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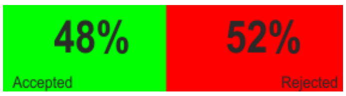

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HISTORICAL ASPECTS AND THE PLACE OF INTUSSUSCEPTION ANASTOMOSES IN COLON SURGERY (LITERATURE REVIEW)

***Abstract**: Currently, there is a high frequency of surgical interventions accompanied by the formation of intestinal stomas, which does not tend to decrease. Reconstructive reconstructive operations are technically complex and are marred by a high frequency of failure of inter-intestinal anastomoses and lethality. Unlike traditional ones,intussusception anastomoses are simple in their execution and do not require special expensive devices and tools [13; 16; 30; 32].*

In this regard, the authors of this article provide a brief historical background, improvement of methods and place of formation of intussuscular anastomoses of reconstructive intestinal surgery. For they are aimed at improving the results of surgical treatment of this contingent of patients.

***Key words**: Stomas, inter-intestinal anastomoses, intussusception, reconstructive operations, failure.*
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ИСТОРИЧЕСКИЕ АСПЕКТЫ И МЕСТО ИНВАГИНАЦИОННЫХ АНАСТОМОЗОВ В ХИРУРГИИ ТОЛСТОЙ КИШКИ (ОБЗОР ЛИТЕРАТУРЫ)

***Аннотация**: В настоящее время сохраняется высокая частота оперативных вмешательств сопровождающихся формированием кишечных стом, которые не имеет тенденцию к снижению. Реконструктивно восстановительные операции технически сложны и омрачаются высокой частотой несостоятельности межкишечных анастомозов и летальности. В отличие от традиционных,инвагинационные анастомозы просты по своему исполнению и не требуют специальных дорогостоящих аппаратов и инструментария [13; 16; 30; 32].*

В этой связи, авторы данной статьи приводят краткую историческую справку, совершенствование способов и место формирования инвагинационныхмежкишечных анастомозов реконструктивно восстановительной хирургии кишечника. Ибо они направлены на улучшение результатов хирургического лечения данного контингента больных.

***Ключевые слова**: Стомы, межкишечные анастомозы, инвагинация, реконструктивно восстановительные операции, несостоятельность.*

Введение

Многовековая история развития хирургии кишечника свидетельствует, что по сей день, в ургентных ситуациях хирурги вынуждены ограничивать оперативное вмешательство наложением стом. Так, частота выполнения операций Гартмана, по сводным данным исследователей колеблется в пределах 40-60% и не имеет тенденцию к снижению [6; 9; 22; 24; 25].

Реконструктивно восстанови-тельные операции технически сложны иомрачаются высокой частотой несостоятельности межкишечных анастомозов - 10-25%, которые до 80% случаев являютсяпричиной послеоперационного перитонита и в 40-60% являются причиной смерти. Хотя на сегодняшний день имеются более 500 методов ручного шва и различных устройств для соединения кишечных соустий, ситуация кардинально не изменилась[1; 10; 16; 18].

На наш взгляд, такое положение дел обусловлено рядом тактических и технических упущений и недочетов. Поэтому продолжается поиск оптимальных способов, которые могли бы способствовать улучшению исходов хирургического лечения у данного контингента больных.

Наряду с многочисленными способами межкишечных анастомозов, инвагинационные, стоят в ряду других несколько особняком ввиду того, что почти все они предложены, в основном, для толстой кишки с целью упрочения надежности шва. В основу инвагинационных способов было положено предположение, что соединение путем внедрения одного конца кишки в другой будет надежнее, чем простое их доведение до соприкосновения и скреплением в таком положении швами; место шва не будет подвергаться реждевременному напору каловых масс, и кишечное содержимое не будет просачиваться сквозь линию анастомозов.

Разработка современного кишечного шва началась с операции инвагинации, выполненной немецким хирургом Рамдором в Вольфенбюттле в 1827 году. Анастомоз удерживался с помощью 2-х нитей. При затягивании нитей один конец кишки, лишенный питания, механически внедряется в другой; завязывают концы нитей и операция считается законченной. Циркулярных швов Рамдор не накладывал, а фиксировал анастомоз к брюшной стенке. Успех операции можно объяснить развитием спаек вокруг анастомозов, ибо притакого типа операции трудно было ожидать хорошего сращения между серозойинвагинированного конца и слизистой отводящего. Позднее способ Рамдора модифицировался рядом авторов.Сегодня этот факт в значительной степени забыт. Однако эта операция побудила не только Жобера де Ламбала (1824), но и Лембера (1826) провести свои эксперименты на животных над швами в кишечнике [32].

Traves V. (1812) сообщил, что «сращение разеденного кишечника требует контакта перерезанных концов кишки по всей окружности». Однако на рубеже веков Halsted подчеркнул важность подслизистой основы в кишечном анастомозе, что это мало что изменило в тоже время или позже, чтобы изменить ортодоксальную сквозную процедуру. Затем Да Коста заявил, что было описано 250 методов наложения анастомозов. Однако, очевидно, что большинство этих отклонений от освященной веками процедуры вызвали споры и сомнения[24].

Maylard A. E. [31] для предупреж-дения обратного забрасывания содержимого толстой кишки рекомендует после продольного бокового вскрытия толстой кишки отдельной нитью прошивать конец тонкой кишки. Нить вдевается в иглу, которая проводится через отверстие в толстой кишке и выкалывается в одной из ее стенок. Кишка подтягивается нитью на нужную глубину и вокруг нее накладывается серо-серозный шов. Нить извлекается, и точечное отверстие ушивается кишечным швом. Инвагинат, по мнению автора, подвергается обратному развитию и сморщиванию.

В основу инвагинационных способов были положено предположение, что соединение путем внедрения одного конца кишки в другой будет надежнее, чем простое их доведение до соприкосновения и скреплением в таком положении швами; место шва не будет подвергаться преждевременному напору каловых масс, и кишечное содержимое не будет просачиваться сквозь линию анастомозов.

Так, Gibson M.D. [28] по этому вопросу пишет: «Как правило, я стараюсь отрезать конец верхнего сегмента как можно ниже, надеясь более надежно защитить линию швов от каловых масс; технически гораздо проще наложить швы между кишечными концами, вставленным друг в друга, чем между концами, смещающимися по отношению друг к другу во время операции; кроме того, этот метод может быть применен в тех случаях, где другие способы не могут быть применены или ведут к неудаче (толстая кишка, особенно нижняя его половина).

Hertert[30]. считает самым лучшим при соединении толстой кишки с тонкой анастомоз по типу «конец в конец». Он говорит о том, что здесь не следует бояться разности просвета. Образующийся, как бы клапанный, аппарат будет действовать лишь против ретроградного движения содержимого кишки. Следовательно, он будет функционировать наподобие баугиниевой заслонки. Для этого автор предлагает свой, так называемый, способ «простой инвагинации», предохраняющий от недостаточности шва. Способ состоит в том, что конец тонкой кишки инвагинируется в конец толстой кишки таким образом, чтобы серозные поверхности обоих отрезков соприкасались.

Для увеличения площади соприкосновения серозных оболочек при концевых анастомозах предложено много способов. В этом отношении заслуживает внимания предложение Оппеля В. А. [20], который рекомен-довал при соединении отрезков тонкой кишки с толстой применение метода «простой инвагинации». Сущность этого предложения заключается в том, что после того как через все слои концов тонкой и толстой кишки наложен циркулярный шов, место шва инвагинируется в просвет толстой кишки на 1-1,5 см. и накладываются серозно-мышечные узловые швы вокруг всего анастомоза. Это приводит к соприкосновению серозных оболочек на значительном протяжении. Такой анастомоз хорошо функционировал, стеноза при этом не наблюдалось.

Кимбаровский М.А. [15] разработал в эксперименте и внедрил конце-боковой инвагинационный анастомоз после правосторонней гемиколэктомии. Ушивался проксимальный конец толстой кишки, затем выполнялся продольный разрез толстой кишки, «хоботок» из тонкой кишки с брыжейкой внедрялся в просвет толстой. По окружности анастомоза накладывались серозно-мышечные направляющие швы. Однако, погружение необработанного конца подвздошной кишки в просвет толстой ведет к рубцеванию последнего с потерей антирефлюксной функции. Использование 2-3 рядных швов способствует ишемии стенки кишечника в зоне анастомоза и заживление идет по типу вторичного. Нам серозной оболочке развивается воспалительный процесс, формируется ригидное кольцо, суживающее просвет анастомоза, которое затрудняет эвакуацию содержимого.

Bernard E.F. [26] приводит случай когда после левосторонней колэктомии образовалась стриктура колоректального анастомоза. Расширение с помощью сигмоидоскопа вызвало перфорацию. Резекция этой области была ограничена из-за обьемапредыдущейоперации и удовлетворительны анастомоз «конец в конец» не может быть выполнен. Поэтому был выполнен колоректальный анастомоз путем инвагинации и в последствие произошло удовлетворительное заживление без стриктуры.

Burson L.C. et al. [27] сообщают о неприемлемо высокой частоте несостоятельности швов анастомозов толстой кишки. По этой причине авторы,экспериментально на собаках разработали анастомоз телескопического типа, который обеспечивал более прочную линию шва ранней послеоперационной фазе.

Витебский Я.Д. [3] проводил дальнейшую разработку этого способа анастомоза и дополнил ее пластикой илеоцекальной заслонки при ее несостоятельности. По методике автора терминальный отдел подвздошной кишки внедряется на 2 см в просвет слепой кишки, накладывается один ряд серо-серозных швов, которыми соединяют верхнюю стенку тонкой кишки с примыкающим краем выходящей, а нижнюю стенку подвздошной кишки с прилежащей слепой кишкой. Соответственно расположению вентральной уздечки накладывают треугольный шов, обеспечивающий поперечное растяжение просвета тонкой кишки в виде щели. Он же разработал инвагинационный тонкотолсто-кишечный анастомоз типа «конец в бок», отличающийся от методики Кимбаровского М.А. тем, что поперечно-ободочную кишку рассекают не по tenialibera, а поперек продольной оси.

Большой вклад в развитие клапанной гастроэнтерологии и в частности в развитие хирургии, межкишечных анастомозов, внёс Ибадов И.Ю.[13]. Автор, после проведённых исследований как экспериментальных, так и клинических, пришёл к выводу, что для сохранения и восстановления моторно-эвакуаторной функции желудочно-кишечного тракта при формировании анастомозов между различными отделами пищеварительной трубки, необходимо пересекать полые органы пищеварительного тракта в строго поперечном направлении. Этот фактор позволяет минимально травмировать полый орган, не пересекая циркулярные мышечные волокна, тем самым сохраняя проведение нервно-электрического импульса по длиннику полого органа, что в послеоперационном периоде позволит избежать грубых нарушений со стороны моторно-эвакуаторной функции кишечника, улучшить процессы заживления анастомоза.

Ганичкин А.М. [5] в своих работах показал, что в отдаленном послеоперационном периоде происходит частичное выворачивание «хоботка» в виде муфты, постепенное нарастание слизистых оболочек тонкой и толстой кишок на серозную оболочку «хоботка», что ведет в последующем к стенозированию и ригидности тонко-толстокишечного анастомоза.

GoligerJ.S. [29] рекомендует технику втяжения анального выворота Cutait-Turnbull; однако процедура эндоректального вытягивания, аналогичная процедуре Сааве, при которой удаляется слизистая оболочка, также получила положительные отзывы.

Завгородний Л.Г. с соавт. [11] при декомпенсированной кишечной непроходимости предложили двухэтапный хоботково-инвагинационный илеотрансверзо-анастомоз "конец в конец". При этом послеправосторонней гемиколэктомии выводилась илеостома с вывернутой наружу слизистой (хоботок) и формировалась задняя губа будущего соустья с выведенной сюда же толстой кишкой. Через 1,5-3 месяца сформированная энтероколостома мобилизовалась, хоботок тонкой кишки погружался в толстую. Накладывался двухрядный узловой шов на переднюю полуокружность соустья, последнее располагалось внебрюшинно. Метод применяется с 1976 года. Летальность после 33 операций составила 3%, несостоятельности швов не было.

Думанский Ю. В. с соавт. [8]опубликовали результаты 154 правосторонних гемиколэктомий с формированием "дупликатурного" илеотрансверзоанастомоза "конец в конец". Сначала узловыми серо-серозными швами формировали заднюю полуокружность соустья. Затем после продольного рассечения тонкой кишки накладывали циркулярные узловые швы через все слои стенок тонкой и толстой кишок. Образовавшийся инвагинат высотой 4-5см сшивали по бокам тремя узловыми швами и погружали в просвет толстой кишки. Далее накладывали узловые швы на переднюю полуокружность соустья. Летальность составила 4,5%.

Мусулманбеков К.Ю. [17] разработал и внедрил способ формирования инвагинационного тонкотолстокишечного анастомоза «конец в конец» с применением «челночного» шва. Применяемый автором метод позволяет устранить разницу в диаметре анастомозируемых кишок.

Коптеулов А.Ж. и соавт. [14] предложили способ формирования клапанного аппарата путем инвагинации конца тонкой кишки непосредственно к ее культи. Предварительно teniasubmukosa выпавшего конца тонкой кишки обнажается линейным разрезом и затягивается узловыми швами, которые накладываются на культи толстой кишки. Когда в просвете толстой кишки возникает давление, конец тонкой кишки прижимается к культе и сплющивается, предотвращая, таким образом, рефлюкс. В отличие от метода Я.Д. Витебского после резекции илеоцекального угла конец тонкой кишки выворачивали слизистой оболочкой наружу на 2,5-3,0 см и фиксировали. По противобрыжеечному краю линейным разрезом обнажали подслизистую основу на всем протяжении инвагинированного конца тонкой кишки. Производили продольный разрез стенки толстой кишки от края ее культи по противобрыжеечной стороне длиной, равной ширине тонкой кишки. Через данный разрез вводили конец тонкой кишки, равный длине инвагинированного участка. Вокруг тонкой кишки накладывали отдельные серозно-мышечные швы.

Все эти многочисленные модификации сводились к следующему: большинство авторов, кроме двух фиксационных лигатур, (это показано у Рамбдора), край отводящего конца фиксировали к серозной поверхности приводящего (инвагинированного) узловым или непрерывным швом; некоторые авторы внедряли инвагинат вместе с брыжейкой, другие предварительно изолировали участок кишки, подлежащий инвагинированию, от брыжейки [3; 4; 10; 18; 21].

Скибенко Н.В. с соавт. [23] сообщили об успешном применение операции Мандаке у 4-х больных по поводу рака прямой кишки. Операция заключается в низведении мобилизованной сигмы через оставшийся короткий отрезок прямой кишки, не удаляя слизистой и накладывая швов. Кроме того, автор произвел две серии опытов на собаках, 3-м собакам был наложен анастомоз на толстой кишке с погружением 0,5-1,0 см кишечной трубки и ушиванием 2-х рядными швами (непрерывный кетгутовый через все слои и серозно-мышечный узловой). У 3-х других собак длина инвагината составил 3-5 см. Автор выявил сужения в области излишнего конца инвагината только у второй серии собак. Сужения в области анастомоза у первой серии собак не было. На основании этого автор сделал вывод, что длина инвагината не должна превышать 2.0 см, иначе повышается степень его сужения. По этой же причине избыточная часть низведенной кишки должна отсекаться как можно выше.

Демин Д.И. с соавт. [7] сообщают, что резекцию кишки проводят путем пересчения кишок электроножом со смыканием краев кишок вследсвие электрокоагуляционной обрвботки. Инвагинируют тонкую кишку в толстую трехрядным челночным швом. Последовательно накладквают челночнные непрерквные швы задней поверхности и первого шва передней поверхности анастомозируемых органов. Встречной пальпацией расправляют просветы анастомозируемķх органов. Первый и последний вколы челночного шва проводят к толстой кишке. Способ позволяет сделать арефлюксный инвагинационный анастомоз, моделирующий илеоцекальный клапан.

Нишанов Ф.Н. с соавт. [19] используют способ формирования колоректоанастомоза инвагинацией с использованием однорядного шва. На приводящий отрезок кишки выше мобилизируемого участка накладывается мягкий зажим, чтобы предупредить выделение кишечного содержимого. После этого, отступив 3-4 см от культи толстой кишки, фиксируется дистальный конец тонкой кишки, для этого накладывается один ряд узловых серозно-мышечно-подслизистых швов в продольном направлении строго по краю тении и в ее просвет погружают инвагинат. Фиксацию производят одним серозно-мышечно-подслизистым швом посередине, после чего накладывают остальные швы передней стенки соустья. Швы должны накладываться с таким расчетом, чтобы они не проникалив просвет кишечника. Учитывая то, что швы накладывали в один ряд, захватывали достаточно массивный серозно-мышечный вал, обеспечивающий широкое соприкосновение одноименных тканей для их прочного срастания.

Таким образом, инвагинационные анастомозы просты по своему исполнению, хотя и требуют тщательности при наложении швов. Не требуют специальных дорогостоящих аппаратов и инструментов. Препятствуют рефлюксу содержимого кишечника. В достаточной мере обеспечивают механическую прочность и биологическую герметичность анастомозов. Все сообщения о применении того или иного варианта инвагинационного метода говорят об его успешных исходах, простоте, доступности и надежности.

Следует отметить, что до сих пор продолжается поиск и внедрение инновационных технологий толстокишечных анастомозов, что определяет актуальность даннойпроблемы. В этой связи, попытки совершенствования способов формирования инвагинационных межкишечных анастомозов оправданы. Ибо они направлены на улучшение результатов хирургического лечения больных, что особенно важно в реконструктивно восстановительной хирургии кишечника.

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VIBRATION MEASUREMENT OF THE SPINDLE ASSEMBLY OF AUTOMATED EQUIPMENT

***Abstract**: The method and results of vibration measurement of the spindle assembly of the "Haas TL-1" numerically controlled lathe machine are presented in the article. Diagnostics was carried out by the "ECOPHYSICS-110A" special device on various operating modes of automated equipment.*

***Key words**: vibration, measurement, the spindle assembly, the CNC lathe machine.*
***Language**: English*
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Introduction

Vibrations in metalworking equipment are small mechanical oscillations that occur in various parts and mechanisms under the action of variable loads. Oscillations are undesirable during machining, as they affect the accuracy and quality of the workpiece. The output link that sets the machining accuracy during turning is the rotating spindle mounted in the casing.

Vibration measurements are performed in various ways, including special digital devices. The calculation of rigidity of the spindle assembly of the machine in space is performed by comparing the amplitudes of mechanical vibrations without load and under load. The method of vibration measurement of industrial equipment is adopted on the basis of regulatory documents [1-11].

The purpose of this study is to diagnose the numerically controlled (CNC) lathe machine using the electronic device to detect the vibration characteristics of the spindle assembly.

Materials and methods

Vibration measurement of the spindle assembly of the "Haas TL-1" CNC lathe machine (USA) was carried out by the "ECOPHYSICS-110A" multifunctional device (Russia). This device is designed to measure RMS, equivalent and peak sound levels, the corrected levels of vibration acceleration, octave, 1/3-octave, 1/12-octave and narrow-band spectra, for the analysis of signals from various primary transducers, for the record of time waveforms, for the influence assess of sound, infrasound and ultrasound, vibration and other dynamic physical processes on humans in the workplace, in residential and public buildings, determining the vibroacoustic characteristics of mechanisms and machines.

The device consists of the interface unit, the *HF* measuring module, and the primary transducers. The interface unit controls and powers the measurement modules, displays the measurement results and records them in its own non-volatile memory, and transmits the measurement results to external devices. The measuring module receives the analog signals from the primary transducers, amplifies, normalizes and digitally converts the signals, calculates the measured values, and also provides power to the primary transducers.

The "ECOPHYSICS-110A" device has the following technical characteristics (as the vibrometer):

The input channels:

1. The *MIC*/*HF* input;
2. The *A* input;
3. The *X*, *Y*, *Z* inputs;
4. The *TTL* input.

The measured parameters:

1. The RMS, maximum and minimum vibration acceleration levels with frequency corrections of *Wb*, *Wc*, *Wd*, *We*, *Wj*, *Wk*, *Wm*, *Fk*, *Fm* and with the time characteristics of 1 s, 5 s, 10 s, *Leq*;
2. Peak corrected vibration accelerations of *Wb*, *Wc*, *Wd*, *We*, *Wj*, *Wk*, *Wm*, *Fk*, *Fm*;
3. The vibration dose (*VDV*);
4. The RMS, maximum and minimum vibration acceleration levels with frequency corrections of *Fh*, *Wh* and with the time characteristics of 1 s, 5 s, 10 s, *Leq*;
5. Peak corrected vibration accelerations of *Fh*, *Wh*;
6. The vibration exposure.

The frequency characteristics of the vibrometer:

1. The reference frequency in the "General vibration" mode is 16 Hz, in the "Local vibration" mode is 80 Hz;
2. The frequency corrections: the frequency – 0.8…160 Hz, *Wb* attenuation – -8.39…-28.36 dB, *Wc* attenuation – -0.25…-34.57 dB, *Wd* attenuation – -0.08…-46.62 dB, *We* attenuation – -0.52…-52.64 dB, *Wj* attenuation – -6.42…-8.64 dB, *Wk* attenuation – -6.44…-30.69 dB, *Fk* attenuation – -0.27…-8.64 dB;
3. The frequency corrections: the frequency – 6.3…1600 Hz, *Wh* – -2.77…-45.42 dB, *Fh* – -3.01…-5.46 dB.

The measurement ranges of vibration acceleration:

1. The reference level of vibration acceleration is 140 dB relative to 10^{-6} m/s^2;
2. The self-noise level in the "General vibration" mode (with the short-circuited equivalent of the IEPE sensor, at the calibration values corresponding to the vibration transducer with the nominal sensitivity of 10 mV/ms^{-2}), dB relative to 10^{-6} m/s^2:

A/D1 (The input/The range) *Wk* – 49, *Wd* – 43, *Wm* – 45, *Fk* – 56, *Fm* – 56, *Wb* – 49, *Wc* – 48, *We* – 41, *Wj* – 55;

A/D2 (The input/The range) *Wk* – 39, *Wd* – 33, *Wm* – 35, *Fk* – 46, *Fm* – 46, *Wb* – 40, *Wc* – 38, *We* – 31, *Wj* – 46;

A/D3 (The input/The range) *Wk* – 28, *Wd* – 28, *Wm* – 26, *Fk* – 34, *Fm* – 33, *Wb* – 28, *Wc* – 29, *We* – 27, *Wj* – 33;

X, *Y*, *Z* *Wk* – 31, *Wd* – 30, *Wm* – 29, *Fk* – 37, *Fm* – 36, *Wb* – 31, *Wc* – 32, *We* – 29, *Wj* – 36.

3. The self-noise level of the device with the DN-4-E vibration transducer in the octave frequencies bands, dB relative to 10^{-6} m/s^2:

A. In the "General vibration" mode: the band – 1…125, the *A* (*D3*) input – 54…52;

B. In the "Local vibration" mode: the band – 8…1000, the value – 49…56.

When changing the calibration correction or the value of the nominal sensitivity of the vibration transducer, the measuring ranges are shifted by the value of $\Delta = 20\,lg\left(\frac{10}{S_0}\right) + K$, where S_0 is the value of the nominal sensitivity of the vibration transducer, mV/m/s^2; *K* is the value of the set calibration correction, dB. For the non-sinusoidal signals with the peak factor of k, the upper limits of the linear ranges change by the value of $\Delta_k = 20\,lg\left(\dfrac{\sqrt{2}}{k}\right)$.

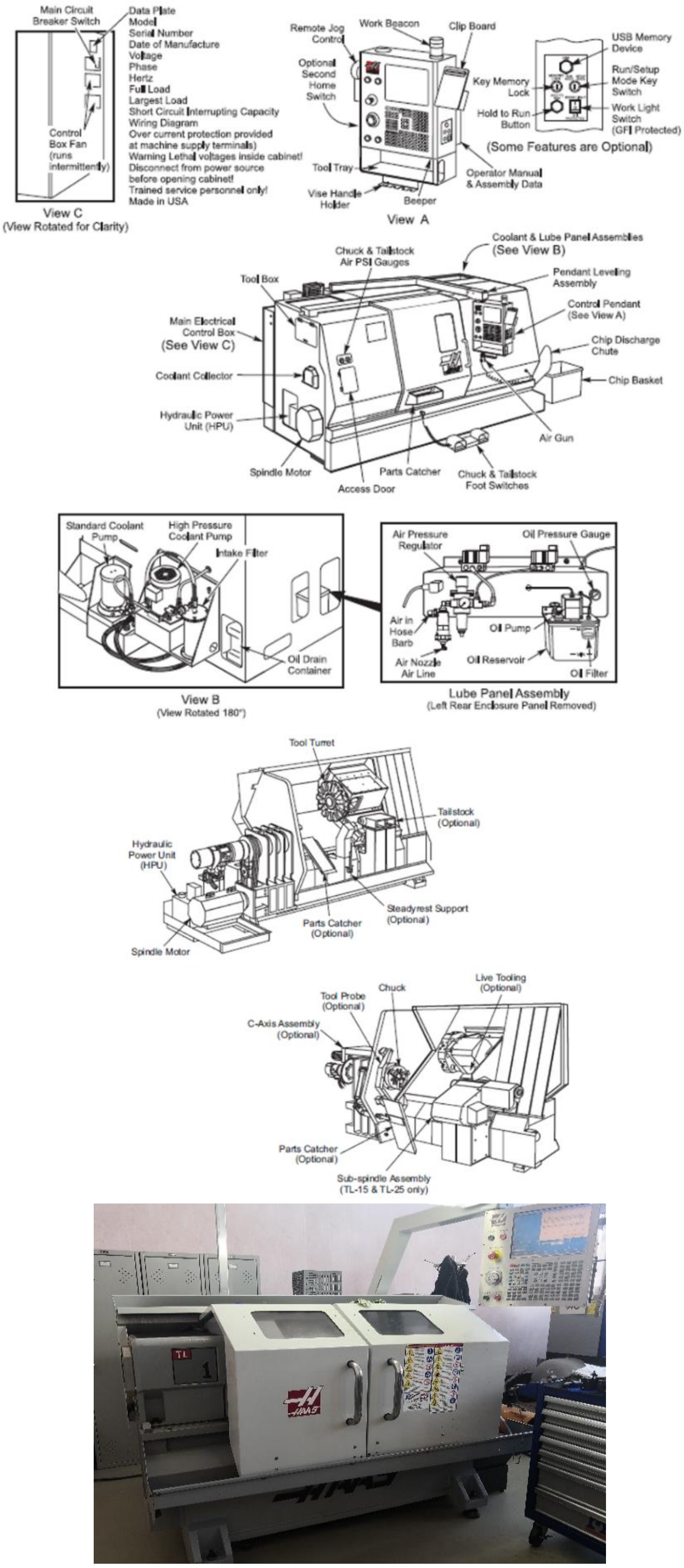


Figure 1 – The structure of the "Haas TL-1" CNC lathe machine.

Figure 2 – Locations of the sensor on the casing of the spindle assembly for vibration measurement.

The linearity error limits in the linear operating range are ±0.5 dB. The error limits for switching the ranges are ±0.2 dB.

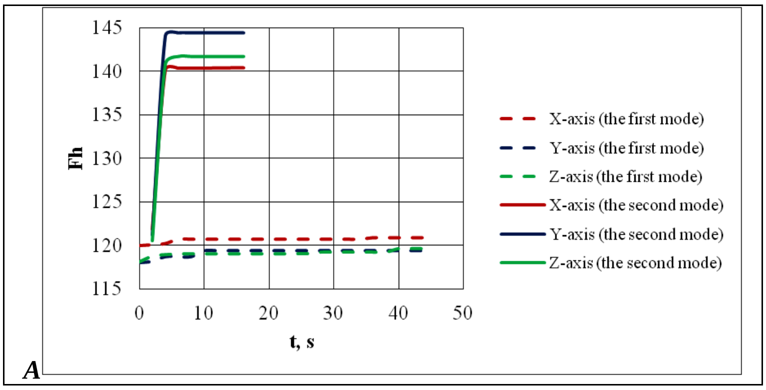
The structure of the "Haas TL-1" CNC lathe machine and locations of the sensor on the casing of the spindle assembly for vibration measurement are presented in the Figs. 1 and 2. The machine was put into the operation in 2009.The three-component IEPE sensor was attached to the magnet. The magnet was attached to the casing of the spindle assembly of the CNC lathe machine according to the photos. Measurements were performed in three directions: horizontal (the first location of the sensor), vertical (the second location of the sensor) and axial (the third location of the sensor). Vibrations of the spindle assembly were measured in two modes of the operation of the CNC lathe machine: the first mode is without load (the spindle speed – 500 rpm), the second mode is under load (the spindle speed – 800 rpm; the cutting tool feed – 0.15 mm/rev; the cutting depth when turning steel – 1 mm). The measurement time in the first mode was 45 seconds; in the second mode was 15 seconds.

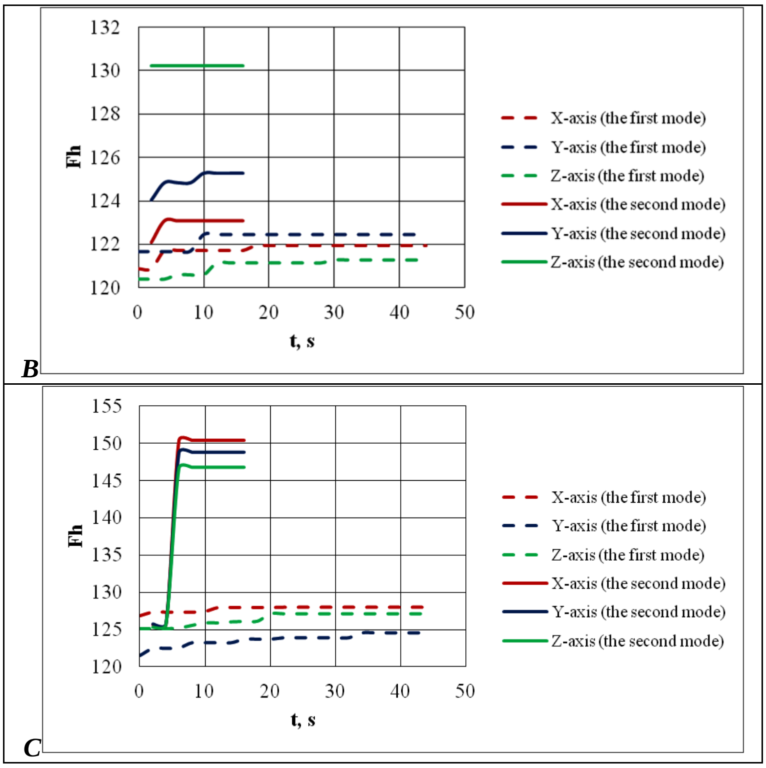
Vibration measurements of the spindle assembly of the machine were carried out in the "Local vibration" mode (the frequencies range from 6.3 Hz to 1250 Hz), selected on the device. The maximum amplification factor (*D2*) was selected for measurement. The following parameters were measured in this mode: the current, maximum, and minimum RMS values for 1, 5, and 10 seconds; equivalent accelerations (*Leq*); the vibration exposure per shift (*A*); peak accelerations.

Results and discussion

The measurements results were processed in the "Excel" program. The values of peak corrected vibration acceleration (*Fh*) were selected every two seconds of the measurement process. The dependencies of changes in the values of peak corrected vibration accelerations on the rotation time (*t*) of the lathe machine spindle in the first and second operating modes are presented in the table 1. The dependencies are built on three coordinate axes.

Table 1. The dependencies of changes in the values of peak corrected vibration accelerations on the rotation time of the lathe machine spindle in the first and second operating modes: *A* – the first location of the sensor; *B* – the second location of the sensor; *C* – the third location of the sensor.





In accordance with the obtained values of peak corrected vibration accelerations after measurement in the first mode of the operation of the CNC lathe machine, it can be concluded that the minimum deviations of the spindle in all directions are observed in the first 20 s. In the remaining time, the stable values of vibrations of the rotating spindle of the machine are observed. The vibrations range increases by an average of 20% at the moment of overcoming the material resistance of the workpiece during semi-finishing turning. The *X*-axis was aligned with the axis of the machine spindle when the sensor was positioned vertically. Vibrations in the radial direction were determined along the *Y*-axis. The machining errors of the workpiece diameters will be higher than the machining errors of the linear dimensions in the time range of longitudinal turning of 10 s.

Conclusion

Vibrations of the spindle assembly do not exceed the maximum permissible values for 12 years of the operation of this CNC lathe machine. The workpiece dimensions can vary in the radial and axial directions by up to 20% in the short period of the cutting process. Thus, continuous turning with the small cutting depths is recommended to reduce the profile deviations of the workpieces.

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NEW SOURCES THAT REPRESENTED THE GOOD OF THE NATION

***Abstract**: The article examines new documents, new sources about the events of mardikerism in 1916. In particular, the Jadid intellectuals Munavarkori Abdurashidkhonov and Ubaydullakhodja Asadullakhodjaev deliberately called on local residents to mardiker in order to increase the military knowledge of our compatriots, to form a national army, to learn and learn the secrets of the centuries-old experience of using weapons and modern military equipment with a sense of an alternative to the aggression of the invader.*

***Key words**: Ahmad Zaki Walid Togan, Edward Allworth, ideological initiators of the national liberation movement, alternative commitment, modern military tactics, perceived sacrifices.*

***Language**: Russian*

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НОВЫЕ ИСТОЧНИКИ, ОЛИЦЕТВОРЯВШИЕ БЛАГО НАЦИИ

***Аннотация**: В статье исследуются новые документы, новые источники о событиях мардикерства 1916 года. В частности, джадидские интеллигенты Мунаваркори Абдурашидхонов и Убайдуллаходжа Асадуллаходжаев преднамеренно призвали местных жителей на мардикерство, чтобы повысить военное знание наших соотечественников, формировать национальную армию, усвоить и познать секреты многовекового опыта использования оружия и современной военной техники чувством альтернативной обязанности против агрессии захватчика.*

***Ключевые слова**: Ахмад Заки Валид Тоган, Эдвард Олворт, идеологические инициаторы национально-освободительного движения, альтернативное обязательство, современная военная тактика, «воспринятые жертвы».*

Введение

История – главный фактор, делающий нацию единой и неделимой. История узбекского народа на протяжении многих лет оценивается с точки зрения интересов других народов и стран. История нашего народа не ограничивается историей возникновения термина «узбек». Наш народ, как один из древнейших народов древнего мира, должен рассматриваться как нация на перекрестке мировой цивилизации. Пробуждение в сердцах наших соотечественников чувства гордости за принадлежность к узбекскому народу требует знания истории. Говоря об этом, стоит поведать о джадидской интеллигенции.

Особое внимание джадиды уделяли осознанию истории и нации. В частности, бесценным источником освещения истории тюркских народов являются две книги Ахмада Заки Валиди Тогана, изданные в 1921 году, под названием «Введение в общетюркскую историю» и «Современные тюрки – Туркестан и его недавняя история» (эти книги еще не переведены). Вот отрывок из книги Заки Валиди «Современные тюрки – Туркестан и его недавняя история»: «Одна из наиболее очевидных расовых черт турок на протяжении всей их истории – это то, что они были воинами, со времен, знакомых нам в истории, дисциплинированными и готовыми к самым сложным препятствиям жизни безграничной выносливостью» (перевод Б.Касимова). Действительно, мы гордимся своей историей, своими историческими личностями, потому что великодушие и дисциплина – отличительные черты нашего народа.

Изучая источники, сосредоточимся на наиболее близком нам периоде в начале XX века и на роли джадидов-просветителей в событиях этого периода. Первая мировая война, события 1916 года и тяжелое положение после 1917 года показали, сколько терпения наш народ проявил благодаря усилиям джадидов. Простые люди выражали уверенность своим соотечественникам-джадидам в самые трудные моменты. В частности, Указ Николая II о мардикерстве (призыве на тыловые работы), стал чрезвычайно суровым испытанием для людей, измученных всевозможными гнетами. Так какую роль в этих событиях сыграли джадиды?

Роль джадидов в событиях 1916 года в разные периоды выражалась по-разному. В частности, в первой четверти XX века, в советское время, в 40-е и 50-е годы (в работах наших соотечественников-мигрантов) и в источниках периода независимости события мардикерства трактовались по-разному. Самое отрадное, что объективность с каждым годом возрастала. Чтобы доказать нашу точку зрения, мы обратимся к некоторым источникам событий того периода.

Говоря об идеологических инициаторах национально-освободительного движения 1916 г., уместно сослаться на работы зарубежных ученых. В 1967 году американский ученый Э.Олворт опубликовал книги о событиях, произошедших в России в 1917 году, и событиях, происходивших в стране, такие как “Russia in Upheaval” (1918) («Россия в смятении»), “The Russian Bolshevik Revolution” (1921) («Русская большевистская революция»), “The Russia Sovet republik” (1923) («Российская Советская Республика»). В “Central Asia. A century of Russian Rule” («Средняя Азия. Век правления России») сообщается: «Политические организации и идеологические лидеры не сыграли особую роль в возникновении этого освободительного движения. Хотя Бехбуди созвал собрание в Самарканде в начале мая 1916 года, чтобы предотвратить мобилизацию, роль групп, собравшихся в Туркестане вокруг Махмудходжи Бехбуди и Мунавваркори (Танишбой оглы и Бойтурсун оглы в Казахстане) в этих восстаниях была почти незаметной. Принявшие участие в митинге Мунавваркори, Пахлавон Нияз, Усмон Ходжа оглы, Обиджон Махмуд и Кори Камил планировали восстать против мобилизации [1, 213]» (перевод автора). История показала, что этот план не сработал под руководством названных лиц или других лиц. Бехбуди имел ясное представление о последствиях восстания против тирании в Туркестане после инцидента с Дукчи Эшаном. Позже он заявил об этом в ответ на вопрос корреспондента «Туркестанских ведомостей» [2, 9]. Впоследствии джадиды принимают меры по предотвращению массового кровопролития в стране. Они, чтобы предотвратить военные действия царской администрации, прежде всего, организовали трудовую мобилизацию.

Размышляя о событиях 1916 года, Моминджан Ташкин, который был в тесных связях с джадидами, написал в своей книге “Турмуш уринишлари” («Невзгоды бытия»), опубликованном в 1926 году, что «Далее были созданы комитеты по отправке рабочих по всему Туркестану во главе которых в Ташкенте был Убайдуллаходжа и его заместитель Мунавваркори» [3, 311]. Это подтверждают и другие исторические источники.

Ахмад Камчинбек, который видел эти события своими глазами и был мардикером, пишет об этом следующее: «Улицы Ташкента наполнились криками и плачами женщин, молитвами мойсафидов, песней «Боже, спаси нашего царя», которую воспевали во главе Мунавваркары, считавшегося тогда отцом джадидов, портретами Николая в руках, таких как Бадриддин Аъламуф, а также провожающими и зрителями. Недавно собранная первая партия проведет собрание в саду полицейского участка в Алмазаре, чтобы назначить начальника на тысячу человек. На том же собрании Убайдулла Ходжаев, Мунавваркары и другие советовали мардикерам, призывали их быть верными «царю», исполнить славную работу во благо «родины». Перешли к назначению начальников для рабочих. Мусахонуф был назначен мингбоши над тысячью людьми. Решение было принято, так-как в то время не было таких вычетов, как поднятие рук, противостояние или сторонничество. После этого назначили юзбоши на каждые сто человек, а я был назначен мирзой над мингбоши» [4].

На самом деле «Мусахонуф, назначенный на должность мингбоши на тысяча человек» – Мусахон Мирзаханов был членом труппы театра «Турон». Естественно, что этот призыв джадидов людям не понравился. В признании А.Камчинбека о Мунавваркори что «он считался отцом джадидов» и др. чувствуется какой-то намек. Именно в это время Хамза написал стихотворение “Яшасун чун ватан ўғли” («Да здравствует сын Родины»), опровергнув этим произведением отрицательные мнения о Мунавваркори и Убайдулла Ходжаеве.

Обеспокоенным судьбой участников восстания джадидам удалось создать ревизионную комиссию Государственной Думы России. Эту работу осуществили Убайдулла Ходжаев и Вадим Чайкин. Адвокат Убайдулла Ходжаев был единственным человеком, который открыто пожаловался на меры, принятые царской администрацией против повстанцев. В своей защитной речи он сказал: «Почему туркестанцы должны служить в тылу? В чью пользу и почему? Если туркестанцы справедливо откажутся, вы обезглавите их. Если они примут меры против мер, принятых Россией, вы подожжете села, города и дома этих бедняков. Вы отрезаете головы женщинам, маленьким детям и старикам мечом... Если вы считаете, что повстанцев нужно наказать, вам следует искать главного виновника. Пока главный виновник находится в Санкт-Петербурге, а их сообщники – в Туркестане, приговаривать этих бедных, невинных людей к смертной казни через повешение для правосудия – преступление» [5, 29-30] (речь У.Ходжаева приведена с переводом из книги Б.Хайита, опубликованного в 1956 году). Выступление адвоката Убайдуллы Ходжаева было настоящим примером отваги.

Таким образом, у джадидов не было другого выбора, кроме как мобилизовать людей на труд. Однако это правда, что наши предки считали оскорблением нанимать людей в рабочие, вместо солдат. Но туркестанцы в то время не были готовы к военной службе. Махмудходжа Бехбуди, лидер туркестанского джадидизма, также прокомментировал это, сказав: «...пока народ не привыкнет и не изменится положение, нужно учитывать состояния народа и не нанимать их в солдаты, а брать пропагандой в добровольцы» [6]. Пока беспомощные джадиды поощряли наших соотечественников мобилизоваться на труд, они преследовали ряд целей. В частности, в период труда наши соотечественники, прежде всего, имели возможность познакомиться с рабочим батальоном других народов, различных партий, научиться владению современным оружием в тылу.

В 1936 году в Ташкенте прошел митинг, посвященный 20-летию национально-освободительного движения. Здесь с докладом выступил Ф.Ходжаев. Его замечания о джадидах показывают, что в 1930-е годы взгляды на джадидскую интеллигенцию приняли иной характер в результате политических и идеологических репрессий: «… джадиды не были лидерами народа, они не были связаны с народом, они боялись людей и ненавидели их. Утверждение этих джадидов о том, что «туркестанские» джадиды были лидерами восстания 1916 года, - это просто ложь» [7]. Именно так в отчете оценивается деятельность джадидов. Фактически, сам Ф.Ходжаев произошел из джадидов. Однако под давлением идеологии советской эпохи государственный деятель какое-то время оставался на грани колебаний. В целом очевидно, что в советский период деятельность джадидов оценивалась односторонне [8-9, 83]. Потребовалось еще несколько лет, чтобы заслуги джадидов в национально-освободительном движении 1916 года получили объективную оценку [10-11].

Национально-освободительное движение 1916 года и роль джадидов в нем объективно оценивались в трудах наших соотечественников-мигрантов 1940-х и 1950-х годов. В частности, труды Ахмада Заки Валиди Тогана и Боймирзы Хайита, опубликованные на турецком и немецком языках, раскрывают сущность и цель народного движения 1916 года [12-13, 28-31]. По словам Заки Валиди, «... то, что русские не брали солдат из туркестанцев, наш народ воспринял как «великую милость белого царя» и «привилегию». Однако в 1916 году и во время революции нация (в первую очередь джадиды - Х.Н.), почувствовавшая альтернативу бедствиям, голоду и агрессии русских в Туркестане, осознала необходимость изучения секретов многовекового опыта использования оружия» [14, 579]. Произошедшие события потребовали изучения «современной военной техники».

Благодаря независимости многие страницы нашей истории были наполнены духом справедливости. В последующие годы ученые, изучающие жизнедеятельность и творчество джадидов, провели множество научных исследований [15-17].

Из истории следует, что свобода и независимость никогда не достигались без жертв. Властитель никогда добровольно не давал свободу подданному. Он был взят только силой, только кровью. Слова Мунавваркори Абдурашидхонова подтверждают эту идею: «Следовательно, мусульмане Туркестана были притеснены и так много пожертвовали во имя свободы и права, что за один-два месяца они преследовали жертв других народов за 145 лет. Это были самые приемлемые жертвы перед Господом...» [18].

Плоды всех усилий джадидских интеллектуалов в интересах нации приносят свои плоды сегодня. В память о наших предках, отдавших свои жизни во имя независимости, наше поколение должно беречь независимость нашей страны, как зеницу ока. Потому что свобода страны означает благополучную жизнь. Процветание означает процветание нации. Мы изучаем историю не только потому, что это история, но и потому, что она нужна сегодня и в будущем. Мы извлекаем уроки из истории и реагируем на потребности времени.

Плоды всех усилий джадидской интеллигенции в интересах нации приносит свои плоды сегодня. В память о наших предках, отдавших свои жизни за независимость, нашему поколению необходимо сохранить независимость нашей страны, как зеницу ока. Потому что свобода страны означает благоустроенную жизнь. Благоустроенная жизнь означает совершенствование нации. Мы изучаем историю не только потому, что это история, но и потому, что она нужна сегодня и в будущем. Мы извлекаем уроки из истории и реагируем на потребности времени.

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Uzbekistan

POWS IN FERGANA VALLEY, TURKESTAN DURING THE PERIOD OF WORLD WAR I

***Abstract**: This article reveals data about placement of POWs in Fergana Valley's military camps. It also analyzes information concerning POW's living conditions and their contributions to the development of agriculture and industry of the region.*

***Key words**: POWs, military camps, Austro-Hungarian prisoners, German prisoners, miners, the Bolshevik Party, internationalists, cavalry, peasant detachments, regiment.*

***Language**: English*

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Introduction

The history of wars shows that in battles, many soldiers are taken prisoner and forced to spend the rest of their lives either in darkness or at rest. Many soldiers were taken prisoner during World War I. In particular, the process of turning the representatives of the "Triple Alliance" into military prisoners was rapid. Many have been sent to military camps in various parts of Russia. Many prisoners of war spent 3-4 years of their lives in captivity in various parts of Russia from 1918-1919 until their release.

In 1914, Austro-Hungarians, Germans, Slavs, and Romanians captured in Russia by order of the General Staff began to be resettled in the Urals, Siberia, Turkestan, and the Far East[5-6]. More than 400 military camps were set up in Russia during World War I[7]. Russia had planned to place prisoners of war only on the outskirts of major cities. They were mainly sent to the areas where the railway lines reached. Because they knew that rail transport would be a great help in placing prisoners of war in military camps. But suddenly, the Russians' plans to relocate the prisoners changed. This, in turn, is due to the growing number of prisoners of war in Russia.

According to the plan, the territory of Turkestan was not pre-determined for prisoners of war, but, as noted above, the increase in the number of prisoners led to their relocation to the territory of Turkestan. In the telegram No. 6158 of August 30, 1914 of the Chief of the General Staff to the Chief of the General Staff of the Turkestan District, it was announced that Turkestan was designated as a permanent place of detention of prisoners of war[9]. First, as early as September 1914, a stream of prisoners of war was placed in the urban areas of Turkestan, one of which was Fergana Valley.

Materials and Methods

During the First World War, Fergana Valley became one of the military-strategic points of Turkestan, where prisoners of war were housed. The capture of prisoners of war in FerganaValley took place in September-October 1914. They were placed in military camps in all the counties of the valley. Their number exceeded 40,000. In particular, the city of Kokand was a leader in terms of the number of prisoners of war from other cities in the valley. There were more than 2,500 Austro-Hungarian and German prisoners of war in the Kokand military camps[14].

Prisoners of war who were captured in the camps were provided with food. They were guarded by representatives of the Kokand city administration. Prisoners of war in military camps were involved in various activities based on their previous occupations.

In particular, they worked in large production facilities, factories and plants, hospitals, as well as in private production zones. For example, 40 people in Kokand fortification, 1 in the General Staff, 2 in Ziegel's trading house, 23 in the Potelyakhovsky factory headed by Domby Crestofer, a prisoner of war named Franz as a caretaker, and Baevsh at the telegraph station, Fritu as a chief physician, Henry Fritz as a worker in the Chemical Plant, 7 people in the District Committee, 102 prisoners of war in the Kokand Hospital, 38 prisoners in the military camp hospital, 9 people in the regimental headquarters, 5 people at the railway workshop, 8 prisoners at the tannery, 14 people in the “Sulimor” chemical plant, 4 people in the nail plant, 5 people in the flour factory, 2 people in the printing house, 6 people in the tobacco factory, 2 people as cooks, 4 people as carpenters, 4 people as hairdressers, 17 people as ordinary workers, 17 people in different corners of railway constructions, 2 people in the brigade headquarters, 4 people in the city hospital, 28 people in Shurab, 17 people in the handicraft production facility in Rishtan[2].

More than 600 prisoners of war worked in the Kokand railway[14]. They worked conscientiously in collaboration with local workers, and also had a special respect among the workers.

The labor of the captured soldiers was used in various fields of industry and agriculture. In November-December 1914, for example, prisoners of war were exploited in all coal and oil mines in Fergana Valley. The captives included highly skilled miners, mine blasters, builders, road builders, engineers, and other professionals. This, in turn, had contributed to the rapid development of the agricultural and industrial sectors.

Researchers have reported that since 1916, the practice of division in national camps has been recorded. Thus, while the camps in Tashkent were predominantly Slavic (Croatians, Slovenes, Czechs, etc.), the Germans, Austrians, and Hungarians settled in Skobelev (Fergana)[12]. If the camps were of a mixed type, the Slavs were appointed to senior positions in the internal administration of the prisoners.

With the arrival of the POWs, the coal mines were equipped with new machinery and equipment, and special mechanical workshops were set up. As a result, the technical equipment of the Kyzylkiya in Fergana became almost the same as those in Donetsk. In 1917, coal production amounted to 125,000 tons. Prisoner of war miners were the first to use powder to mine coal.

The growth of coal production due to prisoners of war and new technologies is shown in the following table[10]:

Table 1.

1	Years	1910	1911	1912	1913	1914	1915	1916
2	Pud	3427540	6631622	5994464	8406562	9900877	10314214	12315105

From the data in the table above, it can be seen that the arrival of prisoners of war did not stop the development of the country's mining industry. By the end of 1916, 4,020 people were working in the coal mines[3]. The miners were mostly prisoners of war from Russia or European countries. The locals awere mostly black laborers. In 1917, there were the following coal deposits in Fergana Valley, in the development of which the share of prisoners of war was significant:

1. Sulukta (30 km from Dragomirova station)
2. Shurob (35-40 km from Melnikov station).
3. Kyzylkiya (35-40 km from Skobelev station).
4. Andijan (25-35 km from Jalal-Abad station).
5. Naryn (30-40 km from Uchkurgan station).

The most active of them were in Kyzylkiya and Sulukta[3]. Former miner Anatoly Nikolaevich Neudachin (born in 1937) said that his father, Nikolai Petrovich Neudachin (born in 1890), worked with prisoners of war in the Kyzylkiya mine[10]. In his memoirs, he remembered them as true professionals who knew their profession perfectly, emphasizing that they had a reputation among miners and that everyone respected them.

The October Revolution of 1917, the nationalization of the entire coal and oil industry, including Kyzylkiya, Sulukta, Chimgan, Santo, Shurob, and others, as well as Fergana Railway, all intensified class conflicts in the region. In the Kerensky’s government, bilateral rule has worsened the situation in the Ferghana Valley.

Beginning in April 1918, the new government in Turkestan began to form new detachments of prisoners of war - Germans, Austrians, Czechs, Hungarians, Romanians, Jugoslavs, the total number of which exceeded 23,000[13]. The miners of Kyzylkiya formed armed cavalry detachments to protect the mines from counter-revolutionary foreign intervention and “peasant detachments”.

In the spring of 1918, two military detachments were formed in Kokand, including former prisoners of war Janos Guzic, Arpat Schwartz, Mikhail Novikov, Laku Lapsh, and dozens of others[10].

After the October coup, many Czech prisoners of war joined the Red Army: some because of their common beliefs, some under the influence of Bolshevik propaganda, and others simply for the sake of trying to find a way home. who chose lni. In September 1920, the first Congress of Czechoslovak Communists was held, on the basis of which the Czechoslovak Regional Bureau was established. However, most of its members returned to Czechoslovakia, and in 1921 the bureau was disbanded. Some Czechs remained in the Red Army in Turkestan to fight the oppression. One of the most prominent members of this category was Yuray Smeyrek, who served as police chief in Fergana region from 1918-1924[4].

A cavalry regiment named K. Libknecht was formed in Andijan district, and former Czech prisoner of war E.F.Kujelo was appointed its commander. He was also involved in the operation of kidnapping Madaminbek, who was one of the leaders of the independence rebellion in Fergana Valley. He remained in Turkestan and in the 1920s and 1930s worked as the director of several factories in the Uzbek SSR and the Far East. During the Soviet era, School No. 48 in Namangan was named after him[4]. In addition, the 2nd Cavalry Regiment was formed in Namangan district under the leadership of former prisoner of war M.Vrobets[10]. As the political situation in Fergana Valley deteriorated, in mid-1918 the new government began to actively recruit prisoners of war into the ranks of the Bolshevik Party, calling them internationalists.

There were 166 internationalists on the Kokand artillery-machine-gun route, cavalry squadron and castle garrison. In October 1919, about 4,000 internationalists served on Fergana and Caspian fronts alone[11]. Prisoners of war - Eingern, Bergar, Litvinenko, Gen (Skobelev), Suda (Kokand), Zimich, Wizner (Namangan), Rats (Osh) and others actively participated in the socio-political, economic and cultural life of Fergana Valley[10].

The cavalry of Kyzylkiya not only protected the coal mines, but also helped Uchkurgan, Karvon, Tak-Tek and even Fergana. Attempts by enemies of foreign internationalists, "peasant detachments", to enter the mines and destroy them had been unsuccessful. Prisoners of war and many internationalists had also suffered casualties in these unequal struggles.

A monument had been erected in memory of former Austrian, German, Hungarian and other prisoners of war who died in the Miners' area, and the following words were inscribed in Latin under the monument: "Tell our Motherland that we have come here in obedience"[10].

In the high mountains where the BIS-BIS No. 6 mine is located, a monument had been erected to those who died and remained forever in this foreign land. The graves of those who died in the course of work near the BIS-BIS mine No. 6 were arranged in a flat order, decorated with crosses. Nowadays, although there are no crosses, the tombs on the hills are preserved. Hundreds of Austrian, German, Hungarian soldiers and officers lie at the foot of the hills[10].

During World War I, the city of Kokand served as a point of distribution of prisoners of war to military camps in other parts of FerganaValley. From here, prisoners of war were sent to Andijan, Skobelev (Fergana), Osh, Namangan, Jalal-Abad and Khojand. Many soldiers returned home after Austria-Hungary and Russia signed an agreement on the issue of prisoners of war. There is a lot of archival information about the evacuation of prisoners of war. In one of the sources in FerganaState Archives, the head and assistant of the Kokand evacuation center for the evacuation of prisoners of war sent a telegram to the evacuation point of Ferganabranch No. 192 on the activities of prisoners of war. "In pursuance of your order No. 149 of 1 July, I have compiled a list of names No. 187 and an application No. 172 for 170 disabled prisoners of war sent to Tashkent on 12 June 1920. I will submit a report on acceptance. They will be provided with food and clothing for 14 days. The salaries of prisoners of war at the Santo and Shurob small-scale production facilities were fully calculated. The number of prisoners of war sent is as follows: 57 prisoners from Santo, 26 prisoners from Shurob, 85 prisoners from Kokand and 2 prisoners from Namangan, a total of 170 soldiers. These disabled prisoners of war will be delivered to their addresses in 6 wagons numbered 422040, 882352, 228665, 331300, 448165, 280178[2].

Conclusion

In 1922, a decision was made to fully evacuate all former prisoners of war. According to him, it was announced that prisoners of war in Turkestan, including in Fergana Valley, would be re-evacuated to their homeland free of charge until August 31, 1922[1].

Austro-Hungarian prisoners of war who did not want to return to their homeland chose to stay in Turkestan. Fergana Valley was almost the second home of prisoners of war. Thanks to the efforts of the research team in Kokand, a monument to the eternal memory of prisoners of war was found in Kokand. This 4-meter monument has the following two inscriptions in Latin: The first inscription says "COMMILITONES AUSTRS-HUNGAIS!" ("Austrian-Hungarian comrades!"). The second inscription is "MORTUIS PROCUL PATRIA 1914-1917" ("The Dead in Their Home 1914-1917")[14]. The monument in Kokand Cemetery serves as an example of humane treatment of the captured enemy and is the best call for peace for modern society.

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PURCHASE OF BITUMENS ON THE BASIS OF ALTERNATIVE RAW MATERIALS

***Abstract**: The study of the effect of raw material components on the properties of bitumen is of scientific and practical importance, as well as one of the current issues. The study of a three-component system (asphaltene, resin, oil) showed that the penetration rate of bitumen oil increases with increasing oil content: asphaltene. However, the cost of penetration does not depend entirely on the amount of resin. Oil: Decreasing the ratio of asphaltene leads to a decrease in the softening temperature of bitumen. The softening temperature of bitumens is not significantly affected by the amount of resin in them. Oil in bitumen: an increase in the proportion of asphaltene results in a decrease in its brittleness temperature. Depending on the nature of the raw material, the quality of bitumen depends on the amount of fat components in the raw material, especially the softening temperature - the change in penetration dependence, as well as the penetration rate and ductility during oxidation of the same oil tar at the same softening temperature. Thus, in order to obtain bitumen for any purpose on the basis of oxidation of heavy oil residues, the nature of the primary oil, the softening temperature of the raw material, the amount of oil and paraffin compounds in it must be taken into account.*

***Key words**: raw material, bitumen, asphalt, resin, softening temperature, penetration, Viscosity, acidification.*

***Language**: English*

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Introduction

In the field of preparation of theoretical bases of the process of bitumen production from Azerbaijani oils and improvement of quality indicators of bitumens in the NKPI of ANAS the corresponding member of the National Academy of Sciences, professor F.I. Fundamental research was conducted under the leadership of Samadova. Also, the research conducted by RB Gun and his colleagues in the development of technology for the production of oxidizing bitumens and methods for determining the properties of commodity products is of exceptional importance.

The composition and physical and chemical properties of bitumen are significantly [1-8].affected by the technological conditions of the oxidation process of raw materials. Studies have shown that in order to obtain bitumen for any purpose based on the oxidation of petroleum tar, the nature of the primary oil, the softening temperature of the tar, the amount of oil, paraffin and naphthenic compounds in it must be taken into account. In addition, the physicochemical and mechanical properties of bitumen vary depending on technological factors - the oxidation temperature of the raw material, air consumption and oxidation time.

Oxidizing bitumens can be obtained from all oils containing asphalt-resin substances higher than 5.0% (by weight). However, studies have shown that high-resin and low-paraffin oils, which contain more than 25% of these substances, are more suitable for bitumen production, especially from the point of view of technological classification[9-11]

Our research showed that the maximum values of tensile strength (ductility) and penetration of tar obtained from a mixture of marine oils in Azerbaijan at 250C are obtained at 250OC of the oxidation process. The minimum result is observed when the process is carried out at 275 0C. Intermediate results are obtained at oxidation temperatures of 215-255 0C. Thus, increasing the oxidation temperature from 215 0C to 255 0C increases the ductility and penetration rates of bitumens. when the toxin is ≥250 0C, the values of both properties decrease. In bitumens with the same softening temperature, air consumption and oxidation time of the raw material reach a minimum value at 250 ° C and a maximum value at 215 ° C.

RESEARCH PART

Influence of raw material components on the properties of bitumens

The amount and chemical composition of each component in bitumen significantly affects their physicochemical properties. When the content of asphaltenes in each of the four-component system (asphaltenes, resins, aromatic and saturated compounds) is 25%, as well as the ratio of the other two components remains constant, the properties of bitumen change as follows: aromatic compounds do not affect the penetration rate, resins increase penetration. saturated compounds, on the other hand, decrease, resins increase the softening temperature, saturated compounds decrease, and aromatic compounds have no effect. Resins also cause a slight increase in bitumen coverage. Saturated compounds reduce the viscosity and also change the temperature dependence of the viscosity. Aromatic compounds have no effect on viscosity and temperature dependence of viscosity[11-17].

Studies of three-component systems (asphaltenes, resins and oils) have shown that the penetration rate increases with increasing oil asphalt content in bitumen, but penetration does not depend on the amount of resin. Oil: Decreasing the asphaltene ratio causes the bitumen softening temperature to decrease. The amount of resin does not significantly affect the softening temperature. Oil in bitumen: an increase in the ratio of asphaltene leads to a decrease in its brittleness temperature. The maximum value of breaking capacity (above 100 cm) manifests itself when the ratio of oil in bitumen: asphaltene increases from 2.0 to 5.0. In relatively hard bitumens, the effect of the amount of resin is negligible. The plasticity of bitumen is almost directly proportional to the amount of asphaltenes in it. In some cases, an increase in fat: asphaltenes positive leads to an increase in the plasticity interval.

Summarizing the results of the research, we can conclude that the dependence of viscosity on the group chemical composition is analogous to the dependence on the temperature of regeneration and softening: this dependence tends to increase with decreasing ratio of oil: asphaltenes. Aromatic compounds and resins have the same effect on the properties of bitumens. The penetration rate is almost independent of the combined amount of aromatic compounds and resins. The penetration value is determined by the ratio of saturated hydrocarbons to asphaltenes and begins to increase as this ratio increases. If the content of asphaltenes in bitumen is less than 20%, the softening temperature of bitumen depends on the penetration. As the ratio of saturated compounds to asphaltenes increases, the softening temperature of bitumen decreases.

At temperatures around 200C, the brittleness temperature of bitumen does not depend on the amount of aromatic compounds and resins such as penetration. However, the brittleness temperature is determined by the ratio of saturated compounds to asphaltenes. The brittleness of bitumens at temperatures - 180C and below depends on the saturated compounds. The plasticity interval is mainly determined by the ratio of the sum of aromatic hydrocarbons and resins to asphaltenes. The higher the value of this ratio and the amount of saturated compounds, the lower the plastic interval. The ratio of saturated compounds to asphaltenes must be 2.3 in order for the value of bitumen's permeability to reach more than 100 cm at a temperature of 250C.

The properties of bitumen are significantly affected by the properties of its components, especially the structure and composition of asphaltenes. This depends mainly on the technology of bitumen production. The nature of the raw material plays little role in this. Asphaltenes and asphaltene fractions separated by different fractions of benzene solutions from petroleum of different origin are slightly different from each other. However, studies have shown that it is the characteristics of the oil components that most affect the quality of bitumen. Thus, as the viscosity of the oil increases, the softening temperature and brittleness of bitumens increase.

In this case, the penetration is reduced, exceeds the maximum by traction. The aromaticity of oils plays a greater role, in other words, the ratio of the number of carbon atoms in the aromatic ring to the total number of carbon atoms in the molecule is important. As for the aromatic mass and its size, it is equal to 1/3 of the total sum of the carbon aromas in the aromatic ring. Paraffin compounds in the oil fraction do not have the ability to dissolve asphaltenes. However, the solubility of naphthenes in relation to aromatic compounds is 3 times higher than that of aromatic hydrocarbons.

Increased solubility of oil components of bitumen and asphaltene: decrease in the ratio of resin leads to a decrease in the structural strength of the bitumen system. This phenomenon occurs due to the high dispersion of the asphaltene complex in the oil fractions, which is due to their high solubility. As a result, bitumen turns into a sol, loses its viscosity and elasticity, and leads to a decrease in its softening temperature and penetration. At the same time, the tensile strength of bitumen increases and the penetration index decreases.

During the research, the study of the effect of paraffins on the physical and mechanical properties of several models of bitumen aroused great interest. Thus, when 5% paraffin was added to bitumen with a melting point of 460C, its softening temperature decreased from 520C to 460C. In this case, the penetration of bitumen increases from 91 to 220x0.1 mm, as well as the disintegration of bitumen decreases from 100 cm to 35 cm. Experiments have shown that the brittleness of bitumens remains stable. When 5% paraffin with a melting point of 760C was added to the bitumen sample, the softening temperature of the bitumen increased from 520C to 620C and the penetration increased from 91 to 127x0.1mm. At the same time, the tensile strength of bitumen decreased from 100 cm to 12 cm. The brittleness temperature increased from -130C to -110C.

The physical and mechanical properties of oils and resins in bitumen depend primarily on the nature of the oil from which they are obtained. Therefore, as the amount of paraffin in bitumen increases, the density and refractive index of oils and resins in it decrease. The paraffinic nature of bitumens is due to the viscosity of the resins. Thus, it was found that the viscosity of resins in high-paraffin bitumens (8-10% paraffin) is about 1000 times less than the viscosity of resins in bitumens containing up to 0.5% paraffin. While the viscosity of resins in low-paraffin bitumens at 200C is 108 PZ (107 n / sec / m2), in bitumens containing 3.0% paraffin, the viscosity of resin is 107 PZ (106 n / sec / m2), when 8% paraffin is 8%, this figure is 106 PZ (105 n / s / m2) and 108 PZ (105 n / s / m4) in the presence of 10% paraffin.

Table 1. Physical and mechanical properties of bitumen samples

An example of bit	Amount of paraffin,% / mass	Viscosity of resins, at , 20^0C	
		Puaz	n.min / m2
1	0,5	10^8	10^7
2	3,0	10^7	10^6
3	8,0	10^6	10^5
4	10,0	10^5	10^4

Another interesting fact is that the resins separated from bitumens of different nature at different oxidation depths have practically the same viscosity. Removal of paraffins from paraffin and high paraffin bitumens does not change the viscosity of resins. This can be explained by the fact that bitumens derived from paraffinic oils contain not only paraffins, but also aliphatic side-chain naphthenes and aromatic structural elements. Therefore, the separation of paraffins from bitumen almost does not change its chemical structure and properties. All this leads to the conclusion that it is important to know the nature of the compounds that make up all the components of bitumen. That is, the presence of paraffins in bitumen is only an indirect indicator of its aliphaticity.

During the chromatographic separation of paraffins from bitumen, other components are also removed.

The structural-group composition of 3 samples of bitumen paraffins separated by chromatographic method and calculated with H: C atomic ratio is shown below (Table 2).

Table 2. Structural-group composition of 3 samples of bitumen paraffins separated by chromatographic method and calculated by H: C atomic ratio

Examples	Molecular weight	H:C	$G_{paraffin}$	G_{naften}	$G_{aromatic}$
		% kütlə			
Bitumen – 1	464	1,706	68,0	17,0	33,0
Bitumen – 2	486	1,828	66,0	21,0	14,0
Bitumen - 3	450	1,956	85,0	8,0	8,0

Paraffin’s were separated from the alcohol-ether solution of bitumen oils by crystallization at -200C. From the above results, it can be concluded that the structural-group composition of paraffin’s separated from different bitumen’s varies, but also depends on the chemical composition of the primary bitumen. Thus, the amount of non-paraffinic hydrocarbons in the paraffin’s of the 1st bitumen sample is 37.0%, in the 2nd paraffins it is 33%, in the 3rd sample only 15%.

The structure of paraffin’s separated from the 2nd bitumen sample by different methods and the oil content in that bitumen are shown in Table 3 below.

Table 3. The structure of paraffin's separated from the 2nd bitumen sample by different methods and the composition of the oil in that bitumen

Components separated from bitumen	Molecular weight	Amount of hydrocarbons,% by mass		
		$G_{paraffin}$	$G_{nafften}$	$G_{aromatic}$
1. Paraffins				
a) separated by selective solvents	316	78,0	17,0	5,0
b) separated by chromatographic method	482	68	19	14,0
2. Oils	550	35,0	32,0	33,0

As can be seen from the table, the content of aromatic hydrocarbons in paraffins separated from bitumen by chromatographic methods is 2.8 times higher than the amount of aromatic hydrocarbons in paraffins treated with selective solvents.

Studies have shown that the quality of bitumen - especially the "softening temperature - penetration" - varies depending on the nature of the raw material. Penetration and tensile strength (ductility) of oxidation of the same oil tar at the same softening temperature depends on the amount of oil in the tar. The deeper the oil fraction extracted from the fuel oil, the lower the penetration of bitumen and the higher the tensile strength.

RESULT

1. The master's dissertation devoted to the scientific researches carried out in the field of change of quality of oxidizing bitumens depending on the nature of raw materials attracts attention with its relevance. For the production of oxidizing bitumens for any purpose, the characteristics of the primary oil must take into account the softening temperature of the raw material and the amount of oil and paraffin compounds in it.

2. The article examines the possibility of obtaining its own oxidizing bitumens based on a mixture of residual oil (OG) accumulated after settling in tanks, cisterns and tankers containing tar and paraffin Sangachal offshore oil from a mixture of Azerbaijani offshore oils.

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READING STRATEGIES IN COMPREHENSION AUTHENTIC CONTEXTS

***Abstract**: In foreign language acquisition, reading comprehension is foremost to acquire specific terminology on specialty and enable learners increase number of vocabulary retention. ESP classes are content based as it explains meaning of sentences learners encounter while reading text. However, we often found texts difficult to understand and translate because of occurring unknown words. Therefore, lots of ESP teachers use different strategies to reflect target needs of learners. This paper highlights some views on advantageous of strategies in reading comprehension.*

***Key words**: ESP classes, strategies, terminology.*
***Language**: English*
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Introduction

Learning language is long, complex process to acquire it fully, requires some methods of teaching and strategies to use for such purposes. Skimming and scanning are essential techniques to accomplish during the class. However, we should use more strategies in order to generate expected aims in order to reflect the target needs of learners. One of the target needs of learners in language learning is to comprehend both spoken and written contexts. Particularly, authentic contexts complicate learners 'comprehension of their specialty in FL**.** Specifically, training learners on how to use the structure of the text to improve their reading comprehension is the focus of the proposed study. This involves self-regulation, metacognition in reading, and the feasibility of improving strategy use through direct training and instruction. Although reading strategy instruction has been found to be successful in first language reading [6] such claims of success in L1 environments need to be validated in FL contexts to determine their generalize ability to FL readers.

Importance of strategies in understanding unknown context

ESP courses are designed and planned according to the needs of learners and their skills (speaking, reading, writing, and listening). Those courses mostly focused on reading books, different materials; video, audio which tell about the subject matter in English, and which may be able to enhance prior knowledge of learners with technical profiles. As a consequence, one way of undertaking this is to evaluate the methodology component of ESP courses to understand whether they actually match course aims and meet learners' needs[12]. Learning strategies are the steps that learners take in order to facilitate the acquisition, storage, retrieval or use of information[10]. They are the behaviors, techniques or actions used by students to enhance their learning and progress in internalizing, storing, accessing, and using the foreign language.

Several researchers have investigated the possibility of FL transfer of reading skills but they maintain that transfer of strategies cannot be viewed without simultaneously considering language proficiency. For instance, Lapkin and Swain 9] claimed that FL reading strategies differ at lower levels of proficiency, but as the proficiency level increases, the strategies approximate each other.

Alderson [1] found that FL reading involves both language proficiency and reading strategies.

Results from other studies [7] also show that the teaching of reading strategies results in larger reading gains and better comprehension even among learners who are less proficient in the target language. A study by Kern [8] showed that reading strategy instruction was most beneficial for those students who had lower L2 proficiency. Besides, earlier studies have examined the strategies of successful and less successful readers. For example, Golinkoff [2] compared the reading comprehension strategies of poor and good readers and found that good readers have rapid and accurate word recognition and automatic decoding skills. They read in phrasal units, are flexible in their reading pattern, vary their eye movements, and shift the size of their processing units. They also make use of contextual information in the text and pay attention to information relevant to their purpose, while ignoring information that has no utility for the task. On the other hand, poor readers are slow decoders and are less able to organize texts, which they read word by word. They are inflexible when it comes to variations in task demands.

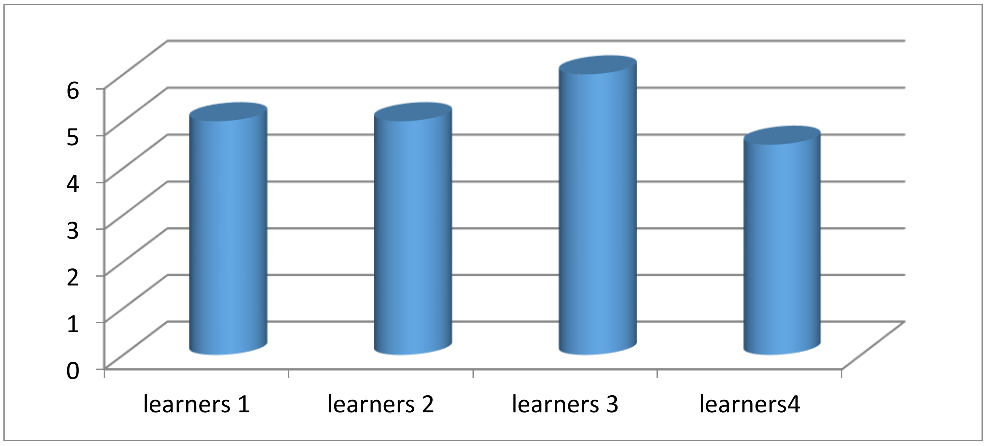
Similarly, Hosenfeld [3] reported that good readers keep the meaning of the passage in mind as they read and skip words that they view as unimportant to the total meaning. They use context cues as aids in decoding meaning of unfamiliar words and look up words only as a last resort. They also have a positive self-concept of themselves as readers.

In fact, strategy training and metacognitive awareness that entail reader self-control and following reading guidelines were found to be useful in English for Specific Purposes courses, where students deal with technical texts which require specific processing skills.

Moreover, having known the structure of the sentences in the texts can enable learners be familiar with reading comprehension of that text, more and more they use their initial knowledge on specialty. Additionally, reoccurring words in every context allow readers understand the passage and full meaning of it. Working with reading strategies has also been shown to foster the metacognitive awareness that students need to engage in autonomous learning [11].

Research methods

The research based on experiment. We invited some students from different faculties in order to know their attitudes, beliefs according to the reading strategies reflection their needs in reading comprehension. Furthermore, we carried out a survey with students, making interviews with them; having used questionnaire consisted of variety of questions. The questionnaire was close-ended.



Picture 1.

Findings

1. Five of learners responded that they use skimming and scanning because it enables them to understand the passage.
2. Five of them often use dictionary which allow them to find translation of unknown words occurring in the texts and give exact explanation of the words.
3. Six of respondents gave an interview that they often would like using guessing strategy in order to be aware of full mean of the word.
4. Four of population expressed their ideas on performing GT(Google-translator) in order to quick finding the translation and immediate reading comprehension.

A skimmer browses over large areas of material rather than concentrating on words or sentences. Skimming is a twofold process: rapid reading to locate the desired piece of information and slower reading to assimilate. It may involve careful as well as expeditious reading and bottom-up as well as top down processing [13].

Authentic material gives ESP teachers, learners new data which enriches students with additional information on subject matter. Furthermore, it may give them experience, instruction, description of works what they will be accustomed to. Authentic material not only gives information about profession but also it prepares students for job-oriented purposes and develops their linguistic and professional skills in FL. As a result, they can be enhanced their initial knowledge in reading comprehend in FL.

Conclusion

In teaching English to the engineering students, we use different techniques to involve learners better recognition the passage of authentic context. Such techniques: skimming, scanning, and translating and defining the meaning of the words by GT machine. Where English is used as the medium of communication and students are expected to present written work and make oral presentations in accurate English, serious weaknesses in grammar require more specific help. This may mean allocating time to concentrate on the given difficulty, teaching both the form and its use in contexts relevant to learners' needs [5]. The ESP teacher is to know what kind of tasks and processing would be associated with particular texts or information. Furthermore, reading technical texts and understanding them is difficult not only for English learners but also English language teachers who is not specialist in that area of learning and sometimes feel needs for assistance from the staff at the Technical Department. Techniques learners use certainly improve learner's reading comprehension and acquisition of terminology in the field of their expertise.

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CHEMICAL ELEMENTS IN GRAIN PRODUCTS AND THEIR EFFECT ON ITS QUALITY

Abstract: *Every grain consists of different vitamins, with a variety of chemical elements human body need. Bread we need to have consists mainly of chemical elements such as proteins. Water enriches the grain, promote it to be ripen, giving more elements. We highlighted scholars' views on the chemical composition of grain and grain products such wheat and its chemical properties. As a consequence, wheat grain protein concentration (GPC) is a determinant of wheat quality for human nutrition.*
Key words: *vitamins, grain, wheat, water, protein.*
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Introduction

Grain has lots of chemical elements as it consists of some substances which are necessary for the needs of the human body. Substances in cereals and oilseeds are divided into two major groups: organic and inorganic. The group of organic substances includes proteins, nucleic acids, carbohydrates, lipids, enzymes, vitamins, pigments and other substances. Inorganic substances include minerals and water. Furthermore, chemical composition of a grain product always contains a needed amount of water depending on the type of grain, ripening level, anatomical structure, location of hydrophilic colloids, harvesting conditions, methods of transportation, storage and many other factors. Water in the anatomical structure of the grain and its relationship with the substances varies. Wheat is the third most important cereal crop in the world by production, providing 20% of daily protein and calories for 5 billion people [1]. In the past, wheat yield and quality have maintained pace with global consumer demand through both breeding efforts and management practices [2,3]. However, ensuring wheat grain quality, especially under extreme high temperature stress (HTS) is challenging, as it is crucial to human nutrition, commodity value, and end-use functional properties [4–6].

The relationship of the amount of water in the grain to the substances in the grain is divided into the following types according to the P. A. Rebinder classification:

1. Chemically bound water - it is mainly present in a clearly defined amount in the molecule of the substance contained in the grain;

2. This water can be separated from the grain only by chemical action. In this case, the structure of the substances in the grain is disrupted;

3. Physic-chemical bound waters include mainly adsorption-bound, osmotic absorbed waters. This amount of water in the grain varies depending on the type and condition of grain products. Besides, water is located in the micro and macro capillaries of the grain and can increase and decrease depending on environmental conditions. That is why this water (moisture) in the grain is called free water. Because when the grain is dried, the moisture content decreases due to this, and if the air humidity increases, the grain moisture can also increase due to moisture.

Irrigation schedules and technologies greatly influence crop growth and yield [17,19]. Compared to conventional surface irrigation practices, advanced irrigation systems, such as drip or sprinkler irrigation technologies, simultaneously improve water use efficiency and grain production in winter wheat [20]. Micro-sprinkling technology, which is based on surface drip irrigation and sprinkler irrigation, efficiently produces high yields. Its use in wheat production has increased gradually in recent years, and more efficient use of nitrogen (N) fertilizer can be achieved by combined application of water and fertilizer [18,21].

Nitrogenous substances

The main part of nitrogen in grain is protein, and the amount of non-protein nitrogen should not exceed 2-3% in fully ripe, unheated, non-sprouted in grain that meet the standard requirements. The amount of protein-free nitrogen is high in immature grains, which increases sharply when the grain mass is heated during storage and as a result of the development of microorganisms, which leads to a decrease in the quality of flour and bread from grain. Protein-free nitrogenous substances are mainly composed of amino acids and amides. However, protein content of grain consists of simple proteins and complex proteins. Complex proteins are present in small amounts in grains and are composed mainly of lipoproteins and nucleoproteins. Not only the amount of protein but also its biological significance varies depending on the variety of amino acids in the grain. Proteins are divided into water-soluble (albumin), saline-soluble (globulin), alkaline-soluble and alcohol-soluble. Additionally, water-insoluble proteins (glumin, glutein, gliadin) are called gluten. Gluten is an elongated and pliable substance that remains after washing the starch in the dough with water. It is of great importance in baking bread. The size and porosity of the bread depends on the amount of gluten, which traps the gas in the dough, as a result it expands well, increasing the porosity of the bread. For example, the proteins in wheat are well stretched when the dough is made, which has a positive effect on the quality of the finished product.

Life-needed proteins

Protein plays an important role in the vital processes of human and animal organs. Grain is one of the main products that provide the human body with protein. Protein is made up of completely non-replaceable (non-replaceable) and non-fully replaceable, and amino acids. Proteins that contain all the essential amino acids are called biologically essential proteins, while the rest belong to the group of non-essential ones. Similarly, without the synthesis of essential amino acids in humans and animals, they are found in foods and are readily available. Non-biologically complete proteins in grains do not contain sufficient amounts of essential amino acids lysine. Protein governs the end-use quality of grain products, as it is considered the principal component of wheat grain quality [5,7]. High-temperature stress (HTS) events have been projected [8,9] as a risk in the near future for deteriorating grain quality, in particular grain protein concentration (GPC). The effects of HTS on wheat have been previously quantified in terms of duration, level, and growth stage at which stress occurs [6,10,11]. Specifically, HTS influences wheat quality by altering grain starch content and GPC [5,6,9]. However, increase in GPC under HTS despite reduced grain protein accumulation indicates that the reduction in grain mass is greater than that of protein [4,12,13]. Simulation analysis is considered to be a powerful tool for examining and interpreting the impacts of environmental and management factors on grain quality [14]. Sirius Quality [16] accounts for structural proteins (albumin-globulin and amphiphilic proteins) and storage proteins (glutenin and gliadin) under normal temperature [4].

Importance of Vitamins

The chemical structure of vitamins varies. These include relatively low molecular weight organic compounds that are required in very small amounts for the nutrition of humans and animals, as well as plants and microorganisms. All vitamins have the following specific properties that distinguish them from other substances:

1. Their biosynthesis occurs mainly in plants, they enter the living organism along with food.

2. Vitamins are biologically active in small amounts and are extremely necessary for all vital processes.

3. Lack of vitamins in the body or their excretion from the body leads to the development of pathological processes in the form of hypovitaminosis (diseases caused by vitamin deficiency).

The effect of vitamins is based on the fact that when they enter the body, they become their active form and are usually coenzymes or prosthetic groups that are part of the most important enzyme systems. Lack of thiamine vitamin (B1) in diet causes accumulation of pyruvic acid in nervous system, and polyneuritis (disorders of the sensory and motor spheres, muscle atrophy, edema, etc). Niacin (vitamin RR) is a component of oxidation-reduction enzymes, which accelerates the release of hydrogen from oxidized organic matter.

Water-soluble vitamins

The grain contains eight water-soluble vitamins: thiamine, riboflavin, niacin, pyridoxine, biotin, ascorbic acid, pantothenic acid, myocytes.

Thiamine (vitamin V1) is a compound of hydrogen bromide. The enzyme is part of pyruvate decarboxylase and plays an important role in the conversion of carbohydrates into other substances in animals, plants and microorganisms.

Lack of riboflavin (vitamin V2) leads to loss of appetite, weight loss, weakness, irritability, pain in the mucous membranes of the mouth.

Niacin (nicotinamide vitamin RR) is a component of the enzyme pyridine dihydronase, which is involved in the transport of hydrogen. The amount of niacin is 45-70 mcg g in wheat, 120-325 mcg g in bran, etc.

Pyridoxine (vitamin V6) is a component of enzymes that catalyze changes in amino acids. The amount of pyridoxine is 3.5-4.3 mcg / g in wheat grains and 8.9-16.2 mcg / g in bran.

Biotin (vitamin N) is an important growth factor for yeasts and other microorganisms.

Lack of ascorbic acid (vitamin C) causes sinus disease.

Minerals in grain: Dried, dehydrated grain consists of two groups of elements: group 1 - S, O, N, H, S - 9-98%. The rest of the substances (1.5-2.0 percent) are all other elements (group 2). The mineral elements of the second group are divided into 3 groups:

1. Macronutrients - the amount of elements in this group is expressed as a percentage value from one thousand to one hundredth (10-1 - 10-2). This group includes the elements P, K, Mg, Na, Fe, S, AI, Si, Ca;

2. Micronutrients - the amount of elements in this group ranges from one thousandth of a percent to one hundredth of one thousandth (10-3-10-5). This group includes Mn, B, Sr, Cu, Zn, Ba, Ti, Li, J, Br, No, Co, and other elements;

3. Ultra microelements - the amount of elements in this group in the grain is measured in percent and less. These include Cs, Sr, Cd, Hg, Ag, Br, Ra.

The ash content and composition of different varieties of grains (such as phosphorus, sulfur, potassium, sodium, calcium, magnesium and iron) contain moderate chemicals.

Conclusion

In cultivating and seeding grains in the ground, farmers must pay attention the water sufficiency and climate influence because these two factors may change the chemical composition and quality of the wheat as it may help plant to grow and be ripening. Wheat is rich in proteins which we can find more to have than other products in our daily life.

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DIGITAL MARKETING: CURRENT TRENDS IN DEVELOPMENT

Abstract: *The article is aimed at the study of the ongoing digital revolution in marketing. It substantiates the increasing relevance of the use of digital marketing in today's business environment. When using digital marketing, it is necessary to take into account both the internal tasks of the firm and the external factors of the macro environment surrounding the firm. The practical benefits of using digital marketing should be to increase profits and sales, as well as to strengthen trusting relationships with customers. Within the framework of consideration of modern tendencies of development of digital marketing the most actual directions of marketing activity in the Internet are revealed. The development of Internet marketing is closely related to the spread of the Internet and its growing popularity. Particular attention is paid to how the development of the Internet is changing some patterns of consumer behavior. Taking into account the fact that the level of Internet penetration in certain regions of the world is still quite low, and in view of the steady increase in the time people spend on the Internet, it is concluded that in the future we should expect a further increase in the importance of digital marketing.*

Key words: *digital marketing, marketing trends, social media, social media marketing, advertising.*
Language: *English*
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Introduction

With the rapid developments of computer technologies and information and communication technologies, information organizations are facing constant changes and numerous challenges such as the rapid growth of materials, increased user expectations, rising costs, budget cuts, networking demands, competition by database vendors, and complexity in information requirements and demands (Yi, 2014). Currently, the information organizations' operations, services, and resources are greatly affected by mobile applications, "cloud computing, augmented and virtual reality, discovery tools, open content, open source software, and new social networking tools" (ACRL Research Planning & Review Committee, 2010, Yi, 2014).

New and evolving technologies especially Web 2.0 and Web 3. 0, are being applied in a variety of areas in modern society, and there is no doubt that an information organization will be one of the first organizations using these new technologies (Yi, 2014). At present, there is an increase in the creation and publication of nonprint materials, with online and electronic materials becoming more common and digitization in information organizations is a new trend (Yi, 2014). Information and communication technologies, especially Web 2.0 and Web 3.0, have offered people more choices to have access to information (Yi, 2014). In the information age, the ease of information and the variety of information providers have taken away information organizations' traditional monopoly on information services and resources. Information organizations are not-for-profit organizations and must compete in the areas of service and resource delivery while having competition from other information services' providers and the volume of information available through the World Wide Web [1,2,3,4,5,6]. While information organizations do not make profits from their services and resources, those services and resources are still paid for and as a result, information organizations need to obtain positive returns on those investments. In order to achieve this, information professionals need to most effectively market those services and resources to the right users at the right time. This is where marketing can assist information organizations in competing effectively in the new information marketplace.

In today's marketplace, information organizations can no longer simply assume that users are aware of services and resources by themselves and information sharing is enough. With so many competitors within supplier markets, it is important that information professionals remain at the forefront of identifying and meeting the needs of users in order to remain relevant. For information organizations to keep competitive in the current climate, it is vital that information professionals understand and use marketing strategies to achieve organizational goals and objectives. Marketing can provide information organizations with directions and the tools necessary to make users aware of what information organizations offer them. Where the focus is on user satisfaction and welfare, understanding marketing, importance of marketing in information organizations, internal and external environments and key marketing concepts helps to establish, maintain and enhance relationships so that the needs and demands of users are continually being met[7,8,9,10].

Definitions and terminology

The term digital marketing emerged in the 1990s when the information and communication technologies developed rapidly. Digital marketing refers to "using all digital media, including the Internet and mobile and interactive channels, to develop communication and exchanges with customers" (Pride & Ferrell, 2013). In the digital age, it is perceived that the digital technologies currently available for all to use will give people the answers to questions quickly. People just click on a button and a whole world of information never before thought possible could be opened up. Nowadays, people turn to the Internet. Therefore information organizations are having to make changes in the way they operate. They now have to compete with an online presence, and the need to stay relevant. Given the climate, digital marketing, marketing online using information and communication technologies to reach current and potential users and to develop and maintain relationships with them, is seen as an important tool used to streamline the environments and market services and resources in information organizations[11,12,13,14].

After 2013, the term digital marketing was started to be used worldwide as a common term. Digital marketing is an umbrella term used to describe an organization's online marketing efforts. Organizations and firms use digital channels such as the Google search engine, email, social media sites, and websites to connect with and build a customer base by finding relevant prospective customers. The purpose of marketing has always been to connect and remain connected with your existing audience at the right place and right time while also looking for opportunities to expand the customer base. One of the things any firm does to accomplish this is to be where the audience is. In previous times, this meant that firm representatives had to be on the field all the time and visit physical sites where the customers would generally be. With the onset of more advanced online technology, this means that now most of the audience is spending time on the Internet-- and that is where you need to be. This created a way for digital marketing to enter the scene. To better define digital marketing, it is the advertising activities and promotion efforts of products or services that are delivered through online or digital channels like email, social media, apps etc. The difference between this and traditional marketing is that the channels in digital marketing offers organizations an advantage: the ability to analyze the marketing campaigns in real time [15,16,17].

This way, savvy digital marketers are able to see what is working, what is not, and what kind of effect it is having on the masses. To do this, a number of things are monitored by digital marketers. Metrics of what is being viewed, how often is it viewed, how long it is viewed for; what content works, what locations do audiences prefer, where do sales and conversions occur.

One must also learn about the dynamics of your niche audience groups that are targeted or are using the products or services.

Figure 1. Digital marketing assets

Source: Danny Star (2019) Vision 20/20 "The secrets of digital marketing and its role in growing your business"

Digital marketing also makes use of text messaging, instant messaging, cell phone apps, podcasts, electronic billboards, digital televisions, and radio channels. As an organization that engages in digital marketing, everything from our website to online branding assets is valuable as a resource for digital marketing [19,20,21]. On this range of online channels, it is easy to classify everything into two fields: assets and tactics (Table 2), because that is the way digital marketers tend to use them. Digital marketers that have a good grip on these have a clear idea of how to use and apply each asset or tactic to get closer to the company's goals.

Table 1. Digital marketing tactics

Search Engine Optimization (SEO)	This is the process of making your website optimized in a manner that it shows up higher in the search engine results and thus increases the amount of traffic that your website gets.
Content Marketing	This involves two things; the creation of content about your products, services or brand and the promotion of that content to generate brand awareness, increase traffic growth and customers.
Inbound Marketing	This type of marketing uses the assets of digital marketing and the theory of push and pull marketing. In inbound marketing, online content is used to attract target customers onto a certain website, or rather; it focuses on pulling customers instead of pushing a message.
Social Media Marketing	This refers to the efforts made to promote your brand or portfolio or even your content on social media platforms. The aim is to increase brand awareness, divert traffic to other places and generate a following that can boost your customer base.
Pay per click (PPC)	In this method, traffic is diverted to your website every time an ad is clicked because you have paid a publisher to do so. Google Ads is the most common type of PPC service.

Affiliate Marketing	This type of marketing functions on a commission system so it is performance-based. Participants who generate sales, leads, or traffic to their partner receive a commission for marketing your products or services on your website.
Native Advertising	Native advertising usually refers to advertisements that are focused on the content or open with the content and are present on a platform simultaneously with other content that is non-paid. For example, posts that are sponsored by BuzzFeed are one way to do this but some groups of people also include social media posts as a part of this advertising.
Marketing Automation	Since many actions of marketing have to be repeated continuously such as email, social media, and various website actions-- it is better to have these tasks automated. Thus, 15 marketing automation refers to the software that exists to automate these marketing processes.
Email Marketing	A lot of companies use emails to market their products and services or to communicate with their customers. Through emails, content is usually promoted. Discounts and events are made known to divert people toward the company website.
Online Public Relations (PR)	This is similar to traditional PR building. The only difference is that this occurs in the online space. So digital marketers will aim to secure earned online coverage with publications, blogs, and other content-based activities.

Current global trends in digital marketing

According to **Datareportal** (2021) roughly 4.66 billion people around the world use the internet at the start of 2021 – that's close to 60 percent of the world's total population.

This number is still growing too, with our latest data showing that 319 million new users came online over the past twelve months. Internet users are currently growing at an annualised rate of more than 7 percent, equating to an average of roughly 875,000 new users each day. However, the coronavirus pandemic has had a big impact on internet user research, so actual figures may be much higher.

Most internet users (92.6 percent) use mobile devices to go online at least some of the time, but computers also account for an important share of internet activity. There are **4.20 billion social media users** in the world today – equivalent to more than 53 percent of the world's total population. The number of social media users around the world grew by 490 million in the past 12 months.

Globally, social media users are growing at a rate of more than 13 percent per year, with the average social media user having an account on 8.4 different social platforms. GWI (2021) reports that the average global user spends 2 hours and 25 minutes on social media each day, which means the world spends roughly 10 billion hours using social media every day.

Investigating time spent on the Internet, quality of content and it impact on people's life resulted in the introduction of new digital wellbeing tools for the Internet users. The Apple`s iOS 12 update - Screen Time feature (Newman, 2019), Google`s Digital Wellbeing feature, Facebook`s Your Time on Facebook feature and Instagram`s Your Activity feature provide analysis on a user`s screen time, the number of his daily pickups or time spent daily on a particular social media (Mander & Kavanagh, 2019). This, among other things, somewhat affected a drop of some social media accounts in 2019, as can be seen in the Table 1. The global trend of the average number of social media accounts is shown in the table below.

Table 2. Global average number of social media accounts

Global average number of social media accounts							
Over time	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Global Average	4.3	4.8	6.3	7.6	8.0	8.6	8.5
Gen Z	4.4	4.8	6.9	8.0	9.0	9.7	9.0
Millennials	5.1	5.7	7.4	8.9	9.3	9.7	9.1
Gen X	4.0	4.3	5.6	6.8	6.9	7.1	7.0
Baby Boomers	2.6	2.8	3.5	4.3	5.0	5.1	5.0

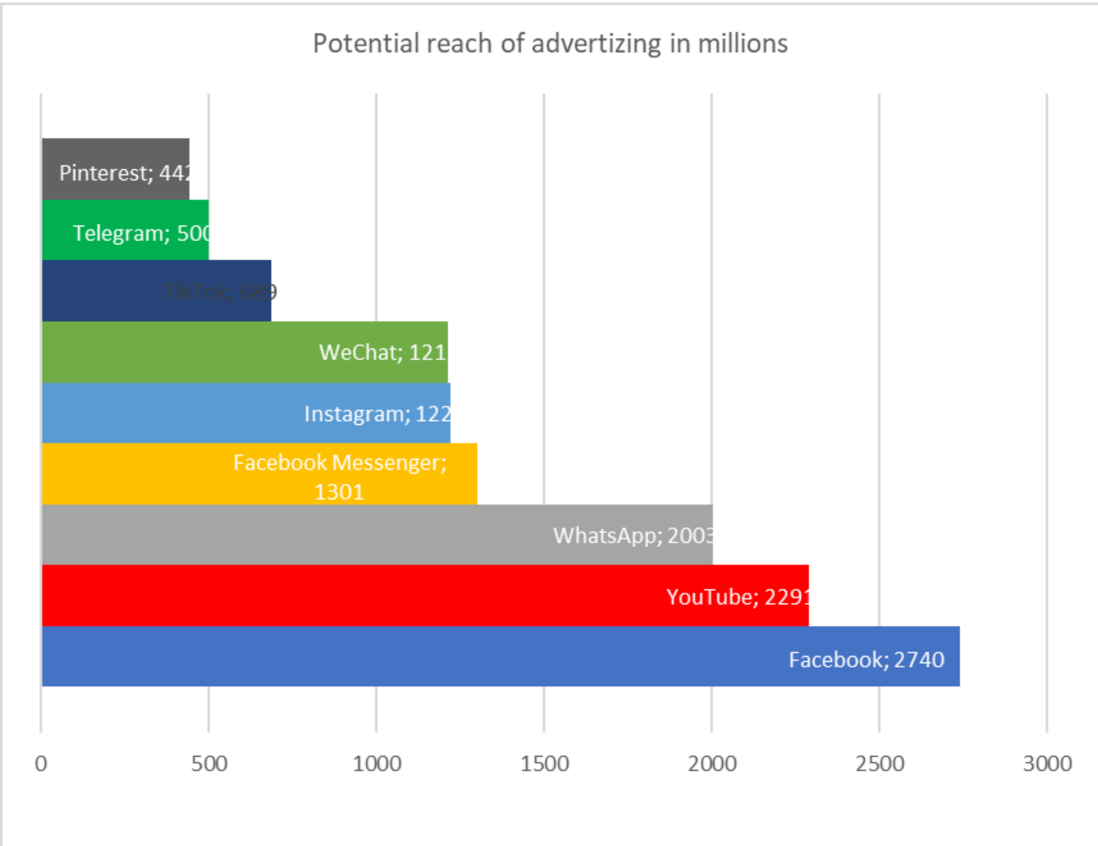
Source: Adapted from GlobalWebIndex's flagship report on the latest trends in social media (Mander & Kavanagh, 2019).

Social media marketing

Social media platforms occupy an important position in digital marketing plans, as their potential reach is extremely large. The Figure 1 below presents the global number of active users of top social platforms, based on monthly active users' study. As one of the fastest-growing social media networks, Facebook is still the largest social network worldwide. In the third quarter of 2020, Facebook accounted for 2.7 billion monthly active users (DataReportal, 2021). Their users have the opportunity to share their own experience and, with the help of other users, brainstorm to develop an opinion on a product/service, company, brand, etc. (Akar & Topcu, 2011; Kim & Ko, 2012). Customers are searching for different types of information about organizations, brands, products and services online. According to 2019 State of Conversational Marketing Report, 42% of customers expect an immediate response within 5 seconds, whereas 36% expect a response within 5 minutes, from chatbots (Kilens, 2019). Usually, customers prefer reviews, video instructions, personal experiences of other users and open discussions among social media groups. Digital marketing institute states that 86% of female users consult social media before choosing a product. Other research reveals that 70% of active social network users, before making a purchase, seek additional information about the product or service on social media sites (Kim & Ko, 2012). According to research conducted by Wyzowl (2018), incredible 95% of respondents said that they have watched a video about products or services they were interested in buying and the number of such respondents increased to 96% in 2019 (Wyzowl, 2019). Another research revealed that 94% of customers would remain with the organizations that communicate transparently and clearly (Denis, 2019).

Using social media networks, organizations can reach their target audience in a simple and fast way. Modern, online customers are seeking for more visual and interactive content, new experience and a higher level of interactivity. Interactive content is more engaging, stands out, grows awareness of a brand and keeps the audience present on the organization's website (Thomson, 2019).

Figure 2. Active users of top social platforms, based on monthly active users, active user accounts or unique monthly visitors of each platform in millions.



Source: Digital 2020: Global digital overview
https://datareportal.com/reports/digital-2020-global-digital-overview

Challenges of using digital technologies in digital marketing

One of the biggest challenges of new digital communications is the lack of fundamentals and basic elements of personal connection such as empathy, personal touch, eye contact and the like. Digital and social media addiction is a disease of the new age. Designing for the addiction and ethical aspect of this topic are considered both by engineers and public (Newman, 2019). Changing algorithms is a must. Issues that must be considered in further researches refer to the harmful impact of digital media - how ethical it is to use notifications that are dripping with dopamine or showing the content that misleads the consumer. Also, the need to better know the importance of 'digital well-being' will push a new wave of articles about this topic[22,23,24,25,26,27]. A large number of people feel pressure to delete their social media accounts to preserve their real-life and mental health. The development of new software and dashboards for maintaining social media and digital addiction requires full attention of the academic community (Slijepčević et al., 2020).

Conclusion

A digital revolution is underway in the world, which is forcing executives of various businesses to rethink the concepts, strategies and business practices they use. Old marketing concepts and strategies that do not correspond to the new times must be modified or replaced with new, more effective and consumer-oriented ones. Thus, the development of digital marketing is a direct consequence of the evolutionary process of marketing knowledge development[28-32]. In the new business environment, the victory will go to those businesses that can best curb the nature of network communications by effectively using digital channels to target consumer interactions. One of the most expensive digital marketing channels, Internet marketing, plays a critical role. The development of Internet technologies has a strong impact on marketing activities, because it changes some features of consumer behavior. It can be predicted that in the future we should expect a further increase in the popularity of the use of digital marketing in enterprises and an increase in the amount of spending on it. This is due both to the steady growth of global spending on advertising using digital communication channels, and the prospect of increasing Internet penetration in certain regions of the world, as well as the fact that in recent years there has been a steady increase in the time people spend on the Internet.

To summarize, with the advent of digital marketing the scope and prospects of profit for businesses have increased to a large extent to a large extent, but, from the perspective of buyers, there is still a lack of consumer loyalty, while the inability of buyers to try tangible goods by touch, smell, and taste before making a online purchase can be a serious limitation to getting ahead of digital marketing over traditional methods. Nevertheless, theoretical understanding of why and how to use different channels of digital marketing in innovative economic development is still is still a work in progress.

To conclude our article, we would like to recommend the following four fundamental points, which are very important for the successful development of digital marketing in Uzbekistan:

1. Management of complex relationships with customers through Different channels - both digital and traditional by increasing the number of corporate websites and strengthening social marketing.
2. Initiating dynamic interactions with customers and responding to them through mobile, email, and online marketing.
3. Effectively leveraging big data to accelerate decision making.
4. Enhance geo-targeting and increase services based on location.

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ISI (Dubai, UAE)	= **0.829**	**РИНЦ** (Russia)	= **0.126**	**PIF** (India)	= **1.940**
GIF (Australia)	= **0.564**	**ESJI** (KZ)	= **8.997**	**IBI** (India)	= **4.260**
JIF	= **1.500**	**SJIF** (Morocco)	= **5.667**	**OAJI** (USA)	= **0.350**

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THE ROLE OF TEACHERS AND THE USAGE OF METHODS IN LANGUAGE TEACHING

Abstract: *This article presents the results of investigation the perceptions of students majoring in Methods of learning English Language towards the different roles that the teachers of English as a foreign Language may take in the classroom, and what are the most important teachers roles as perceived by English language learners.*

Key words: *Teacher, teaching languages, methods, the importance of usage methods, modern technology, the usage of the authentic material.*

Language: *English*

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Introduction

In today's technology driven world, the essence of being supervised by an educator appears less important due to increased availability of alternative resources to students. However, there is a proven fact that it is impossible to success in educational area without an instructor's aid. It is because, learning is considered as not only an individual process but a cooperation of a student and an instructor. There are multiple vital roles of teacher to cater effective lesson that will be outlined in the following paragraphs.

First of all, the process of teaching begins with investigating learners' characters means that Psychology is of great essence. Since the object of teaching is human being, teachers ought to deal with all challenges that occur with pupils in the classroom.

Therefore, a teacher constitutes a **PSYCHOLOGIST** in order to overcome possible hardships and provide an efficacious lesson. It is likely to be hard to conduct the lesson effectively without understanding what you are expected by your learners. Teaching and Learning is a continuous process and wherein strategies may differ with the moving generations. Though we find many changes in the education system, but the role of a teacher will remain the same but with slight changes. The teacher's job is to convince the student that education fulfills the need and learning in the classroom. A Teacher has to think from the learners' perspective before she plans to interact with the students. When a teacher plans with the learners' perspective and starts teaching, students can receive the information without any hesitation in grasping the things. That's why flexibility is the main tool to lead successful lesson as pupils have various interests and characters.

Secondly, a teacher plays a significant role as a **FACILITATOR.** It is very significant that students should sense that their teachers concern about them and thus teacher should become the best facilitator to the students in all the aspects. As a facilitator she has to direct and support students in learning for themselves as a self-explorer. Teachers should develop best learning environment which reflects the students' life in societal, intellectual and linguistic occurrences. As a facilitator a teacher should lay a strong foundation for their personal growth.

Analysis of Subject Matters

TEACHER AS AN ASSESSOR. As a Teacher, assessing is one of the important tools for extracting students' knowledge by giving continuous feedback. Teacher's role is not complete just by teaching a lesson. Assessing is the effective tool for making students learning perfect. A Teacher before assessing a student has to first assess their own conclusions, as to what extent a student will be benefitted with their correct assessment.

These assessments can be carried out through verbal feedback, by conducting quizzes, by giving some tasks etc. An assessment makes a teacher to plan for her future teaching techniques and in guiding them to master their language.

TEACHER AS A MANAGER. Teacher's role as a manger is a very significant and imperative role in managing a class. A Teacher has to plan well in advance regarding handling the classes within the stipulated time, covering academics as well as interpersonal skills with various teaching techniques which is obviously a path to practical approach. An experienced teacher can manage the timings according to their own experience. Perfect classroom management by a teacher using the major mechanisms will lead to success of teaching-learning methods.

Research Methodology

Teacher as a Tutor. When students are working on a longer project, such as writing or preparing for discussion or debate, this is where a teacher acts as a tutor, working with a private or a small group, pointing them one at a time. In such situations, we are merging teacher roles as prompter and resource, and acting as tutors. Being a tutor is a very difficult role to do in a class that has a large number of students because it indirectly must have an intimate relationship with students. However, when students are working in groups or in pairs, we can walk around and pause with some groups or partners and offer some guidance or direction in doing what we tell them to do.

Perth death must remain and all must be evenly distributed, however, all the groups or couples we have formed should feel our attention as tutors and otherwise the group or couple we ignore will feel sad. We have to play the role of a continuous tutor even though it is difficult because with a more specific context with students, we have the right opportunity to help and encourage so that the atmosphere in the class is awakened very well as a result.

TEACHER AS AN EVALUATOR. As everyone is aware that evaluation plays a prominent role to a teacher's success. Evaluation is a subjective process, which is related to academics. Teacher has to be an effective evaluator while evaluating the student. True and fair evaluation should be done by a teacher in order to do justice to a student's career. A student has a wide scope of learning through the mistakes committed. As an evaluator a student should also be focused on the areas of competence rather than on the weaknesses and every student should be adhered to positive expectations.

Today the demand for employing various materials is in increase. There are a wide range of resources available to the modern teacher but the right selection is essential in delivering productive lesson. Whether applying authentic materials during the classroom in order to facilitate listening skills or not is controversial issue.

The usage of the authentic listening material is one of the problems in the teaching listening comprehension. The important point, as always, is to meet the needs of the learners. On the short-term basis the learners need to listen to material, which allows them to feel comfortable, perhaps because it is mainly recycling known language. In addition to this, particularly taking their long-term needs into account, the learners have to be exposed to listening material, which is beyond their productive level. Whether this is 'authentic' in the early stages is not entirely relevant provided the material gets them used to *not understanding* every word; encourages them to *guess* - and, over and above this, stimulates them to talk (or read or write, if these are following-up activities).

But, of course, whenever possible, some authentic material should be used, and on an increasing scale as the course progresses. However, it must be kept in mind that the use of authentic material for listening is very different from reading, where, because the learners can work individually and at their own pace, authentic material carries fewer risks. In the typical listening situation, care has to be taken to see that learners are not discouraged by excessive difficulties. In general, authentic materials are best used where the learners themselves are likely to appreciate them and accept them in spite of difficulties.

Most interactive listening situations are in the form of discussions and games. Two important points need to be kept in mind.

First, these activities form the basis of oral work, where the emphasis is on getting the learners to use language for self-expression. It should not be forgotten, however, that listening is an important aspect of these activities. The learners have to listen in order to participate.

Secondly, although these activities are normally done in groups, in order to give the students themselves as many opportunities as possible to use language, we should also look for suitable opportunities to interact with the class as a whole, through conversation, discussion and games. This must be regarded as a significant component of the listening comprehension programme.

(a) *Discussion-type activities*

These provide good listening practice because they get students to listen to one another, especially if the discussion is geared toward making a decision of some kind. For such activities the student have to listen to one another in order to participate.

(b) *Predictive listening*

For this activity a text is read aloud sentence-by-sentence. The students are asked to interpret the sentence and to predict what they think will follow. As the text builds up, they can revise their interpretations. Although this is a contrived activity, it encourages very careful listening both to the text itself and to the various interpretations suggested.

(c) Communication games

Many communication games provide excellent practice. For example, *Describe and draw* where the listeners, whose task is to draw the picture being described, interact with the speaker in order to elicit more information com*plete it* is based on the jigsaw principle. In this case, however, the information is divided up visually among the participants, who have to talk and ask questions in order to build up the complete story. Games, which involve the evaluation of a player's performance, such as, *Use it*, also provide purposeful listening practice [8,p.2].

(d) *Interviews*

The students can be asked to design questionnaires or surveys, which they use to interview one another or people outside the classroom. Interviewing of this kind involves careful listening and recording of answers [6,p. 5].

Also, direct method of teaching which is sometimes called the natural method and is often (but not exclusively) used in teaching foreign languages, refrains from using the learners' native language and uses only target language. Direct method is undoubtly a highly effective method in terms of creating language learners who are very competent in terms of using the target language communicatively.

However, as pointed out above, it requires small class sizes, motivated learners and talented teachers in order to succeed really well. It is also an unfortunate fact of life that students of foreign languages these days need more than just the ability to communicate confidently— they need to be able to demonstrate grammatical accuracy and good reading skills in order to succeed in both national and international language testing systems.

It becomes something of an issue in countries where English language learning is primarily EFL—based (that is, English as a foreign language) and there is a distinct shortage of both the opportunity to apply the language communicatively in real-life situations outside the actual classroom and teachers who have the required level of native or native-like ability in the target language and the creativity to provide realistic examples to illustrate what elements of the language actually mean. Some of the teachers who go on practicing this kind of methodology tend to be native speakers who travel to foreign countries where they have no ability in the local language.

In many casas, they are not even aware they are following what is known as the "Direct Method"— they are trying to make the best out of a difficult classroom situation where creativity and constant (careful) use of the target language are required to make up for teachers' shortcomings elsewhere, whether that be a lack of ability students' mother language or lack of knowledge about various pedagogic approaches to language teaching.

In general teaching focuses on the development of oral skills. Characteristic features of the direct are:

❖ Teaching concepts and vocabulary through pantomiming, real-life objects and other visual material.

❖ Teaching grammar by using an inductive approach (having learners find out rules through the presentation of adequate linguistic forms in the target language)

❖ Centrality of spoken language (including a native-like pronunciation)

❖ Focus on question answer patterns.

Aims:

Direct method aims to build a direct relation between experience and language, word and idea thought and expression. This method intends for students to learn how to communicate in the target language. And also this method is based on the assumption that the learner should experience the new language in the same way as he/she experienced his/her mother tongue.

Techniques:

❖ Question/answer exercise — the teacher asks question of any type and the student answers

❖ Dictation— the teacher chooses a grade appropriate passage and reads it aloud

❖ Reading aloud— the students take turn reading sections of a passage play or a dialogue aloud

❖ Student self-correction— when a student makes a mistake the teacher offers him/her a second chance by giving a choice

❖ Conversation practice— the students are given an opportunity to ask their own questions from other students or from the teacher. This enables both a teacher-learner interaction as well as learner—learner interaction.

❖ Paragraph writing— the students are asked to write a passage in their own words

Merits:

❖ Facilitates understanding of language— understanding of target language becomes easier due to the inhibition of the linguistic interferences from the mother tongue, it establishes a direct bond between contexts and help in understanding directly what is heard and read.

❖ Improves fluency of speech— fluency of speech results in easier writing, it tends to improve expression, in writing and it is a quick way of learning and expanding vocabulary.

❖ Aids reading — reading becomes easier and more pleasant and it also promotes a habit of critical studying.

❖ Improves the development of language sense.

Key features:

❖ Classroom instructions are conducted exclusively in the target language.

❖ Only everyday vocabulary and sentences are thought during the initial phase; grammar, reading and writing are introduced in intermediate phase.

❖ Oral communication skills are built up in carefully graded progression organized around question and answer exchanges between teachers and students in small, intensive classes.

Analysis and results

Concrete vocabulary is taught through demonstration, objects and pictures; abstract vocabulary is taught by association of ideas.

One of the key responsibilities of the modern day teacher of any discipline is to actively create and build intrinsic motivation in their learners, to empower them with the ability and confidence to learn " how to learn", to develop a sense of responsibility for their own development, to regard peers as possible sources of learning well.

To sum up, teacher plays diverse roles in English Language Teaching (ELT). Some of the roles where a teacher performs when dealing the students are as follows - learner, facilitator, assessor, manager and evaluator. By performing various roles, especially by means of an interactive methods. As we have seen above not only are the authentic materials fundamental but also there are numerous activities which can be used as interactive methods.

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THE IMPORTANCE OF VOCABULARY AND USING TECHNIQUES IN TEACHING FOREIGN LANGUAGE

Abstract: *This article aimed at devising a vocabulary learning software that would help learners learn and retain vocabulary items effectively. Some new techniques, methods, games which are useful for learning, teaching foreign languages.*

Key words: *Vocabulary, teaching vocabulary, techniques, teaching techniques, Visual techniques, Use of dictionaries teaching foreign language.*

Language: *English*

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Introduction

Today's one of the main requirement is to learn and have a good comment of some foreign languages and to be able to use them in the professional activity. Gaining the independence great attention was paid to setting up and developing national morality and spirituality, harmonizing it with modern requirements and raising it up to the level of world standards and habits. There were adopted a number of laws by the legislative body of the country – Oliy Majlis to reorganize the educational system of Uzbekistan radically. Especially the great importance is attached to teaching and learning of Foreign Languages. There is no need to value the importance of knowing foreign languages for the people of our country building up its great future in accordance with foreign partners and trying to gain its own rank in the community.

Vocabulary is the first and foremost important step in language acquisition. In a classroom where students are not finding themselves comfortable with L2, language learning can be made interactive and interesting with the introduction of appropriate vocabulary exercises.

It is well known that vocabulary is considered to be the base of all the four skills that should be developed in the student's possession of the language, we counted that it would be valuable to study effective ways of enhancing vocabulary using innovative methods of teaching. One of the productive methods of teaching vocabulary is using games.

Analysis of Subject Matters

If we want to use language effectively, we must have good stock of vocabulary. We cannot use the language, if we don't know the words of that language. English language has vast vocabulary. It is the richest language of the world. One cannot learn a language without learning vocabulary. Therefore, the study of vocabulary has occupied the central place in teaching-learning activities. Thornbury stated as follows: "If you spend most of your time studying grammar, your English will not improve very much. You will see most improvement, if you learn more words and expressions. You can say very little with grammar, but you can say almost anything with words."

As it is acknowledged, "word" is the most common element in sentences because a language is a collection of words. Words can be compared to bricks of buildings fixed with the help of clay called Grammar. Despite quite small pieces, they are vital to the great structure. Wilkins rightly says, "Without grammar very little can be conveyed but without vocabulary nothing can be conveyed". Therefore, the study of vocabulary is at the center while learning a new language. English being a second language or foreign language, one needs to learn vocabulary in the systematic way. We cannot neglect grammar at all but even if you misuse grammar or pronounce a word wrongly, you'll be still partly understood, but if you use an incorrect word in your speech, the listener may be confused and misunderstand you. In communication, vocabulary is often more important than grammar. It is frustrating for intermediate learners when they discover they cannot communicate effectively because they do not know many of the words they need.

Vocabulary is one of the significant aspects in language teaching and learning, above and beyond grammar and pronunciation. A good vocabulary and the ability to use word correctly and effectively can be the passport to the worlds of interesting and exciting information.

Famous imperialist poet, Rudyard Kipling says that words are the most powerful drug used by mankind. Those who are rich in vocabulary can speak and write English correctly. In fact, without vocabulary communication in a second or foreign language is not possible in a meaningful way. McCarthy argues: 'No matter how well the student learns grammar, no matter how successfully the sounds of L2 are mastered, without words to express a wide range of meanings, communication in an L2 just cannot happen in any meaningful way'.

Vocabulary is needed for expressing meaning and in using the receptive (listening and reading) and the productive (speaking and writing) skills. It should be considered as an internal part of learning a foreign language since it leads the way to communication. Nation aptly mentioned, "Such as writing and reading, vocabulary knowledge is one of the components of language skills". Harmer clearly states, "If language structures make up the skeleton of language, then it is vocabulary that provides the vital organs and the flesh". If one wants to use language effectively, he/she must have good stock of vocabulary. Language is made up of words. Nagy appropriately remarks, "Vocabulary knowledge is fundamental to reading comprehension; one cannot understand text without knowing what most of the words mean". Teaching vocabulary well is a key aspect of developing engaged and successful readers.

Acquiring a large vocabulary can benefit you in any sphere of social activity. It will enable you to understand others' ideas better and to have the satisfaction of getting your thoughts and ideas across more effectively.

The main aim of teaching vocabulary is assimilation of the meaning, form of the words and its usage in oral and written speech – that is formation of lexical habits. People can have many aptitudes, but without a large and precise English vocabulary to express them, they cannot take full advantage of these abilities. Unlike aptitudes, vocabulary is *not* a natural ability; it can be improved if one is willing to make the effort to do so.

Research Methodology

Language learners who wish to own an ability of fluency in English skills must have a large and adequate vocabulary. Jack C. Richard and Willy A. Renandya assert: The complex materials need to be understood through the vocabulary knowledge as an important. Sufficient English words can make learners efficiently communicate and fundamentally comprehend on English articles and academic essays.

Unfortunately, learning vocabulary is considered to be as a weak point of the most language learners. Restricted knowledge of vocabulary and sentence structure is thought as the main problem in learning language. Without wide range of vocabulary a learner won't be able to be skillful at reading, writing, listening and speaking.

It will enable us to understand the others' ideas better and to have the satisfaction or getting our thoughts and ideas across more effectively. While there are not any magic shortcuts to learning words, the larger our vocabulary becomes, the easier it will be to connect a new word with words we already know, and thus remember its meaning.

There are numerous techniques concerned with vocabulary presentation. However, there are a few things that have to be remembered irrespective of the way new lexical items are presented. If teachers want students to remember new vocabulary, it needs to be learnt in context, practiced, and then revised to prevent students from forgetting. We can tell the same about grammar. Teachers must make sure students have understood the new words, which will be remembered better if introduced in a "memorable way".

Bearing all this in mind, teachers have to remember to employ a variety of techniques for new vocabulary presentation and revision.

Gairns and Redman (1986) suggest the following types of vocabulary presentation techniques:

1. Visual techniques. These pertain to visual memory, which is considered especially helpful with vocabulary retention. Learners remember better the material that has been presented by means of visual aids. Visual techniques lend themselves well to presenting concrete items of vocabulary-nouns; many are also helpful in conveying meanings of verbs and adjectives. They help students associate presented material in a meaningful way and incorporate it into their system of language values.

2. Verbal explanation. This pertains to the use of illustrative situations, synonymy, opposites, scales (Gairns and Redman), definition (Nation) and categories (Allen and Valette).

3. Use of dictionaries. Using a dictionary is another technique of finding out meanings of unfamiliar words and expressions. Students can make use of a variety of dictionaries: bilingual, monolingual, pictorial, thesauri, and the like. As French Allen perceives them, dictionaries are "passports to independence," and using them is one of the student-centered learning activities.

Using games. The advantages of using games. Many experienced textbook and methodology manuals writers have argued that games are not just time-filling activities but have a great educational value. W. R. Lee holds that most language games make learners use the language instead of thinking about learning the correct forms. He also says that games should be treated as central not peripheral to the foreign language teaching programme. A similar opinion is expressed by Richard-Amato, who believes games to be fun but warns against overlooking their pedagogical value, particularly in foreign language teaching. There are many advantages of using games. "Games can lower anxiety, thus making the acquisition of input more likely" (Richard-Amato).

They are highly motivating and entertaining, and they can give shy students more opportunity to express their opinions and feelings (Hansen). They also enable learners to acquire new experiences within a foreign language which are not always possible during a typical lesson. Furthermore, to quote Richard-Amato, they, "add diversion to the regular classroom activities," break the ice, "[but also] they are used to introduce new ideas". In the easy, relaxed atmosphere which is created by using games, students remember things faster and better (Wierus and Wierus). Further support comes from Zdybiewska, who believes games to be a good way of practicing language, for they provide a model of what learners will use the language for in real life in the future.

Games encourage, entertain, teach, and promote fluency. If not for any of these reasons, they should be used just because they help students see beauty in a foreign language and not just problems.

Choosing appropriate games. There are many factors to consider while discussing games, one of which is appropriacy. Teachers should be very careful about choosing games if they want to make them profitable for the learning process. If games are to bring desired results, they must correspond to either the student's level, or age, or to the material that is to be introduced or practiced. Not all games are appropriate for all students irrespective of their age. Different age groups require various topics, materials, and modes of games.

For example, children benefit most from games which require moving around, imitating a model, competing between groups and the like. Furthermore, structural games that practice or reinforce a certain grammatical aspect of language have to relate to students abilities and prior knowledge. Games become difficult when the task or the topic is unsuitable or outside the students experience. Another factor influencing the choice of a game is its length and the time necessary for its completion. Many games have a time limit, but according to Siek-Piskozub, the teacher can either allocate more or less time depending on the student's level, the number of people in a group, or the knowledge of the rules of a game etc.

This follows the assumption that the process is solely that of providing language experience; for every lesson in which the language is spoken, read or written must inevitably contribute to the extension of the pupils' acquaintance with the language. If this were the true character of the process the only qualification for the role of instructor would be an adequate knowledge of the language. Closer examination, however, proves that the efficient teaching of a foreign language, far from being a simple process, is probably the most difficult and complex of all subjects in the curriculum.

For all subjects the initial considerations are what to teach and who. In this case of all other subjects there is no appreciable difficulty about the first, as the syllabus is usually clear and indisputable. Even for method there are guiding principles which meet with more or less general acceptance. Foreign-language teaching, however, has not yet attained the stage of universal agreement even as to what is to be taught, still less as to how.

This may be taken as an indication of the complex character of the subject, wherein content and method are curiously involved. What appears to be a single subject is really a group of associated yet distinct branches of study; for language is a generic term covering all or any of the following features: speech, reading, composition, grammar, literature, commercial, technical and scientific activities. Therefore courses must differ widely if reading or speech is made the sole or major purpose, and if the syllabus is extended to literature or commerce; the extent and choice of vocabulary too will depend on whether instruction is given on Translation or Direct Method lines; and presentation of grammar will vary considerably if taught formally or functionally. It is difficult even to qualify the general character of foreign-language teaching.

All other school subjects may be broadly classified as either knowledge or skills. Thus History and Geography are undoubtedly knowledge subjects, whereas Mathematics and Drawing are skills. Strictly speaking none is purely one or the other. History is certainly more than the mere absorption of data, and

Mathematics call for the memorizing of tables and formulae; but the predominant feature is clearly one element, with the other as incidental.

In which category is foreign-language learning to be included& The answer is more than academic interest, as the respective point of view will determine the whole character of course.

If it is thought of as predominantly a knowledge subject, efforts will be concentrated on giving the pupils as large a vocabulary as possible and supplying them with many grammatical data. The value individual lessons will probably be assessed by the number of new words taught or the point of grammar elucidated.

On the other hand, if language is thought of as essentially a skill, or a series of skills less attention will be paid to extent of vocabulary, and progress will be measured instead by the degree of fluency attained by the pupils. The conflicting views possibly arise from different interpretations of the function of memorizing in the learning process. This question has implications which warrant discussion.

That learning by the heart ought not to be lightly dismissed as a deplorable feature of obsolete methods may be gathered from the opinions of leading authorities.

Thus Handschin, a leading American Specialist, writes:

“One of the best exercises of the will is memorizing. We know there is a tendency in some quarters to make school tasks easy by omitting memory work in former periods. But, of course, there must be memory work,... although to overdo it is just as bad… For instance oftentimes a course in elementary language is so conducted as to acquire nothing but memory work.”- *Methods of teaching modern languages, p.77.Word Book Company, New York, 1923*.

Harold Palmer, one of the most stimulating of modern authorities, asserts that ` the study of language is in its essence a series of acts of memorizing; whether we are concerned with isolated words, with word-groups, with meaning or with the phenomena of grammar, the fact remains that successful memorizing is the basic of all progress. - *The Oral Method of Teaching Languages, p.20.Heffer, 1023.*

Elsewhere he elaborates his interpretation of the teaching process by analyzing language psychologically as comprising what he call (a) Primary matter and (b) Secondary matter.

He explains primary matter is an appreciable part of language may be seen from the list of categories it comprises. Summed up they are 1. All vocabulary (simple, compound and derived).

2. (a) All word-group used like single words, e.g. of course, would rather, in spite of, had better. (b) Verb phrases, e.g. go out, come back, get up.

(c) The association of prepositions with nouns, adjectives and verbs, e.g. on Sunday, made of, averse to or from.

3. Idiomatic sentences.

4. A large number of regular sentences for use as model in substitution tables.

Analysis and results

It must be admitted in the light of Palmers formidable list of categories that there is a considerable amount of language is virtually an act of recall, for all constructed sentences conform to conventional patters. Indeed one of the chief causes of error may be (as Palmer points out) the attempt of pupils to construct secondary matter freely before they have absorbed and mastered sufficient primary matter. Memorising therefore is undoubtedly an essential part of the learning process. Nevertheless it would be incorrect to interpret Palmers assertion that the study of language is in its essence a series of acts of memorizing ` as implying that the process is necessarily that of rote learning.

The essential characteristics of language in use are the speed and facility with which the language is received and produced. To be effective there should be little conscious effort but rather the spontaneous use of familiar words and forms. Fluent speech and rapid reading are not simply the application of knowledge; they imply the possession of specific habits; they are in effect a series of unconscious acts of memory. The inculcation of correct language habits is therefore the teachers’ chief concern.

For this purpose extent of vocabulary and grammatical knowledge are not the most vital factors. Fluency is a quality attainable within any range of vocabulary and may be absent despite the knowledge of all the words and forms in the language. It would be right therefore to conclude that foreign-language learning is essentially skills, or a series of skills, calling for the assimilation of a considerable

In summary, learning vocabulary is the very important thing that English students should focus on in order to achieve success in learning and in the future work in the field of English.

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METAPHORS OF COLORS IN USMAN AZIM POETRY

***Abstract**: This article examines the artistic images in the poetry of the People's Poet of Uzbekistan Usmon Azim, in particular, metaphorical images. The metaphors associated with color in the poet's poems are drawn into scientific analysis. Their artistic features and ideological-aesthetic functions are highlighted.*

***Key words**: metaphor, image, metaphorical image, colors, psyche, symbol, artistic skill.*

***Language**: English*

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Introduction

Every artist appeals to metaphor in the creative process, that is, to recreate the world when he sees it, to feel it. It is necessary to study the process of creating a poetic image of the poet, the relationship between being and thinking, scene and emotion. Because every poet "develops an unexpected inner resemblance to us, as a result of which what we know is described in a completely new way before our eyes, revealing its invisible aspects to us [1.Б.95]. In the words of the great Greek scholar Aristotle, metaphor is a kind of speech ornament in poetry that "... conveys news in a clear, pleasing, and beautiful way ...". Hence, it is important to study the emergence of metaphorical images, which are the main feature of the artistic image, to correctly understand and analyze its aesthetic and ideological functions.

The poetry of the People's Poet of Uzbekistan Usmon Azim is rich in metaphorical images. The poet speaks of trees and mountains, springs and rivers, birds and clouds, distant stars, beautiful flowers and blossoms. In his poetry, garden (tree, leaf, root), mountain (field, steppe, rock), sun, dawn, rain, wind, star, birds (crane), flowers (tulips, roses, daisies) and seasons are widely used. [2.537.] It can be said that the metaphor of landscape has a special place in the poet's poetry. According to the classification of metaphors, the artistic metaphor is characterized by a high degree of imagery, expressiveness and emotionality. This is especially evident in the metaphoricalization of colors in his depictions of the seasons in relation to the human psyche.

Analysis of Subject Matters

It is clear from our observations that all seven different primary colors present in the world in Usman Azim's poems are widely used in the creation of metaphorical images and images. If we look at the history of colors in poetry, it was initially "a type of detail being expressed, and later served to reinforce the artistic image, then its function was to perform a complex compositional task". [2. B.66.] It is known that "… the beginning of the XX century marked the beginning of a new era in Uzbek literature. Cholpon, a bright star of Uzbek poetry, really made a great revolution in Uzbek poetry. " [3.P.576]. In his poems there is a departure from classical tradition and a renewal of poetic images. In Chulpon's poems, which opened the "door" of symbolism in Uzbek poetry, the color black is widely used as a symbol of the existing ruling system:

Қора булут тўдасиким кўкларни
Шарқни ёпган парда янглиғ ёпмишдир.

This innovation, which Chulpon started in our poetry, was continued in the works of poets such as Shavkat Rahmon, Usmon Azim and Khurshid Davron, the generation of Uzbek poetry of the 70s of the last century. Among the poetic innovations in

Uzbek poetry of the 80s and 90s, colors "... began to be used not only as an adjective of poetic images, but also as an independent poetic image". [4. P.67.] Indeed, for the creators of this period, colors have become a means of fulfilling ideological-aesthetic and artistic tasks in illuminating the problems of the social period. In Usman Azim's poem "Eternal Way" red, in the series "Bakhshiyona" the contrast between the images of White and Black heroes in the expression of black and white, the two eternal forces of nature, the struggle of Good and Evil rises to the level of such a poetic image.

It is known that red is a symbol of courage, fire and blood in the East. In the poetry of the poet Usman Azim, the color of fire and blood with this color symbol is widely used in the creation of metaphorical images.

Дунё каби кўнглим ёришсин,
Қон ичида кулгу ярат...Кул!
Лабларимда маним очилсин
Шафақ рангли ғунча – қизил гул!

"Blood", "lip", "dawn" – these concepts become associative, enliven the color red in the imagination of the reader, and the poet creates the image of "red flower". The poet's artistic skill creates in the eyes of the reader the image of "Dawn – colored bud – a red flower", in which the "red flower" – a symbol of love, evokes a unique aesthetic beauty and wonder. In the poem, the poet describes the state of happiness of the lyrical hero, who awakens a sincere smile of love on his lips.

Олча шафақранг.Ўрик –
Сариқ, қизил...Худойим.
Бу куз бунчалар тиниқ
Бу куз бунча мулойим.

"Dawn" red cherry; "Yellow", "red" apricot – in the visual image, the poet depicts the leaves of autumn trees in these colors. It can be said that the colors "yellow" and "red" are extremely generalized in the poem.

In the poem "Still Life", Usman Azim creates a "still life" similar to "artists" in words, not in colors.In the poem, only the color "Red" serves to illuminate the view of the full autumn – "September" in the reader, as well as the content of its unique symbolic images.

Қип-қизил олма.
Ёнига олтин узум чизаман.
Унинг ёнига анор –
Ҳаётга тўйганидан ёрилиб кетган бўлади
анорнинг вужуди.

First of all, the “apple”, “grape” and “pomegranate” fruits in this poem were used as symbolic images. It is known that the "red" color of the apple is an expression of eternal life, beauty, eternity, health. Because the color "Red" is glorified in the East and the West as a symbol of higher qualities. In the poem, "Red" is an adjective of the apple, as well as a metaphorical image of "the body" of "pomegranate" - "cracked from the satiety of life". It is known that the color of pomegranate, grains, juice is also a red fruit. According to Dilrabo Mingboeva, an Uzbek scholar who has studied the emblems, "the meaning of the pomegranate symbols comes firstly from its color, secondly from its shape, and thirdly from its abundance." [8.119.]. In the poem, along with its color, its shape and abundance are also pointed out. It can be said that the pomegranate is a symbol of Life, the people who live in it, and love. It is known that in the literature of antiquity and later, "grapes" expressed fertility, and abundance. In the poem, the golden adjective of the grape is yellow. Individually, the metaphor of yellow and red was used together. Through the metaphor of these colors, the full symbolism of the poem is fully revealed. So, the symbol of fruits is the symbol of eternal life, eternity, prosperity, the ongoing generation of humanity, the symbol of eternal love.

Research Methodology

Yellow and red colors are active in the creation of the poet's autumn landscapes. The metaphor of yellowing associated with yellow is also a leading imagery tool in depicting the human psyche in harmony with nature. It is known that yellow is a symbol of "weakness", "disease", "fatigue" in the East. In the poetry of Osman Azim, this color is widely used in the comparative description of the similarity of autumn and human life, the emotional experiences in his psyche.

Қизил-сариқ рақслар қайда,
Баргларнинг сўнг ўйини.

The reader perceives the metaphor of "red-yellow dances" as a riddle at a glance. From the metaphorical depiction of "The Game After the Leaves" in the fall, the landscape created by the poet becomes clear to the eye. The reddish-yellow foliage of the autumn trees breaks off from the band, and the shedding state creates the impression that they are "dancing" in the air. The poet’s high artistic skill translates this image into poetry and arouses aesthetic pleasure to the reader.

Куздан менга бир барг қолар,
Юрагим энг сариқ барг.

The leaf described in these verses in "yellow" is a symbol of Pain in the human heart. The "yellow leaf" in the heart is an expression of sad and painful thoughts in the world of the poet's heart. The poem, on the other hand, is born from “heartache”, who tormented the creator and did not give him a moment's rest.

In the following poem of the poet about Autumn, the metaphorical image of yellow and red expresses the human psyche, the unique and beautiful feelings in his heart.

“Кузни севасизми?” – деди аёл. – Келса,
Кузда роса кезамиз ҳали.
Бирга томоша қиламиз.
Жуда гўзал бўлади куз.
Йўқ, фақат *сариқ*дан иборат эмас кузнинг ранги.
Сариғи – юз турфа.
Қизғиши – минг хил. *Қирмизи* – минг хил.
Жигарранг баргларни ҳам топасиз. *Қон* бўлган жигардай...
Ўшанда ҳувиллаб қолади юрак. Сизни соғинаман ўшанда.

We first focus on the three characters in the poem: Woman, Autumn, Leaf. Their common connection – human, time and harmony with nature. The poet depicts the human psyche again in the autumn. A woman who loves autumn and feels that it is not only yellow, says that “yellow is a hundred different, red is a thousand different. Red – sees a thousand kinds of leaves "like liver with brown blood". If we consider the leaf as a symbol of the human heart, the "Yellow" symbolizes the transformation of the emotions in the heart into a dream, and the "thousand" – "Red" – symbolizes their fire and passion. The color "a thousand kinds of red" represents the change of these feelings in the heart. They are no longer "a hundred different", "a thousand different", "yellow" or "red". They are "brown" like a liver with only one blood. The metaphor of "blood-brown liver" is an expression of longing and longing in the human heart. The metaphor of colors in the poem means that the reader can feel the persistence of feelings that are mature in the human heart, every phase of life, especially autumn – middle age, his love and affection, longing, harmony and suffering.

Ям-яшил танини шамол супурди,
Минг ранг гуллар ичра тўлғонаркан маст,
Баҳорни симирди, майдай симирди –
Майсаю, ёмғирда чулғонган кенг дашт.

Typically, the color green is imagined in connection with awakening, spring, movement, kindness. It is no coincidence that the poet chose green in creating a spring steppe landscape. The animation depicts the spring landscape in the reader's eyes as the "green body" of the "steppe" is green grass growing in it.

Кузак кечасида кезди саросар,
Шомдан тонгга қадар тинмади ёмғир.
Оқ чодир тагида мунғайди бесар,
Оёғи жиққаҳўл мўйсафид Помир.

The poet uses the means of color in the creation of natural landscapes. In this poetic passage, white creates an association in the eyes of the reader. The landscape of white snow in the Pamir mountains is depicted in the metaphor of a "white tent".

The metaphorical image created by the color white is the primary means of conveying information.

Analysis and results

In short, in the poetry of Usman Azim, the symbolic expression of colors is widely used in the creation of natural landscapes, in the creation of metaphorical images such as the comparison of nature and the human psyche. The use of the metaphor of colors in his poems can be grouped as follows:

1) *yellow and red* – to compare the similarities of human life and the feelings in his psyche associated with Autumn.

2) *Green, blue, and blue* – colors were used in spring landscapes as a symbol of youth, beauty, and creation.

3) The metaphor of *white* and *black* is traditionally a symbol of Goodness and Evil. *White* has been widely used to enliven winter and snow scenes in the reader’s imagination.

From the above analysis, it can be seen that the interpretation and study of metaphorical images in the poetry of Usman Azim serve to illuminate the poetic skill of the poet.

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