the connections between these actions.

A functional model that displays the results of business processes for the production of leather goods and the information space in which their activities take place, allow us to understand how the shoe production system functions from the standpoint of system analysis.

The main idea of the SADT methodology is to build a tree-like functional model of business processes. First, their functionality is described as a whole, without details. This description is called a context diagram. Interaction with the external environment is described in terms of input (data or objects consumed or modified by a function), output (the main result of the function's activity, the final product), management (strategies and procedures that govern the function) and mechanisms (necessary resources). In addition, when creating a context diagram, the modeling goal, area (description of what will be considered as a component of the system, and what - as an external influence) and point of view (the position from which the model will be built) are formulated. [18]

The Function Block (or Function) converts Inputs to Outputs (i.e., input to output), Control determines when and how this conversion can or should occur, Executors directly perform this conversion.

Associated with arcs are natural language labels (or labels) that describe the data they represent.

Arcs show how functions are interconnected, how they exchange data and control each other. Arcs can branch out and connect. Outputs of one function can be Inputs, Controls, or Actors for another.

The functional block, which represents the system as a single module, is detailed in another diagram using several blocks connected by interface arcs. These blocks represent the main sub-functions (sub-modules) of a single source module.

This decomposition reveals a complete set of submodules, each of which is represented as a block, the boundaries of which are defined by interface arcs. Each of these sub-modules can be similarly decomposed for more detailed presentation.

Building an IDEF0 model begins with representing the entire system as a simple component - a single block and arcs representing interfaces with functions outside the system. Since a single block represents the entire system as a whole, the name given in the block is common. The same is true for interface arcs - they also represent the complete set of external interfaces of the system as a whole.

Then the block, which represents the system as a single module, is detailed in another diagram using several blocks connected by interface arcs. These blocks represent the main sub-functions of the original function. This decomposition reveals a complete set of sub-functions, each of which is represented as a block, the boundaries of which are defined by interface arcs. Each of these sub-functions can be similarly decomposed for more detailed presentation.

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The block-and-arrow graphics in IDEF0 diagrams show manufacturing operations as a block and relationships with operations as arrows entering / leaving a block. In order to represent actual manufacturing operations, blocks can be interpreted as activities associated with other blocks, with interface arrows that determine when and how operations are switched or controlled.

Let's represent the processes of creating flexible production and modeling flexible technological processes in the form of IDEF0 diagrams. Each diagram is a unit of the system description and is located on a separate sheet.

The beginning of modeling a functional model of agile manufacturing in SADT involves the creation of diagrams A0 and A-0, which tell about the created system with a minimum degree of detail. The context diagram of the A-0 flexible manufacturing process, presented in Figure 13, is the top of the diagram structure and represents a general description of the system and its interaction with the environment, showing all the main inputs, controls, outputs and functions of the system. After describing the system as a whole, it is split-decomposed on another diagram A0,

shown in Figure 14, into five structural blocks connected by interface arcs.

The context diagram A-0 of the process of modeling and evaluating flexible technological processes is shown in Figure 15, the decomposition diagram A0 is shown in Figure 16, decomposition A1 - in Figure 17, decomposition A4 - in Figure 18, decomposition A6 - in Figure 19. A generalized scheme for decomposition of the modeling process and evaluation of flexible technological processes is shown in Figure 20.

The developed functional model gives an idea of the business processes of shoe production as a whole and allows you to understand the relationship of all its components.

The considered methodology does not limit the number of levels of decomposition. This, in turn, makes it possible to obtain a model of each procedure that constitutes the technological process with the required degree of detail. Thus, having constructed a set of diagrams, we obtain a formal description of the organization of the current technological process of making shoes.

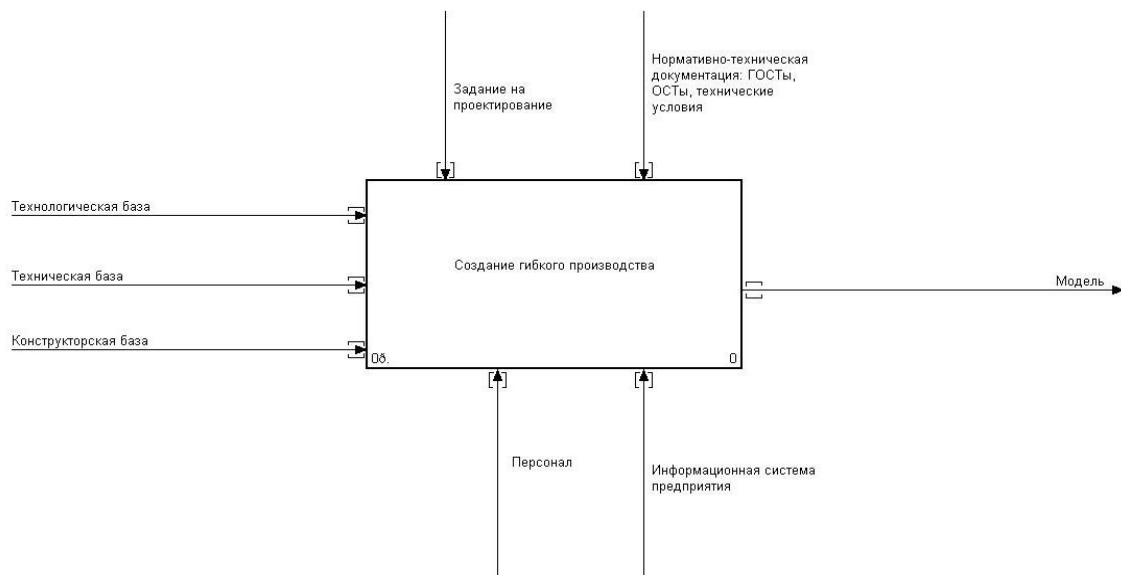


Figure: 14 - Context diagram of the process of creating flexible manufacturing A-0

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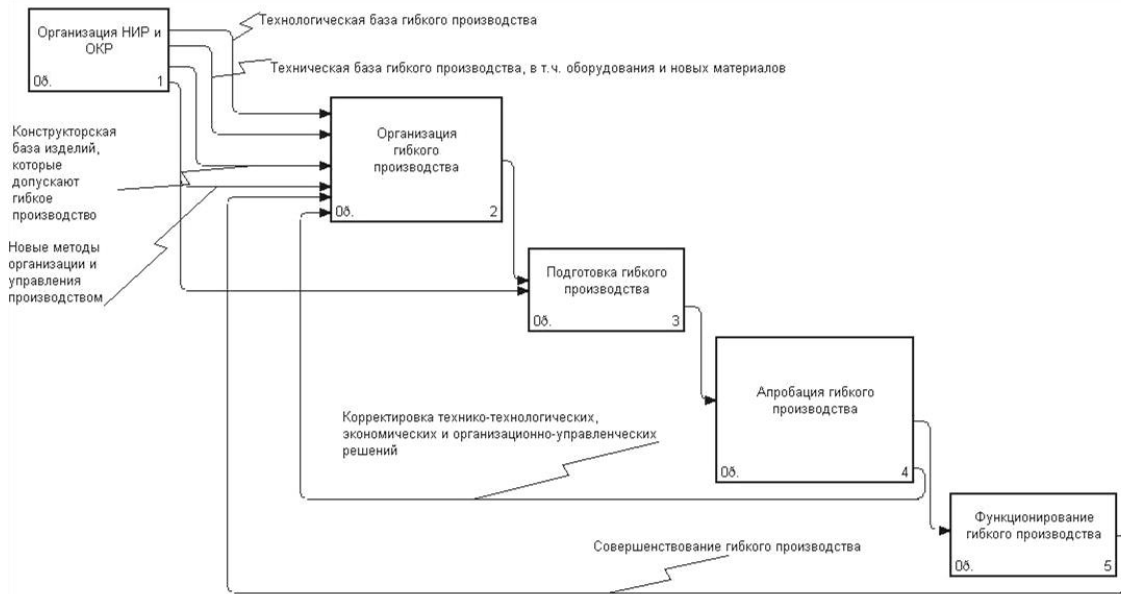


Figure: 15 - IDEF0-decomposition diagram A0

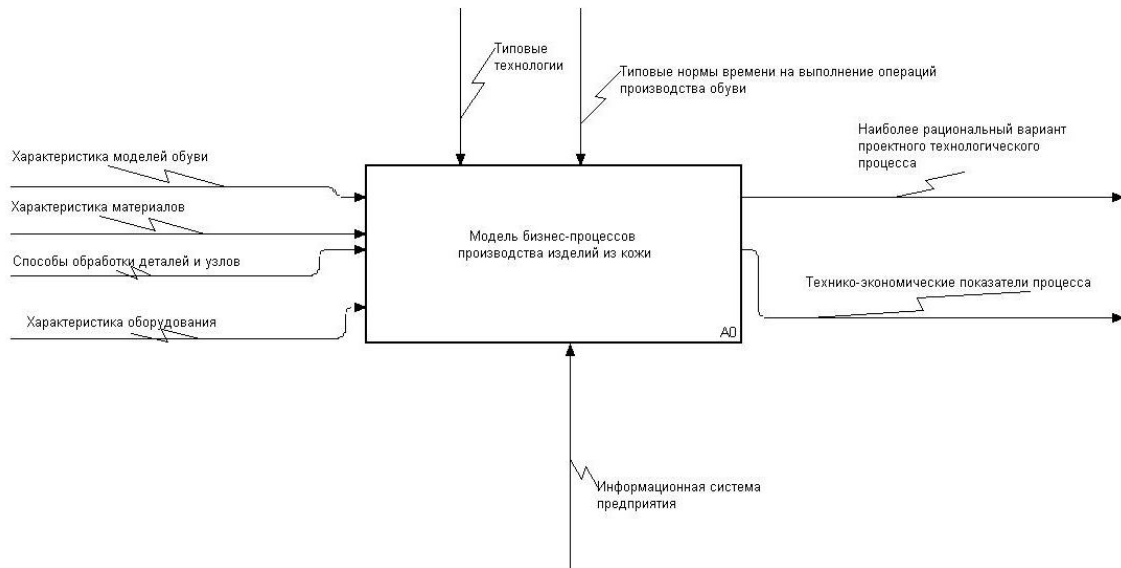


Figure: 16 - Context diagram of the process of modeling and evaluation of flexible technological processes A-0

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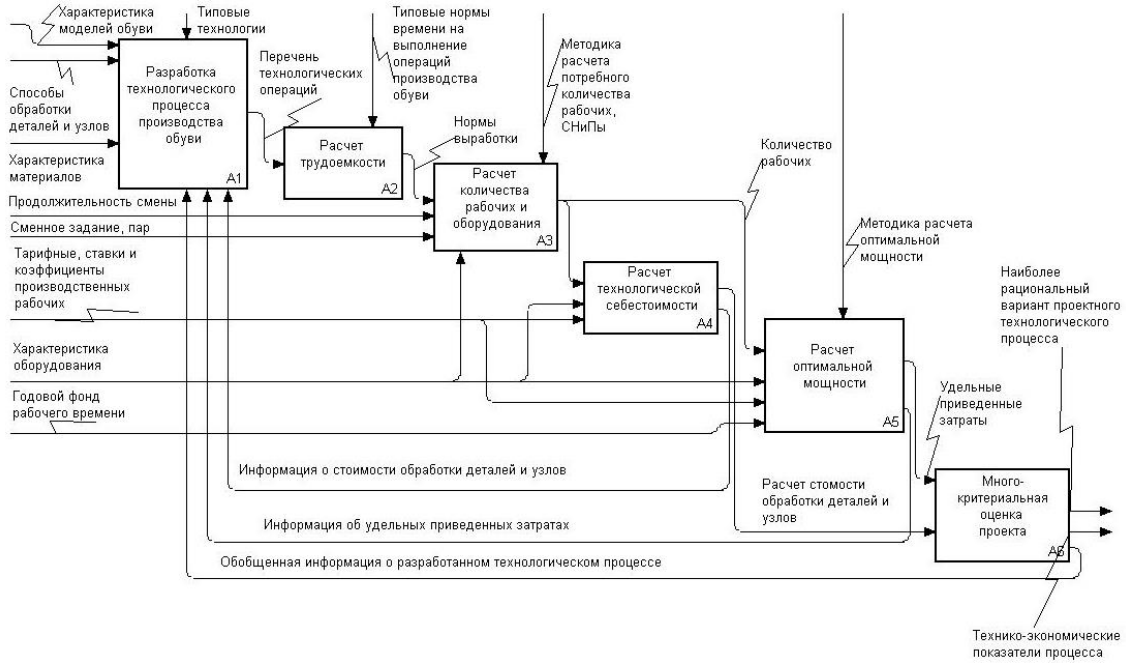


Figure: 17 - IDEF0 process decomposition diagram for modeling and evaluating flexible technologies processes A0

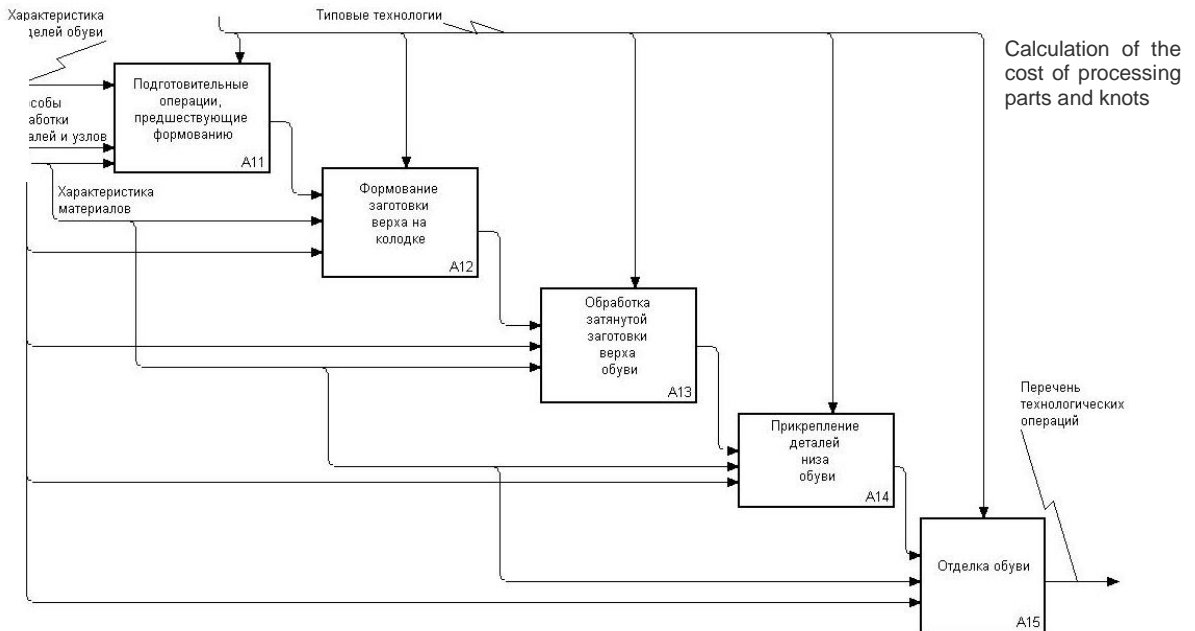


Figure: 18- IDEF0 Process Decomposition Diagram A1 shoe production

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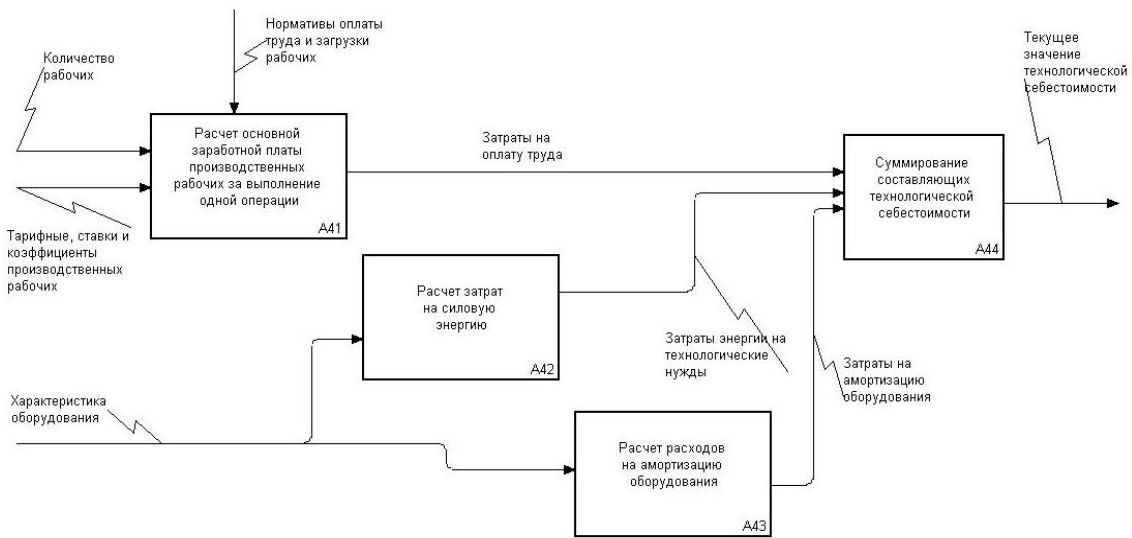


Figure: 19- IDEF0-diagram of the decomposition of the process of calculating the technological cost A4

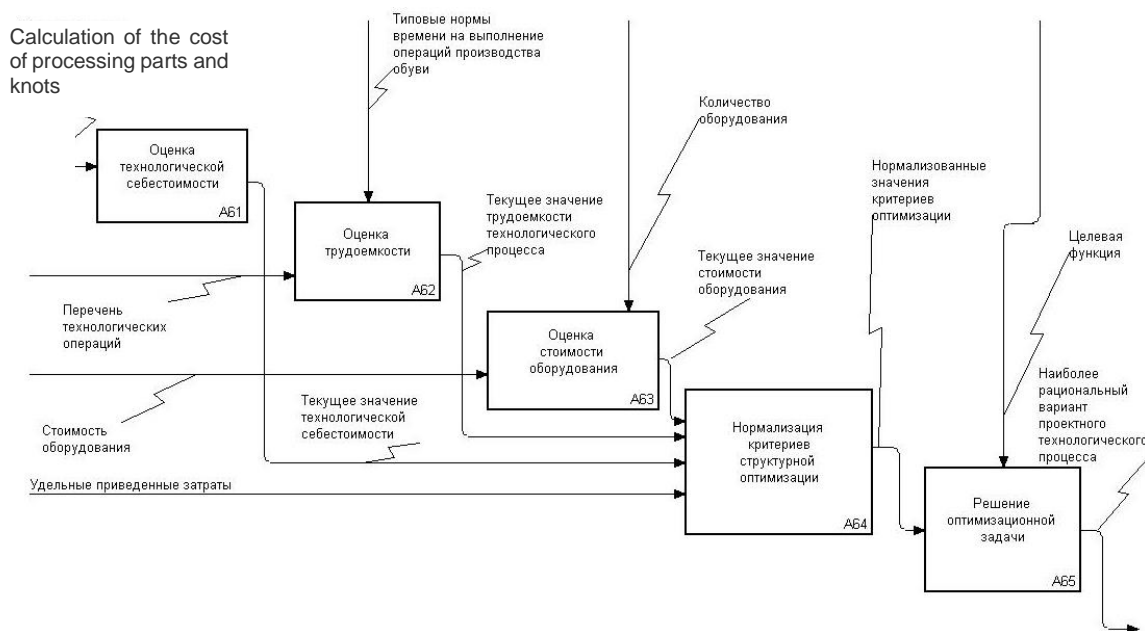


Figure: 20 - IDEF0-diagram of the decomposition of the process of assessing the effectiveness of the project A6

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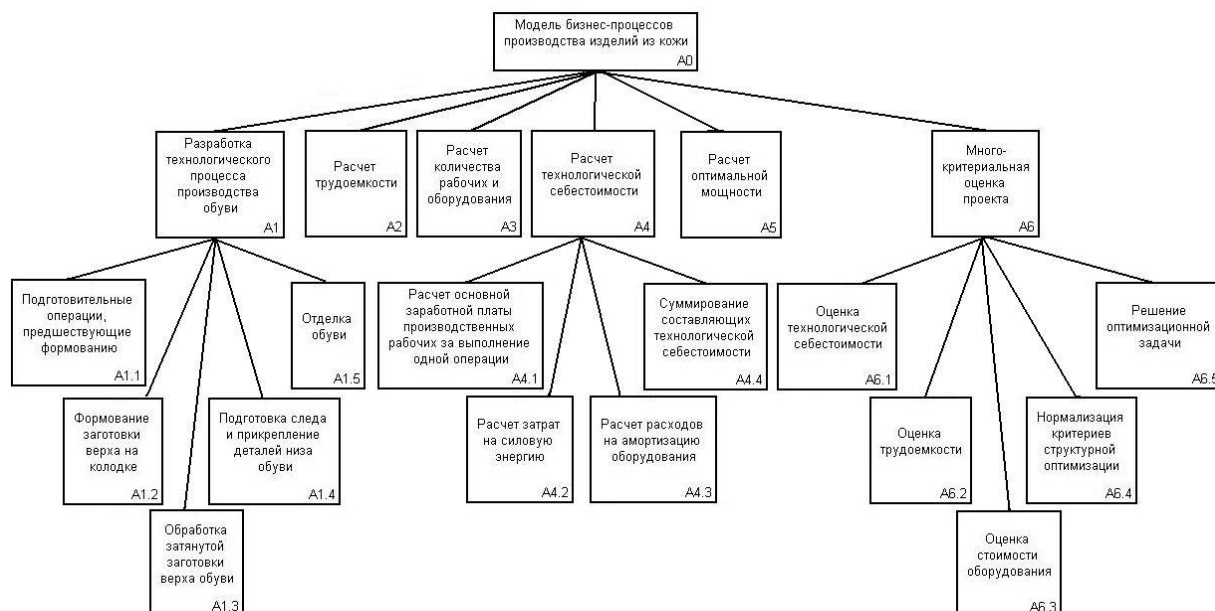


Figure: 21 - Generalized process decomposition scheme for modeling and evaluating business processes production of leather goods

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ANALYSIS OF THE IMPLEMENTATION MODELS OF SOCIAL WORK IN PERSONS WITH ONCOLOGICAL DISEASES

Abstract: *The article analyses the implementation models of social work and their application in the work with persons diagnosed with oncological diseases. Traditional models for implementation of social work are reviewed – three - aspect model, medical model, interactional model and management model of social assistance with individual case (“case management”). Their application in persons with oncological diseases has been analysed. Each of the considered models presents its essence, advantages and disadvantages when used in persons with oncological diseases. Based on the analysis, it is concluded that the case management model has the highest necessary advantages to ensure effectiveness in its application to persons with oncological diseases and to ensure the quality of social services provided.*

Key words: *oncological social work, models of social work, persons with oncological diseases.*

Language: English

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Introduction

The implementation models of social work as a way of presenting the professional reality and the organizing of thinking and activity of the social workers are based on different theoretical and applied perspectives and reflect the desire of researchers and the professional community to present and use empirically confirmed and conceptually based constructions of the professional and practical activity. They represent alternative points of view in terms of both the methodological orientation (reflexive-therapeutic, individual-reformists and radical perspectives) as well as the structuring of the helping process and the functions and roles of the subjects in the working relationship (Radev, 2018). Social work with people with oncological diseases is one of the areas of the clinical social work, which at the present stage is developing intensively in many countries and contributes to the support of people with

specific needs. It is established as a practice of professional application of the theory and methods of the social work for solving and prevention of the psychosocial problems experienced by individuals, families and small groups. These problems can include difficulties, risks, disabilities, or disorders, including mental, emotional, and behavioural. The purpose of the interventions is to improve and maintain the psychosocial functioning of the individuals. Social workers help clients to undertake psychological and interpersonal changes, increase their access to social and material resources and maintain the achieved level of their abilities and strengths. Interventions in the social work for people diagnosed with oncological disease can be provided in the form of therapeutic, supportive, educational and advocacy activities. Such social work includes interventions aimed at interpersonal interactions and intrapsychic processes, as well as support for leading

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an independent life. Those who perform social work towards people diagnosed with cancer are trained to combine individual psychotherapeutic methods for improvement of the physical, emotional and mental state of the client.

Exposition

Traditional for the social practice models for implementation of social work, applicable for persons diagnosed with oncological diseases.

The implementation models of social work as a way of presenting the professional reality and the organizing of thinking and activity of the social workers are based on different theoretical and applied perspectives and reflect the desire of researchers and the professional community to present and use empirically confirmed and conceptually based constructions of the professional and practical activity. They represent alternative points of view in terms of both the methodological orientation and the structuring of the helping process and the functions and roles of the subjects in the employment relationship (Nunev, 2019). The social work as a professional activity is aimed at assisting the client to restore his social functioning and to create the necessary for it social conditions. In this regard, its main goal is to regulate the fortune of connections and relationships of the human - subject with the society and to assist in overcoming and solving problems that have arisen in the micro-, meso-, macro social environment. With its deeply humane goal and orientation, it creates conditions for the realization of social security and social protection of people from different types and degrees of risk groups and for ensuring the well-being of society.

Traditional for the practice implementation models of social work are considered, and their application in persons with oncological diseases is analysed. In each of the considered models its essence is presented, advantages and disadvantages when used in persons with oncological diseases.

1. "Three - aspect" implementation model of social work.

The researcher Sasho Nunev presents the "three-aspect" model for the implementation of social work in the following way: activity through which the "existing availability" is managed ("case of"); guidance and mediating activity ("case for"); activity directly related to interpersonal relationships ("case with"), emphasizing that the interpersonal relationships are involved both in the management of the "existing availability", as well as in the guidance and mediation, and they have their rational and emotional aspects (Nunev, 2019).

Social work in the aspect of "case of" allows to highlight the ability of a social worker to handle in a professionally sound manner with the legal framework of social assistance and to relate certain provisions and prescriptions to the specifics of the

problem in each case. This component of the professional competence is one of the important conditions influencing the focus, quality and effectiveness of the assistance process. In specific terms, the activity in this aspect creates a relationship that meets the regulatory and professional requirements, presented as: "existing problem - regulatory grounds for social support or intervention." Its constructive aspects can be represented by the following example, adaptable to the group of persons, object of our work: the social worker works on a case of a person with oncological disease, on a case of a close relative of a person with oncological disease, etc.

Depending on the nature and specifics of the clients' problems, the professional activity of the social worker covers cases that are also dealt with by other professions and institutions.

Then conditions are created for the emergence of social work in the aspect of a "case for", requiring guidance and mediation. When a need is established in the course of work, e.g. from technical aids, then this person with oncological disease becomes a case for the Department "People with disabilities" at the Social Assistance Directorate.

Social work in the aspect of "case with" is directly related to the previous "perspectives" and in specific terms reflects the specifics of the employment relationship as an interpersonal interaction - a case with a person with oncological disease, a case with a close relative of a person with oncological disease, etc. The working relationship between client and social worker as the core of the helping process and the main vision of the social work in the aspect of "case with" includes a system of elements, among which the leading ones are: the relationship between the assisting and the assisted, enabling the assisted to feel understood and accepted by the social worker and their joint activity is developing well; the client's trust, which represents his/her conviction that despite some worries, he/she can share with a social worker his/her feelings, worries, mistakes, failures; the concern, reflecting the client's sense of the social worker's responsible attitude towards his or her case and his/her unadulterated desire to help solve important problems in his/her life.

The advantages of the three-aspect model of social work in its application to clients with oncological diseases: The model creates conditions for the emergence of social work in the aspect of "case for", requiring guidance and mediation of the person with oncological disease.

Disadvantages of the three-aspect model of social work in its application in clients with oncological disease:

➤ The model is poorly applicable in the oncological social work due to the clearly expressed "catalytic" nature, static and stereotypical approach in

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considering and solving the problems of a client.

➤ Emphasized are positions of power of the social worker, defined as “expert” (“immutable changing”).

➤ The client’s service is defined from normative and deficient positions.

➤ There is a pattern and existing risk of artificial division of the professional activity into separate aspects - “perspectives” (Nunev, 2019; Payne, 2005).

2. Medical model for implementation of social work.

In the early stages of their development, the theory and practice of social work substantiate and construct in conceptual and methodological terms the helping process by borrowing a model of professional activity from the clinical practice, which includes the stages of anamnesis, diagnosis, intervention (therapy), evaluation. The researcher Sasho Nunev emphasizes that the clinical-therapeutic context of this model in modern conditions reflects the tendency to “psychologicalise” the social work and “the blurring” of some specific boundaries in the aspiration of some social workers to be psychotherapists. At the same time, it allows to be presented not a “literal clinical template”, but a way of practical-applied thinking and a process, which is carried out in several stages: conducting research and collecting information about the history of the case (anamnesis); clarification of the current state of the problems and planning of the possibilities for action (diagnosis); undertaking specific professional intervention in accordance with a specific goal, plan and differentiated steps (intervention or therapy); evaluation of the achieved results and identification of development measures (evaluation).

The advantages of the medical model of social work in its application in clients with oncological diseases: The model allows to be presented not a “literal clinical template”, but a way of practical-applied thinking and a process that takes place in several stages.

Disadvantages of the medical model of social work in its application in clients with oncological disease:

➤ The model reflects a tendency to “psychologicalise” the social work.

➤ The model creates preconditions for strong positions of power of the social worker and inequality in the working relationship with the client, which lead to limited communication between the two parties, schematism, lack of flexibility and compliance with the client's opinion, to deprivation of partnership and cooperation.

➤ The model is based on the vision of relatively unchangeable social workers and their services and institutions, which from the standpoint of “socially guaranteed competence” interpret the information provided by the client in accordance with established

professional views and standards and through planned intervention affect the “changing object” (client).

➤ The model assumes the creation of obstacles in presenting alternative points of view by the client (Nunev, 2019).

3. Interactional model for implementation of social work.

The interactional model of social work was developed by W. Schwartz and later supplemented in the works of L. Schulman, who noted that he presented “a holistic theory on an empirical basis, based on the interactional approach of helping”. Its main advantage is the illustration in an accessible way of the dynamics and systemic nature of the support process. Examining the interactional model of social work, Sasho Nunev emphasizes that the following leading ideas are embedded in its conceptual substantiation: consideration of the client in continuous dynamic interaction with various important for him/her systems from the environment; mutual need of the individuals and the systems relevant to them, expressed in concern and the need to support each other to ensure their own lives and development in the context of social responsibility for the well-being of everybody (“symbiotic relationship”); availability of real opportunities for blocking the connections between individual and social systems, related to: the constantly changing social systems and their growing complexity; the differences and conflicts between the interests of the individuals and the systems important to them (personal and mutual interests); problems in interpersonal communication; existence of aspiration and force for change and development in the client and the systems in the direction of their own interest; consideration of the interaction in the context of the environment in which it takes place, depending on the established stereotypes, creating conditions for dependence and depression, and such internalization, generating negative attitudes and perceptions of oneself. Considering the client in dynamic interaction with systems from the environment directly related to his or her life and development, is a basic idea in the interactional model of social work

The researcher Sasho Nunev emphasizes that the interactional model of social work has characteristics that in comparison with other models can be defined as significant. These characteristics can be defined as *advantages of the interactional model of social work in its implementation on clients with oncological diseases:*

➤ presents a “basic triangular model” of interaction with a dynamic nature between the client's system, important for it systems from the social environment and the social worker as a “third party” whose professional function of mediation and activity are focused on assisting the client and the systems to restore their understanding of the importance of the

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symbiotic relationship between them and to overcome the barriers blocking their interconnection;

➤ examines the client in a process of dynamic interaction with various important for his/her life and development systems, where he or she is not the object of analysis, and the attention is focused on the course of interactions and interpretation of the problems in the context of interactions with social surroundings;

➤ focuses more on the process by which the client's potential and strength for change are assessed, rather than on the pathology (medical model);

➤ expands the scope of the functions of the profession, defining in general its role as a "mediator" in the relationship "client - social environment";

➤ connects the functional-role essence and specifics of the profession of the social worker with the realization of two leading and inextricably linked directions: care for the well-being of the individual and achievement of social justice;

➤ emphasizes the clear definition of the professional functions and roles of the social worker, which limits the likelihood of taking on foreign functions and roles and creates conditions for purposefulness, adequacy and effectiveness of the support process;

➤ examines the relationship between the clients and the important for them systems in an "environmental context" without losing the relationship between individual and society;

➤ includes in the actions of the social worker the aspects of the professional influence, both on the policy and services in the social assistance service and the social services institution or in other institutions, and on the overall social policy.

Disadvantages of the interactional model of social work in its application in clients with oncological disease:

➤ Insufficiently clear position regarding the integration of radical views for the development of the society and active search for the challenges of the radical practice.

➤ Insufficient empirical substantiation and definition of some assumptions, which are not always confirmed in real life (Nunev, 2019).

4. Management model of social assistance with individual case ("case management").

The management model of social assistance with individual case is conceptually substantiated and practically implemented in the late 70s of the XX century in the USA, and in the early 80s it was adopted in Great Britain. The orientation and the essence of the model in general are connected with ideas from two relatively independent areas, which represent the general framework conditions: social management, which refers to the organization and management of the system by social institutions and "self-government in the field of personality", which requires a sufficient level of social competence and refers to the ability to structure one's own activities, behaviour and life in

such a way, which allows careful assessment of the situations, reasonable reading and use of the personal potential and resources, operational and strategic planning, realistic assessment of opportunities for success and alternatives, awareness of existing dependencies, from whose positions they (activity, behaviour, life) to be assessed as successful in subjective terms.

The functions and roles of the social worker as a case manager are primarily related to those of a supporter, attendant, mediator, organizer, planner. His or her professional competence is expressed in the ability to interact and work together with the client to form the necessary "common ground" that allows to make an adequate choice of ways and means to achieve the goal, and to mediate between the client and various professionals and institutional structures and, depending on the specifics of the problems, to select and organize those networks of resources and support systems that are necessary and can be included in the support in the given case. In procedural and technological terms, the management model of social assistance with an individual case is aimed at creating and organizing a network of resources and assistance systems and with its help the client can develop its competence, use the capabilities of the organizational structure in order to solve their own problems.

The model is designed to work with clients who encounter significant difficulties in their personal and social functioning and face problems of a complex nature, as well as for those who have failed to solve problems or find it difficult to find a support system and accept help. In organizational and technological terms, case management combines social services and benefits in a way that allows to give an appropriate response to the needs and problems of individual clients with possible effective ways and means. Procedurally, it is defined as practice of an individual social worker or a professional group of assisting specialists, aimed at "organizing, coordinating and maintaining a network of formal and informal support and activity systems designed to optimize the client's ability to cope with life and to increase the well-being of those in need in a number of ways". Examining the management model of social assistance with individual case, Sasho Nunev points out that it is implemented through certain phases of work with its functional significance and specificity (Nunev, 2019; Frankel, Gelman, 2012).

My view is that the described model of social work is most suitable for use in people with oncological diseases, because its implementation emphasizes the responsibility of the client to the extent that allows to actively involve their own strengths and capabilities in any support, so they can manage their own life. In this context, case management achieves its goal based on positive and constructive positions, i.e. focuses on the joint

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assessment of the client's competence and ability to be productive, not on the pathology. The management model of social assistance with individual case, having a specific conceptual basis, stands out with the following essential theoretical and applied aspects:

➤ presents a significant response to the public requirements for efficiency and effectiveness of the social work and the system of social services by introducing entrepreneurial competence in the professional space of the social work;

➤ focuses on the individual responsibility and self-affirmation of the client, which emphasizes the positive, productive and constructive beginning in the support process and avoids the static perception of the client, focusing on pathological characteristics as inherent in the medical model of social work;

➤ links the management of the client's problem situation with the functions of the social worker - case manager: mediation, coordination, partnership, providing access, assistance, advocacy (protection), implemented in the process of linking formal and informal support systems in the network and in a wider institutional and social space;

➤ considers the social worker - case manager in his work as an "agent of change", which in the context of social management and social work connects him/her with the function of a "social entrepreneur";

➤ includes in the professional repertoire of the supporting manager the function and the role of "system agent" and connects them with the process of "system integration" in managing the support for an individual case, i.e. cooperation of the systems of formal and informal support and activity in order to increase the competence of the client and to improve his or her well-being;

➤ provides the client with the opportunity to choose those support offers that, in his/her opinion, meet his/her needs and would contribute to solving the problems;

➤ pays special attention to the types of difficulties (barriers) that the client encounters in reaching and using the provided resources and systems, and to the ways to overcome them.

The scope of the case management concept allows it to be successfully integrated into the basis of a model for organization and management of the activity of services, centres and institutions with a wider range of the provided social services (modified version). In this case, the responsibility for ensuring internal and external interaction and coordination is assumed by one social worker (case manager), who is familiar with the work of each specialist in the team. The social worker explains their functions to the clients, advises them and directs them while maintaining cooperation. Thus, the management of the support in working with an individual case is linked to the management of the institution (Nunev, 2019).

Conclusion

Social work with people with oncological diseases is one of the areas of the clinical social work, which at the present stage is developing intensively in many countries and contributes to the support of people with specific needs.

The models for implementation of social work as a way of presenting the professional reality and organizing the thinking and activity of social workers are based on different theoretical and applied perspectives and reflect the desire of researchers and the professional community to present and use empirically confirmed and conceptually based constructions of the professional and practical work. Of the traditional social work models, as applicable in the practice with people with oncological diseases, I believe that they are the "three-aspect" model, the medical model, the interactional model and management model of social assistance with individual case. The article presents the advantages and disadvantages of the targeted models in their application in people with oncological diseases. My view is that the case management model has the highest necessary advantages to ensure effectiveness in its application to people with cancer and to ensure the quality of the provided social services.

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DYSPLASTIC COXARTHROSIS SURGICAL TREATMENT OPTION CHOICE DIFFERENTIAL TACTICS LITERATURE REVIEW

Abstract: In this article it was investigated about dysplastic coxarthrosis, comparison of domestic and foreign literature, complication and treatment, Arthroplasty of the hip joint, Primary endoprosthetics in dysplastic coxarthrosis.

Key words: dysplastic coxarthrosis, treatment option.

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Introduction

Main part.

Dysplastic coxarthrosis, as a consequence of congenital dislocation or hip subluxation, occupies one of the leading positions and represents about 77% [3] of the general pathology of the femoral joint. The normal development of the femoral joint requires an accurate, genetically deterministic balance between the development of the acetabulum and cartilage, provided that the femoral head is correctly centered. This balance can be disturbed during intrauterine development, which leads to the appearance of incongruence of the joint. Mechanical failure in the femoral joint is caused by excessive overloading of certain parts of the joint surface of the femoral joint due to anatomic deformation [11, 58, 59]. The

development of osteoarthritis on the background of the femoral joint dysplasia is bound to happen, so the problem has a high social importance and requires careful study [2, 6].

An advanced comprehension of the clinical and radiological anatomy of the dysplastically changed femoral joint, taking into account the changes caused by the primary disease as well as the surgical interventions preceding the endoprosthetics, is especially important for further planning of the operation and the choice of endoprosthetic tactics.

The main changes in hip dysplasia depending on the severity of the lesion are: acetabular dysplasia - underdevelopment (beveled) of the roof, absence of walls [32, 33]; femur dysplasia - change of the neck - diaphyseal angle [28, 62], bend of the bone marrow

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canal, narrowing of the proximal femur, change of the neck torsion angle [15, 17, 21, 22, 37, 48, 54]. There are also some anatomical disturbances in the soft tissue surrounding the joint, for example, there is a shortening of the muscles, especially the adductor, quadruple and posterior hip muscles. The joint capsule is thickened and may be hourglass-shaped, making it difficult to open and mobilize the hip.

General terminology was worked out to describe the dysplastic hip joint, both normal and impaired hip biomechanics. Moseley [52] improved the differentiation of the language commonly used in hip pathology;

Concentricity is a measure of the circumference, or sphericity, which characterizes the ability of the joint to smoothly (unobstructed) perform a full range of movements.

Rotation center - in a spherical hip joint with a full volume of motion, the rotation center is very close to the center of the femoral head, in case of hip joint deformities, the true rotation center can be at a fairly large distance from the apparent center of the femoral head, thus increasing the effective lever of the abductor, at the patient develops an abductor roll and a positive symptom of Trendelenburg.

Coverage - the degree of coverage of the femur head, very often described as the central - edge angle, which is used in the diagnosis of children's age, in adults to measure the coverage of the femur head (inclination) is used Sharpe angle.

Analysis of national and foreign literature has shown that with the rapid development of hip arthroplasty, not sufficient attention is paid to organ-preserving operations. Current works do not fully reflect the essence of the issue, and the results of observations are very diverse. At present, the arsenal of organ-preserving surgical interventions for the treatment of dysplastic coxarthrosis presents:

1. Corrective osteotomies:
 - 1.1. proximal femoral bone,
 - 1.2. pelvic bones,
 - 1.3. combined - proximal femur and pelvic bones.
2. Plasticity of acetabulum roof.
3. Hip arthroplasty:
 - 3.1. local tissues,
 - 3.2. resection,
 - 3.3. alloplasty.
4. Arthrodesis.

Corrective osteotomies

The human hip joint has very little tolerance for asymmetric loading, which leads to early development of coxarthrosis in non-congruent joints [11,30,58,78].

According to some authors, early surgical correction of acetabular dysplasia delays the onset of coxarthrosis [58,60]. Most researchers suppose that restoration of joint biomechanics by pelvic and/or

femoral osteotomy at 5-6 years of age leads to excellent results, which cannot be said about the same operations in adults and adolescents. In any case, osteotomy in developed dysplastic coxarthrosis leads to pain reduction and restoration of satisfactory (acceptable) function for many years [12]. Reorientation of the body's tissues is more favorable than implantation of foreign materials at a young age. The main purpose of osteotomy in hip dysplasia is restoration of normal biomechanics through repositioning of joint surfaces. Close to normal biomechanics will improve joint function and durability. The degenerative process can be interrupted by increasing the area of the loaded joint surface, thereby reducing the load on the joint surface unit. Normalization of the hip joint biomechanics with improved hip head coverage will eliminate unnecessary loading on the joint surface unit and normalize the limb axis.

Osteotomies of the femoral joint can be divided into two main categories: reconstructive and palliative, depending on the disease severity.

Reconstructive osteotomies can be used in case of established deformation, before coxarthrosis. Palliative osteotomies are used at acute, but not at the last stage of the disease. Production of reconstructive osteotomies at expressed (severe) stage can accelerate the process of osteoarthritis development, and on the contrary, production of palliative interventions at early stages is unacceptable [50].

Of all types of pelvic osteotomies, we considered triple osteotomy. Triple osteotomy of pelvis is applied (including in combination with intervertebral osteotomy) in the early stages of coxarthrosis in adolescents after the closure of Y cartilage and in young age. According to A.M. Sokolovsky (1987), this operation is highly effective and can provide the centralization and complete coverage of the femoral head with acetabulum, restore or improve the congruence of the hip joint. The operation can be performed while maintaining the congruence of the femoral head and acetabulum and has a positive effect on the biomechanics of the femoral joint by improving the coverage of the femoral head and reducing the resulting forces acting on it.

Different types of pelvic osteotomies improve acetabular coverage and, according to many authors [35,51,77], facilitate the implantation of the acetabular component in further arthroplasty. Chiari, K. notes in his paper [16] that the preceding pelvic osteotomy facilitates further hip arthroplasty.

Intervertebral osteotomy changes biomechanical conditions of the hip joint functioning, which manifests itself in the change of load axis, redistribution of shoulder lengths of body weight and traction of surrounding joint muscles, reduction and more uniform distribution of intraarticular pressure per unit area of cartilage surface, muscle decompression, elimination of malposition of limb.

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The main purpose of intervertebral hip osteotomy, in addition to relieving pain symptoms, is the redistribution of forces acting on a certain surface of joint cartilage.

Osteotomy of the proximal femur, which is a frequent indication for the removal of total hip replacement, should not complicate the course of subsequent endoprosthetics. Factors potentially complicating total endoprosthetics after osteotomy of the proximal femur section are: removal of the metal structure, deformation of the proximal femur section leading to inadequate installation and fixation of the prosthesis, or to intraoperative fracture of the femur and risk of infection.

Benke et al. note intraoperative complications in 7.6% of 105 operations of total endoprosthetics of femoral joint after the previously performed osteotomy of the proximal femur using a metal structure. [10]. To avoid this complication, it is desirable to remove the metal structure in 12-24 months after the osteotomy, which can also be used to achieve biological remodeling of the proximal femur, it is also possible to avoid complications such as fatigue fractures of screws, which complicate their removal, obliteration of screw holes, which facilitates the introduction of cement, as well as reducing soft tissue injuries and the risk of infection.

Soballe et al., [71], after 112 total endoprosthetics operations after medializing variational intervertebral femoral osteotomies, note that the occurrence of a fracture during the endoprosthetics correlated with the degree of medialization of the proximal femoral bone.

A.G. Charchyan and co-authors [4] describe casuistic cases, errors and complications in hip replacement, such as incorrect installation of components of the endoprosthesis (perforation of the cortical layer of the femur) after the preceding varifying - medializing intervertebral femoral osteotomy, infectious complications, aseptic and septic loosening of prostheses, worn-out and migration.

Benke et al. also note the occurrence of a cortical layer fracture or perforation of the femur in 4.8% of cases at endoprosthesis after medializing intervertebral femoral osteotomy [10].

According to Ferguson, G. M. [24], the preceding femoral osteotomy is associated with a large number of complications and revisions in arthroplasty.

In contrast to the above, Shinar A. A., and Harris, W. H. [69] note that the preceding intervertebral femoral osteotomy did not affect further excellent results in endoprosthetics.

Boos N. Et al. [13] compared the results of 74 total endoprosthetics performed after previous proximal osteotomies of the femur with 74 operations performed in a control group over the same time interval. The authors found no major differences in the number of complications or number of revisions.

Intervertebral osteotomy of the femur is a technique of choice in young patients with initial symptoms of dysplastic coxarthrosis [21,76].

Plastic acetabulum roof

The idea of establishing a bone roof to provide support for the femoral head and prevent its subluxation in hip dysplasia was first proposed by F.Konig in 1891. Later on, the operation was significantly improved. The roof was formed by introducing a niche of bone auto- or allotransplants in the acetabulum roof.

Experience has shown that such operations were, in general, ineffective. Bone transplants due to the increased load on them were broken, resorbed, or moved in the cranial direction. In addition, used auto or homotransplants require a long period of restructuring and gradually decreasing in size from its original value, which reduces resistance to the load of the formed arch and changes its position.

Hip Arthroplasty

Arthroplasty as classic form with the use of pads made of allo- and auto cloth is currently almost not used, as in 27-35% of cases after 2-3 years, joint stiffness develops and pain increases. The term hip arthroplasty at the present stage involves interventions on the femoral and pelvic components with correction of the ratio of joint surfaces, destruction and osteoplastic replacement of cystic areas of subchondral bone in order to restore the structure and function of the joint.

Currently, the so-called true hip arthroplasty is developing, which includes both treatment of joint components and correction of biomechanical disorders.

Arthrodesis

In late stages of coxarthrosis, characterized by a severe deformation of the femoral head, along with endoprosthetics and arthroplasty, hip arthrodesis is used. In recent years, the indications for this operation have narrowed significantly.

Primary endoprosthetics in dysplastic coxarthrosis

Total hip replacement improves the function of the limb and relieves pain in patients with dysplastic coxarthrosis, but total hip replacement in dysplastic coxarthrosis is associated with significant difficulties due to the incomplete anatomy of the hip joint due to the primary disease and previous surgical interventions.

The reconstruction of the acetabulum is the most important part in hip dysplastic joint endoprosthetics. The best place to implant the acetabular component of an endoprosthesis is the true acetabulum [15,22,23,45,49,82], but it is also possible to implant in the place of neo-arthritis [20,64,75], where there is enough bone tissue to implant a bowl of endoprosthesis without using a bone transplant and to avoid shortening of the femur. Studies by means of computed tomography on models using load [18,19]

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have shown that the load on the prosthesis increases significantly when the bowl is placed in place of neoarthrosis, but even in this case, if adequate medialization is achieved, a significant reduction in load can be achieved [20]. Also, when the prosthesis is placed in place of neoarthrosis, it is possible to impeach the bending and extension of the hip joint, which should also be taken into account. Russotti et Harris [64] noted in their study 16% of revisions in 37 cases when the bowl was placed in place of neoarthrosis for 11 years. Pagnano et al. [57] noted that the bowls, located 15 mm above the true acetabulum, further led to more revisions of the acetabular and femoral components.

So, the main principle in the implantation of the endoprosthesis bowl is to obtain satisfactory coverage of the latter, which in most cases is achieved by deep rimming with a bowl of small diameter, if there is an adequate bone bed [80]. When using this technique, it is necessary to be careful not to damage the bottom of the acetabulum, which will reduce the amount of bone tissue and may lead to a fracture of the bottom of the latter during the operation or after the patient starts to load the limb while walking [17]. When using a bowl with a small external diameter, the femoral head should be 22 mm. in order to maintain an optimal thickness of polyethylene. Sochart et Porter studied the results of endoprosthetics of 60 hip joints with dysplasia or dislocation, operated according to this method using bone cement [72], 20 years after the operation 22 acetabular components were revised (37%). The probability of bowl operation was 97% to 10 years and 58% to 25 years. Besides, according to some data, cementless endoprosthetics of the bowl of small diameter gave equivalent results in elderly patients [40,66] and the best in young patients [65,67].

Also bone cement, auto - or acetabulum alloplasty [46, 47], and the use of strengthening rings can be used to provide adequate coverage [27].

To ensure reliable fixation of a bowl of endoprosthesis in acetabulum 70% of the latter should be covered with intact bone [53], the remaining 30% can be covered with auto - or allotransplant.

The head of the osteotomized femur bone can be used as an autograft, which, according to some authors, gives the best results [68]. According to some authors, early results after the use of a femoral head autotomical graft combined with a cement endoprosthetics technique led to satisfactory results in the overwhelming number of cases [26,31,34,40,79], although the remote results with this technique had a large percentage of loosening of the bowl, according to some authors [26,53], but according to others - the remote results with the use of autotomical grafts were also satisfactory [29,63].

Plasty of acetabulum with allograft leads to satisfactory results [31,41], although the number of complications in the distant period is greater in

comparison with endoprosthetics without allograft [42,53,68].

A few words about strengthening rings in acetabulum reconstruction. Gill et al. [27] presented the results of 87 total endoprosthetics using strengthening rings developed by Muller concerning dysplasia of type II, III or IV according to Crowe et al. [17]. After an average of 9.4 years of observation, only 2 revisions were observed for aseptic loosening, one for dysplasia III and one for dysplasia IV degree. In both cases, the cement endoprosthetics technique was used. The authors advise to fill the acetabulum defects with autografts.

Ayvazyan A.V. offers metal reconstructive plates, developed by the author, which are strengthened by screws in the bone bed [1] for restoration of the flattened-ellipse shape of the acetabulum in dysplastic coxarthrosis. The author used bone cement to fill in the bone defect. From 2004 to 2008, 94 operations were performed according to this method.

The reconstruction of the femur also has its own difficulties in dysplastic coxarthrosis, for example, in dysplastic coxarthrosis there is a small diameter of the intramedullary canal, a dysplastic femur head, with a short neck, which is in the position of a sharp anteversion, and also there can be a sharp deformation due to previously transferred inter or posterior osteotomies [39]. In the presence of a sharp deformation, a second osteotomy may be necessary in order to safely position the femoral component of the endoprosthesis. The narrow canal facilitates the blockage of the femoral canal with cement, but there is a high risk of a cortical fracture and later a femoral fracture while the canal is being prepared for femoral implantation [17]. The problem of the very narrow femoral canal can be solved by splitting the proximal femoral bone at a distance of 8-10 cm at the front and back, after which the formed interval is filled with an autograft and fixed with screws [55].

In most cases, femoral anatomy requires the use of a small, short endoprosthesis component, since very often the femoral component is introduced directly into the thigh diaphysis rather than through metaphysis [8,38,41,55,80].

In hip arthroplasia endoprosthesis with dysplasia of I, II, III degree [17] it may be sufficient to use the usual femoral component. In case of IV degree dysplasia it is better to use narrow, lateralized femoral components, and in case of anteversion over 40 degrees to perform a detrotating osteotomy [7,36,54] or use modular implants with the possibility of anteversion correction [36].

Woolson et Harris examined 55 hip joints with cemented endoprosthesis, of which in 4 cases (7%) the femoral component loosened after 4.8 years on average [80].

Stringa et al. investigated the results of total endoprosthetics of 21 femoral joint using miniature

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femoral component in 15 cases [73]. All components were radiologically stable and asymptomatic for 10 years on average.

Silber et Engh in their work pay attention to the importance of using modular femoral components that help to change the anteversion, thereby reducing the possibility of dislocation [70].

Huo et al. used specially designed femoral components with an increase in offset of the femoral head by 30-40 mm with an alignment of the limb length [38]. A variated neck was developed to avoid impingement. Monitoring was carried out for an average of 57 months, during which there were no cases of revision.

Symeonides et al. studied the results of 74 total endoprosthetics in 64 patients with untreated hip congenital dislocation (74). All bowls were located at the level of the true acetabulum using cotiloplasty in 64 cases. Several methods were used to lower the femur to the level of the true acetabulum, including: reversible osteotomy, femur shortening (proximal resection), tendon tentotomy of the iliac-lumbar muscle, and in one case, distraction using an external fixation device. Plates and screws were used to fix osteotomies. During an average period of 7.2 years in 74 cases a sharp reduction of pain and improvement of function were obtained. One case of infection and three cases of loosening were observed.

If a bowl is placed in a true acetabulum at high dislocations, it is necessary in some cases to shorten the femur in order to avoid damage of sciatic nerve. Usually, when the bowl is placed in the true acetabulum, when the hip is lowered, the limb is elongated; when the hip is lowered by more than 4 cm, the risk of damage of the sciatic nerve increases [14,25,44].

Several methods have been suggested for the intraoperative hip replacement [80].

Hip shortening can be performed at the correct and subjective levels. This operation provides for hip reduction and correction of the anteversion of the femoral component. Reikeraas et al. have studied the results of substitutional shortening osteotomies in 25 cases of high dislocations (61). In all cases, a transverse abdominal osteotomy with rotational and angular correction was performed, distal fixation was achieved by endoprosthesis leg using press fit method. The average difference in limb length was 5 cm and the average elongation was 3 cm. There was one case of sciatic nerve paresis, one case of non-conversion and one case of incorrect fusion. During the next 3 years, not one of the joints was not revised.

Yasgur et al. also describe the results of subtrochanteric shortening osteotomy in the treatment of high dislocations (81). In all cases, transverse abdominal osteotomy was performed with rotational and angular correction according to indications, distal fixation was achieved with the help

of endoprosthesis leg by press fit method with allograft strengthening by circlage.

Also osteotomies such as staircase osteotomies [55,56], double chevron osteotomies [9] and oblique osteotomies [8] were suggested for hip replacement.

Subtrochanteric osteotomies are very popular because they preserve the normal anatomy of the femur as far as possible, fixate the metaphyseal compartment, and avoid the problem of the metaphyseal and diaphyseal zone incompatibility in more proximal osteotomies.

Charchyan and co-authors suggest the use of distal shortening osteotomy, i.e., the shortening resection of the femur diaphyse at the border of the middle and distal third (about 2-3 cm), followed by osteosynthesis of the femur with a plate and screws [5]. According to the proposed technique, 14 patients were operated on; in all cases, according to the authors' data, excellent and good results were obtained.

Lai et al. considered the results of application of distraction devices for the purpose of hip lowering to total endoprosthetics [43]. 20 femoral joints with untreated dysplasia of type IV according to Crowe classification were operated with orthophemoral distraction apparatus for hip reduction to total endoprosthetics. In 12 cases it was also performed simultaneously with the application of the apparatus of tenotomy of the leading muscles of the hip. The distraction was performed within 8-17 days, with the average hip lowering by 4.5 cm. During the course of the distraction, there were no damages on the side of the vascular and nerve bundles and no infection. During 43 months on average 19 patients had excellent clinical results, 1 patient had good results. In 2 patients there was a residual sign of Trendelenburg, the difference in length of limbs was the greatest 2 cm.

So, in comparison with the reconstruction of the acetabulum, there are no big differences in the reconstruction of the femur bone. The main difficulties are encountered when deciding on the type of shortening osteotomy.

Conclusion

Recognizing the success of modern endoprosthetics, it can not be considered the it is only opportunity to treat patients with dysplastic coxarthrosis, especially young and middle age.

Thus, the analysis of publications on surgical treatment of degenerative-dystrophic diseases of the hip joint shows that a large number of surgical interventions are offered to treat various forms of coxarthrosis. However, to date, no clear indications for various types of surgery have been formulated, and the criteria for biomechanically justified correction of hip joint relationships in various forms of coxarthrosis have not been defined, taking into account not only X-ray data but also the activity of the pathological process. At present, the choice of surgery is based on

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the personal experience of the surgeon and is carried out by identifying the entire complex of biomechanical relationships in the joint, the stage of

disease, the degree of dysfunction and individual features of degenerative-dystrophic process.

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THE METHODS OF ICE REMOVAL FROM MOTOR ROADS

Abstract: We have considered conventional methods of struggle against freezing on the motor roads in winter used in various countries and have offered an up-to-date technology with the use of reagent. Worth noticing that a reagent has no impact on environment pollution.

Reagent allows removing an ice layer from highways in a short period of time and impedes its formation afterwards. Reagent occurs in both liquid and powdered state. Special-purpose vehicles are necessary for reagent use. Types of reagent and broad option of producing companies makes it possible to purchase it on beneficial terms.

Introduction of this method in Georgia will be positively reflected on national economy development in winter period.

Key words: road, frozen road, sodium calcium chloride, magnum chloride.

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Introduction

As far as you know, starting with winter season we face a new problem on the motor roads – formation of snow and ice layer on road pavement. There are many ways and technologies of struggle against this natural phenomenon. The most spread method used in many countries worldwide lies in salt sprinkling on a frozen road. Frequently, this method pays its way right off the snowfall, while it is ineffective in struggle against an already laid-down snow.

In Russia and many countries in Europe, except salt there are used special chemical solutions, reagents and their assortment is wide. Special-purpose vehicles are necessary for both salt sprinkling and use of reagents. In contradistinction from salt, reagents can liberate already frozen road pavement from ice layer.

In Sweden and Norway there is developed and widely used a heated wet sand (where water comprises 30% of total mass), which fuses in the ice and increases 1,5-2 times tire adhesion with the undercarriage, and the car moves on frozen road as if it drives on a wet asphalt concrete pavement. The

effect of this technology use is very good, but after pavement's drying it is necessary to clean it and remove the rest sand from the surface, in such case this type of mixture should be scattered on the motor road using special vehicles.

There is a broad choice of reagents today, but the most important is to select such type of reagent, which will give maximum effect with minimum expenses.

The operation principle of a reagent is that a freezing temperature of water entering into it is lower than in natural occasion that itself impedes ice formation. There are different percentage ratios of salt and chemical reagent in reagent's composition, which have no effect on environment pollution. The reagent occurs in both liquid and powdered state. Reagent is mainly based on wide spread and well known modified sodium calcium chloride and magnum chloride that is also called magnum chloride hexahydrate.

Reagent can be used on both motor road undercarriage and on parking areas, sidewalks, children's playground etc.

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The reagent acts on the ice as follows (see Fig. 1): after hitting the ice surface a granula enters into reaction with ice, penetrates its structure and starts to

decompose it, until the ice transforms into water, and afterwards impedes water conversion into ice.

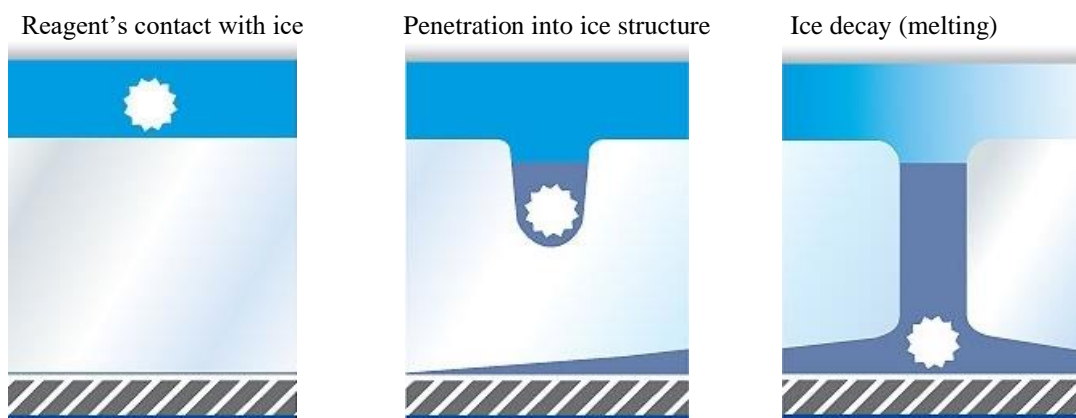


Figure 1. Operation principle of reagent

Reagent's operation at negative temperatures can be determined beforehand, and the maximum for reagent is -35°C . It is already prepared according to corresponding scale or takes place its dilution with water, i.e. temperature reduction. The process of ice conversion into water is very quick right after reagent's contact with ice. Therefore, the effect of its use is tremendous.

Similar to types of reagents there are lots of reagent producing companies today and there is a broad option on a global market.

Use of this method will have a great effect for Georgian highways, in particular it will reduce traffic jams and road accidents to the minimum. This method

will cut the costs and will simplify roads maintenance and protection.

As of today the experience of many countries worldwide evidences the efficiency of this method that should be taken into account and necessarily introduced proceeding from winter conditions in Georgia.

Salt can be used in Georgia on relatively low-intensity roads, while using the reagent on central highways we will be able to simplify to a maximum extent vehicle movement in winter period, as a result the cargo turnover will not be inhibited and all of this will be positively reflected on revenues earned in this season.

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THE PROBLEM OF PERSONALITY IN PHILOSOPHICAL AND ANTHROPOLOGICAL VIEWS OF BAHA AL-DIN WALAD AND JALAL AD-DIN RUMI

Abstract: The article deals with the philosophical and anthropological views of the great Sufis of their period Baha al-din Walad and Jalal ad-din Rumi where they present their own philosophical interpretations of the image of the perfect man which they associated with spiritual knowledge. The philosophical and spiritual views of the great Sufis Baha al-din Walad and Jalal ad-Din Rumi and the altruistic ideas that call humanity to perfection (insan al-kamil) and maturity, play a vital role in educating the young generation and ensuring the continuity and development of spiritual and educational reforms in our society. By analyzing the rich scientific heritage and anthropological views of these Islamic scholars from a philosophical point of view, we begin to get acquainted with their ideas on anthropology. Also the article presents the comparative-analogic analysis of the theologians' philosophical issues such as the human factor, human existence, human nature, and human perfection.

Key words: mysticism, religious ideosphere, Sufism, anthropology, soul, morality, material world, spiritual world, anthropology.

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Introduction

The issues of the human nature, human creation, and the problems of personality have been of equal interest to people at all times. The science of anthropology has emerged in the history of science as a separate field on the basis of limitless debates, mythological, religious, and philosophical worldviews on this topic. The emergence of certain knowledge about anthropology has been associated with the formation of theoretical knowledge in this field. By the nineteenth century, the theoretical foundation of the science of anthropology had influenced the development of sciences such as anthropology and psychology and the issues such as the human factor, human existence, human perfection which were considered the focal points in the philosophical interpretations of ancient philosophers, Eastern thinkers and European philosophers. The problem of personality was also central to the philosophical teachings of Baha al-Din Soltan Walad

and Mawlawī Jalal ad-Din Rumi, the great Islamic scholars of the Great East. In their philosophical views on anthropology both of the thinkers associated the image and nature of the perfect man with theology. The Surah al-Mu'minun of the Al-Qur'an Al-Kareem states: "... And certainly did We create man from an extract of clay. Then We placed him as a sperm-drop in a firm lodging. Then We made the sperm-drop into a clinging clot, and We made the clot into a lump [of flesh], and We made [from] the lump, bones, and We covered the bones with flesh; then We developed him into another creation. So blessed is Allah, the best of Creators" [17. 12-14 verses]. Jalal ad-Din Rumi made his comments on these verses as follows in his book *Majāles-e Sab'a* (Seven Sessions): the humanity was first created from a sperm-drop, then it turned to a clinging clot, and then it was made into a lump of flesh. Allah commanded the archangel (angel) of mercy to show mercy towards the mother's womb and to give appearance to the creature. The archangel took

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the appearance (image) assigned to him from Al-lawh Al-Mahfooz (the Preserved Tablet) and began to shape it from the outside of the womb following submissively the command of Allah. When the angel finished its mission, the Almighty said, "O angel, go now, we have a secret affair with him". After that, the Creator breathed his spirit of life, and thus man became a living. No one knows what soul is. Then there came a command to write down the human deeds to be rich, happy or unfortunate" [4, 123]. In his book "In It What's in It" Mawlawi Rumi writes the following lines about the creation of man: "When the Almighty Allah created Adam from sounding clay and water, He completed him in forty days" (Hadith) and from mud He moulded the human into shape. Then Adam remained on earth for forty days. Accursed Iblis (Devil) was banished by Allah from heaven as punishment for his haughtiness, as a result Shaitan (evil spirit in Islam) entered Adam's mold and veins, observed him and claimed right after seeing his blood-stained veins and flesh: "Oh, I wonder whether this is Iblis whom I saw in Arsh (the throne of Allah) and the creature made by Originator. Maybe not! If there is Iblis, it is absolutely He". [3, 40]. In these lines Rumi refers to the Islamic teaching that man believes that the divine destiny (being in the mother's womb) is when Allah wrote down in the Preserved Tablet all that has happened and will happen, which will come to pass as written. At the same time, the scholar points out that there are animal-like attributes in the character of man, and also cites the legends about Man and Iblis (Devil) originated in the Eastern mythology.

Explaining his philosophical ideas about the creation of man, Jalal ad-Din Rumi claims that in fact Man is the creature made of a drop of impure water, so it is natural that his actions should also have animal-like qualities due to which the man sometimes fall below the level of the animal kingdom. According to Islamic mythology, a mortal was created out of dry clay and formed from dark mud, and Mawlawi Rumi explains the creation of human in his book *Ma'nawīye Ma'nawī* (Spiritual Couplets) with the following verses:

*Nisbati aslim shu tuproq, obi gil,
Obi gilga berdi Yazdon jonu dil.
Qaytamen tuproqqa bir kun begumon,
Sen-da tuproqqa borursan, ey falon.
Jon chiqar bulsa, taning tuproq bulur,
Tor qorongu bir qabrga joylanur [4, 456].*

In these verses the scholar states that human being is created from dry clay and blown of divine spirit by the Creator. Without any doubt, the "clay figure" one day after death goes back to his Originator and when the soul leaves the body, it turns into dust again which will be placed in a narrow dark tomb.

Baha al-din Walad, the greatest jurist and scholar of the Muslim world in the Middle Ages, combines two principles - the physical (material) and metaphysical (spiritual) basis in the interpretation of

the essence of man when expressing his views on human anthropology. According to the Persian poet, the human body is in fact extremely pure and transparent. As long as a mortal creature lives in the physical world, he often unconsciously becomes a servant to materialism (appetites), that is, his sexual and sensual lusts cast him into various vices (sins). Consequently, his pure physical self becomes increasingly blurred in the path of materialized transient desires. Baha al-din Walad asserts that the Creator had created man as a pure creature, and without any qualms man must also return to Allah pure. The scholar says that we should not be deprived of the Jannah (paradise) of the eternal world because of the pretense of the mortal world. In his views on anthropology, Baha al-din Walad argues that man must first have a deep understanding of himself, his essence and the nature of his creation. If a person wants to understand his essence and identity, he must save himself from the taste of lust and greed. The scholar says that a person who strives for perfection and moral maturity attains spiritual maturity on its own. The great Sufi sheikh glorifies the idea that the essence of understanding and loving Allah should not be sought in the physical world, but one can find Him in the spiritual world.

Man is a living being in the universe. But on the other hand, human being is distinguished from other creatures by his ability to understand himself, to think about his life, his existence and to create material and spiritual values. The inner world and the psyche of man serve as the brightest mirror for the boundaries of the whole human world. All the things seen in the mirror allows man to observe and understand what is happening in the great world of human emotions, thoughts, and actions. Jalal ad-Din Rumi studying the material and spiritual foundations of man shows the superiority of the spiritual world. As he considers paying attention to one's spiritual life and practice (meaning of life) and not to one's physical nature (body) is a sign of Islamic wisdom. In his book, *Ma'nawīye Ma'nawī* (Spiritual Couplets) Rumi emphasizes that all the changes, developments and contradictions in the world exist in man, the perfecting one. At one point, he specifies that the study of the attributes and essential qualities of the human soul takes place through an understanding of the names, power and essence of Allah, the Creator of the universe and Adam. In the philosophical and anthropological teachings both scholars state that the path that leads man to perfection and greatness is the spiritual (metaphysical) world.

The following point in Jalal ad-Din Rumi's views on anthropology is noteworthy: Allah created human being from the dust of the angelic world, and man is a living being between an animal and an angel. For this reason, human nature has animal traits such as ignorance, savagery, and depravity, as well as angelic and divine qualities such as beauty, knowledge, piety,

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and asceticism. Heaven and hell are the great abodes of Allah. Mawlawī Rumi describes this as a divine mystery and wisdom known only to the Creator. Allah summarizes all the deeds of man, and when the mortal being returns to the Creator, one of the great abodes of Allah becomes available to him according to his deeds. According to Eastern mythology, man was created from a combination of four elements: water, fire, air, and earth. That is why man has been endowed with certain qualities from each of these elements. Water has endowed the human heart with such qualities as purity, beauty, and openness, while fire has gifted man with such qualities as jealousy, anger, and arrogance. From the air man has taken the qualities of instability and hypocrisy, while from the earth he was endowed with such qualities as humility and contentment. Jalal ad-Din Rumi claims that the essence of man is made up of a combination of these four elements, and that the features of cruelty and gentleness in man are derived from these elements. According to the scholar, the human soul is gentle, tender and beautiful, while the body of the man is rough and hard. As stated by Mawlawī, the more ignorant, savage and corrupting qualities a person has in his character, the more he goes to the level of animal kingdom (becomes animalistic), and the more meek, knowledgeable and humble a person is, the more angel-like he is. However, a human being cannot possess merely animal and angel-like (divine) features. Because the outward creation of man is made up of a combination of opposing elements, such as water and earth, air and fire. It is natural, therefore, that these qualities exist in his character. Jalal ad-Din Rumi comments about this ideology in one of his major works *Dīwān-e Kabīr* (Great Work) or *Dīwān-e Shams-e Tabrīzī*:

Na az xokam, na az bodam, na az obam, na az otash,

Na az Arsham, na az farsham, na az savnam, na az konam.

The scholar's aforementioned verses can be interpreted as follows:

*I am neither dust, nor earth, nor water, nor fire,
I am neither from Arsh, nor from earth, I am not both earthly and heavenly.*

According to Baha al-din Walad, man is in fact a whole union of body and soul which are inseparable from each other. On the word of the thinker, the body and soul are present in all living beings in the universe, and man differs from them in intelligence, consciousness and thinking, and due to all these features man is recognized as the supreme creature of the universe. One can see and make a judgment about a human being on the base of the outer aspects, but to see the innate potential of human is impossible because the human soul is not only very delicate, but also very complex. Human beings have both earthly and heavenly aspects to them; they are like wolves of the earth and angels of the heaven and these attributes

and qualities of human nature are reflected in the influence of his attitude to those around him and to the outside physical world. The following words of Baha al-din Walad are very remarkable: "Four birds live in the human body. They perish every night and their bodies unite again. Every morning they reborn and reunite in a cage called the human body. One of them is a duck, who is impatient and greedy; the second is a rooster - he seeks to achieve his goal through greed and occasional crows; the third bird is the peacock - he spreads his feathers with dignity, swaying and trying to attract everyone; the fourth is the crow, who makes a noise by its nonsensical cries and unpleasant voice for being heard by everyone" [14, 221-222]. At this point, the scholar tried to reveal the negative aspects of human behavior through figurative images. The human body is really like a cage which is full of various conflicting emotions. Even though people know about unfortunate events which bring distress to the spirit such as causing people various frustrations through impatience, enslaving *nafs* (selfhood) which appears due to greed, as well as causing some physical illnesses on the body, they continue to make such mistakes many times in their lives. Some people, in the pursuit of their own goals and interests, destroy the hearts of others causing suffer of their spirits and thanking them for their good deeds they have done. There is another group of people who, as a result of over-grooming, cause the rise of certain states or faculties such as sexual lust, unlawful sexual intercourse etc. by this destroying the families which are the core of society. The latter group of people, on the other hand, directly cause the conflicts between people by their insignificant gossips and various conspiracies. All the aforementioned states and attributes related to human character are connected with human soul. Baha al-din Walad compares the human body to a cage [18, 221.] and asserts that the soul bird returns to the Creator when it dies. It was another common feature of Sufis' views on anthropology of that period. Jalal ad-Din Rumi, in his fifth book of *Maṭnawīye Ma'nawī* (Spiritual Couplets), also compares the human body to a narrow cage:

*Tan – qafasdir, anda jon ovoradir,
Qul – qanoti bogli bir bechoradir* [9, 575].

These verses are interpreted as follows: *The body is a cage and the soul is anxious there because of tight ties.*

Hence, there is a consistent logical connection between the anthropological views of both well-known scholars on the nature of man. And it once more proves that Jalal ad-Din Rumi was also the follower of the practical and theoretical philosophies of his father Baha al-din Walad.

The issues such as the beauty and purity of the human are highly valued in the teachings of Sufism. Indeed, as Rumi points out, a heart is more beautiful than hundreds of al-Ka'bahs al-Musharrafah (sacred

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site in Islam). As the scholar claims, the Ka'bah is the building of Abraham, but the heart is the mirror of Allah. In the epistemological views on human Jalal ad-Din Rumi puts forward the following idea: The reason why the ignorant man cannot control and discipline his negative feelings and behaviour is that he sometimes forgets why he was created and he is ready to seek the truth from anywhere, but not from himself. Neither diligence, nor knowledge and the killing of material desires will benefit man if he neglects the most important truth. The truth is only in ourselves, not behind the mountains and not in the depths of the seas, and even, human beings simply do not doubt what a unique treasure they have [9, 163]. Rumi admitting the truth writes the following verses:

*Narsa yuqkim, olami asror erur,
Khar ne istarsen, uzingda bor erur.*

As the scholar claims, there is nothing in the world mysterious and whatever the human wants, he has it.

Jalal ad-Din Rumi, in his *Maṭnawīye Ma'nawī* (Spiritual Couplets), states that all the changes, developments and contradictions in the universe exist in man. He also points out that the study of the characteristics of the human soul are gained by an understanding of the attributes, names, power, and essential qualities of Allah, the unique Creator of the universe and Adam. Human being is the best vicegerent (representative) of Allah on earth and according to mysticism, man should not fear Allah, but love Him and live by worshiping His existence [1, 83]. In this regard, the Turkish philosopher Abulboki Golpinarli writes the following ideas: "Since man is the vicegerent of Allah on earth, all beings are subject to his commands. This credit gave humanity superiority over other beings, making it more supreme and honourable. As the representative of Allah on earth, man is obliged to be fair and merciful to all beings" [13, 46].

According to Jalal ad-Din Rumi, the combination of two compatible objects form a third object. As an example, he speaks of the union of members of the opposite sex and the appearance of the third person from this union. The scholar explains that even though human's physical nature is inherently contradictory, human thoughts and inner world are quite compatible. As an example, Mawlawī brings the flash formed by the friction of two matching stones. As he states, the human body is something that is nourished by substances and compounds with the help of the various forces of nature, strengthening its physical nature.

We can also observe that Baha al-din Walad and Jalal ad-Din Rumi relied on the principles of the religious ideosphere in expressing their anthropological views about humanity. The religious ideology is a world of miraculous philosophies consisting of a system of ideas that explain nature, society, human existence, their development and

decline, their future destiny which is in the will of the Creator [15, 87]. As a result of the thorough analysis of the philosophical views of thinkers about human nature, in their teaching we can see the following among the peculiarities of the religious ideology:

1) All living and non-living beings in the world created by the will of Allah with their predetermined destiny;

2) The Creator gave man the status of the highly intelligent being among the living beings He created;

3) All people are equal before the Creator.

This ideology is considered the universalism in their philosophy which combines all universal concepts. Both Baha al-din Walad and Jalal ad-Din Rumi, relying on the doctrine of unity – *vahdat ul-vujud*, claim that all human beings are equal before the Creator, regardless of their race, religion, sect, profession, nationality or language. All this is reflected in the words of Allah "Everything will return to me" [11, 190].

Historically, the philosophy of Sufism is a doctrine related to Islam. Today as a separate school of thought it provides modern learners with a set of knowledge that expands their spiritual world. The history of Sufism is studied in harmony with Persian poetry, and its essence is understanding human identity. In this regard, man only examines himself around a specific goal. Every human seeks to discover his submissive ego in order to understand his absolute existence. We often encounter the high level of Sufi exoterics in the philosophical teachings of Baha al-din Walad and his follower Jalal ad-Din Rumi. Both of them put at the center of their anthropological teachings the idea of discovering the divine ego through worldly blessings and nafs (selfhood), passions, and ignorance of ego.

Essentially, man is a mortal being between two non-existents, that is, he was not on earth, then he was born and again disappeared. All created things in the physical world move from existence to non-existence, only the Creator is eternal. The existence of Allah is not proven; His existence is understood only by an inner feeling. As mentioned above, every creation has its end because there is no infinite thing in the universe. Understanding infinity requires infinite life, infinite time and infinite possibility. But this opportunity was not given to anyone. The task of the science of philosophy is also to study the relationship between finiteness and infinity.

The main idea that guides Jalal ad-Din Rumi's views about the nature and creation of man is as follows: "According to anthropology humankind is part of nature and has existed through evolution: creature turns into community, inanimate beings turn into plant world, plants turn into animals, animals turn into human beings, human transforms to angels, and so on. The Almighty has shown all these so that human beings may accept and acknowledge that there is superior power" [6, 288]. A. Schimmel, a German

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orientalist, interprets Rumi's anthropological ideas as follows: "I died as a mineral and became a plant. I died as a plant and became an animal. I died as an animal and became a human. I died as a human being and went to the heaven and the angels" [16, 288]. The well-known philosopher N. Juraev expresses his comments towards the ideology as follows: "At first glance, Jalal ad-Din Rumi expresses the ideas similar to the law of nature about the inevitable extinction of living beings, which only turn from one species to another, but the scholar proposed the formula "mineral-plant-animal-human" on the high spiritual and mental basis which occupies the status of a huge constantly rotating circle" [10, 150]. Indeed, in the system of evolution proposed by Rumi, we can see the absolute spirit, the basis of all beings moving from simplicity to complexity.

It is known that the 13th century, in which Baha al-din Walad and Jalal ad-Din Rumi lived was recognized as the most difficult and tumultuous century in history. The disintegration and internal destroy of the Khorezmshahs dynasty, the brutal battles of the Mongol invaders and various riots in social life, the oppression and violence perpetrated by social rebellions - all this naturally had a negative effect on the psyche and spirit of the people of that time. In such circumstances the sermons of these philosophers, the ghazals with the Sufi spirit, and the humanistic ideas served for giving confidence to common people in their life, the desire to live, and eventually their fame began to grow day by day. During such difficult period the scholars skillfully developed a new concept of humanity in defining the position of human life. Both Islamic philosophers, considered themselves sympathetic to the joys and sorrows of all mankind in their philosophical and spiritual views. Through their humanistic ideas, they sharply condemned the inferior human qualities such as discrimination and cruelty.

Rumi used to compare the human body to a jug and the mind to water, according to his philosophy the jug has five holes — a mouth, two eyes, and two ears. Both human perfection and human misery depend on these five holes. He also says that Allah has given man the ability to fill the jug with any water, and on the base of that jug He will reward man. Mawlawi Rumi says that human knows the value of all things in the physical world: e.g., the value of gold, silver and silk etc., but most importantly, he does not know the value of his life, health, and dignity. He writes the following verses all about this:

*Khar matoh narkhini ilgaydir kuzing,
Qiyimatingni bilmasang, nodon using* [7, 322].

One can interpret the above-mentioned verses as follows:

*You know the price of every unnecessary object,
but you don't know the value of yourself.*

In his book "In It What's in It" Mawlawi Rumi writes that man is the vicegerent of Allah, faith is the

sail of the ship of the human body, and if one wants to know who man is, he/she should talk to him and know what he is like. There are many similarities between human and animal body parts. The scholar says that the human body parts close to animals' raise his sexual lust and selfhood and the body parts close to human body stimulate him to acquire knowledge and wisdom, by this bringing him closer to *Haqq* (the ultimate reality). Man is also a creature left between angels and animals. In his book "In It What's in It" Jalal ad-Din Rumi writes the following ideas: "There are three states of man. First, he is not close to Allah, on the contrary, he serves the women, men, children, the wealth, and the things that are made of stone and dust, and he always strives for them. Second, man acquires the necessary knowledge and wisdom, and he does not worship anyone other than Allah. Third, in both cases human moves forward and remains silent. He neither confirms that he is obedient to Allah nor he is not. He is considered to go beyond both statuses. It is impossible to hear any sound from him in this world and for him, Allah is neither present nor absent, but the Divine power created both of them" [8, 219].

At the end of this book, Mawlawi Rumi claims that Allah created the universe, the sky, the earth, the sun and the moon, goodness and evilness to be remembered and worshiped by human [19, 219], and Allah dedicates pain and suffering to man so that he may always remember the Creator.

The philosophical and spiritual views of the great Sufis Baha al-din Walad and Jalal ad-Din Rumi and the altruistic ideas that call humanity to perfection (*insan al-kamil*) and maturity, play a vital role in educating the young generation and ensuring the continuity and development of spiritual and educational reforms in our society. The following conclusions can be drawn from the process of philosophical analysis of the scientific heritage and anthropological views of these scholars:

- They deepen our understanding of the essence of man, his perfection, and thus prepare learners for a deeper observation of human existence and his spiritual world;

- They help to understand the essence and creation of human life and the main purpose of his living;

- They help to increase the theoretical knowledge about human epistemology, the concepts that promote knowledge, enlightenment, the role of the mind and the soul in the process of cognition, the degree and status of perception in the mirror of the heart etc.;

- They provide with the theory about the power of the human mind and heart studied from an axiological point of view.

The rich scientific heritage of Baha al-din Walad and Jalal ad-Din Rumi is an important and valuable source that helps us to further develop our views on epistemology, axiology, philosophical anthropology, ontology, dialectics, gnoseology and anthropology.

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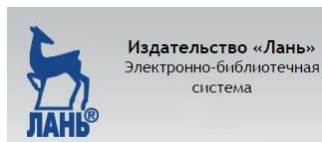
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