МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО ОБРАЗОВАНИЯ
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ОСНОВНЫЕ ПРОБЛЕМЫ СОВРЕМЕННОГО ЯЗЫКОЗНАНИЯ

Сборник статей
XI международной
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В сборник включены материалы XI Международной заочной практической конференции «Основные проблемы современного языкознания», посвященной изучению наиболее актуальных и значимых проблем лингвистической науки: лингвистики текста и речевого дискурса, лингвистики в начале XXI века, как одного из перспективных направлений, обучения иностранным языкам и др.

Может быть полезен лингвистам, педагогам, студентам и аспирантам.

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СОДЕРЖАНИЕ

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ОБРАЗ “MUSIC” В СОЗНАНИИ НОСИТЕЛЕЙ АНГЛИЙСКОГО ЯЗЫКА (ПО ДАННЫМ ТОЛКОВЫХ СЛОВАРЕЙ)

Л.И. Балашова, О.Б. Багринцева, О.А. Зобнина
bally4624@mail.ru, bagrintsevaob@gmail.com, june2676@yandex.ru
Астраханский государственный университет
РАНХиГС

***Аннотация**: В статье приводятся результаты дефиниционного анализа лексической единицы “music” по данным наиболее авторитетных лексикографических источников английского языка. Результаты, полученные в ходе анализа, позволили выделить базовые характеристики исследуемого образа, чтобы в последующем поможет определить дополнительные, периферийные характеристики исследуемого образа.*

***Ключевые слова:** образ, базовые характеристики, “music”, дефиниционный анализ, лексикографические источники*

THE IMAGE OF “MUSIC” IN THE CONSCIOUSNESS OF ENGLISH LANGUAGE NATIVE SPEAKER (ACCORDING TO VOCABULARIES)

L.I. Balashova, O.B. Bagrintseva, O.A. Zobnina
bally4624@mail.ru, bagrintsevaob@gmail.com, june2676@yandex.ru
Astrakhan State University
RANE&PA

***Abstract**: The paper refers to the results of the carried out definition analysis of the lexical unit “music” according to the data of the most authoritative lexicographical sources of the English language. The results taken while analyzing allowed to define supplementary, peripheral characteristics of the investigated image.*

***Keywords**: image, basic characteristics, “music”, definitial analysis, lexicographical sources*

Музыка играет важную роль в жизни каждого человека [1]. С детства каждый человек знаком с музыкальными произведениями различных жанров [6], однако отношение к музыке в жизни людей значительно различается: одним нравятся мелодичные напевы, другие любят слушать агрессивную ритмичную музыку и т.д. [3].

В сознании каждого человека заложен определённый образ, отражающий характерные черты понятия «музыка» [2]. Для определения базовых характеристик, заложенных в основу образа, необходимо провести

дефиниционный анализ представленного понятия по данным толковых словарей [4]. Следовательно, целью данной статьи является дефиниционный анализ лексической единицы “music”, проведённый с целью определения базовых характеристик данного образа, заложенного в сознании носителей английского языка [5].

В качестве опорных лексикографических источников были отобраны наиболее авторитетные словари английского языка, в состав которых вошли следующие сетевые издания:

– Cambridge Advanced Learners Dictionary (http://dictionary.cambridge.org/ru/);

– Merriam Webster Learner’s Dictionary (https://www.merriam-webster.com/dictionary);

– Collins Cobuild Advanced Learner’s English Dictionary (https://www.collinsdictionary.com/).

Анализ данных лексикографических источников позволит выявить основные характеристики, присущие образу «музыка» в сознании носителей английского языка на дефиниционном уровне по данным толковых словарей, что впоследствии будет использовано при описании исследуемого образа на уровне стандартного современного английского языка, а также на уровне субстандартных лексических единиц.

В ходе исследования основное внимание было уделено выявлению и анализу семантических характеристик, присущих образу «музыка», заложенных в сознании носителей английского языка.

Для подробного описания исследуемого образа необходимо исследовать лексическую единицу «музыка» на уровне толковых словарей английского языка.

В первом, исследуемом нами лексикографическом издании “**Cambridge Advanced Learners Dictionary”**, представлено три дефиниции анализируемой лексической единицы:

1. a pattern of sounds made by musical instruments, voices, or computers, or a combination of these, intended to give pleasure to people listening to it. В данном определении заложена следующая лексикографическая информация: музыка – это образец звуков, созданных музыкальными инструментами, голосами или компьютерами, или их комбинация, предназначенная для того, чтобы доставлять удовольствие слушателям;

2. the art or study of music. В данном определении заложена характеристика музыки как искусства или изучение музыки;

3. the written system of symbols representing musical notes. В данном определении представлена следующая характеристика музыки как письменной системы символов, представляющих музыкальные ноты.

В следующем анализируемом нами лексикографическом издании (“**Merriam Webster Learner’s Dictionary”**) представлено более развёрнутое определение лексической единицы “music”:

1. sounds that are sung by voices or played on musical instruments. Музыка – это звуки, которые поют голосом или играют на музыкальных инструментах;

2. written or printed symbols showing how music should be played or sung. В данном определении представлена информация о том, что музыка – это написанные или напечатанные символы, показывающие, каким образом музыка должна быть воспроизведена или исполнена;

3. the art or skill of creating or performing music. В определении представлена характеристика музыки как искусства или умения создавать или исполнять музыку;

4. a pleasant sound. В данном определении представлена характеристика лексической единицы «музыка» – приятный звук.

Лексикографическое издание "**Collins Cobuild Advanced Learner's English Dictionary"** представляет схожее толкование анализируемой лексической единицы «музыка»:

1. music is the pattern of sounds produced by people singing or playing instruments (образец звуков, созданных людьми, поющими или играющими на инструментах);

2. music is the art of creating or performing music (музыка – это искусство создания или исполнения музыки);

3. music is the symbols written on paper which represent musical sounds (музыка – символы, написанные на бумаге, которые представляют собой музыкальные звуки).

Таким образом, понятие «музыка» включает в себя следующие базовые характеристики, которые являются ядром изучаемого концепта:

– образец звуков, созданных людьми посредством музыкальных инструментов, голоса, компьютера, доставляющих удовольствие слушателям;

– искусство создания, исполнения или изучения музыки;

– письменная система символов, показывающая, каким образом музыка должна быть воспроизведена или исполнена (ноты);

– приятный звук.

Мы пришли к выводу о том, что в сознании носителей английского языка музыка представляет собой искусство создания, исполнения или изучения образца звуков, созданных людьми посредством музыкальных инструментов, голоса, компьютера, доставляющих удовольствие слушателям, излагаемых в письменной системе символов, показывающей каким образом музыка должна быть воспроизведена или исполнена, называемых нотами.

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ФУНКЦИОНИРОВАНИЕ ФРАЗЕОЛОГИЗМОВ В АНГЛОЯЗЫЧНОМ СПОРТИВНОМ МЕДИЙНОМ ДИСКУРСЕ

И.А. Гроховская
irinagroh83@gmail.com
Астраханский государственный университет

Аннотация: *В статье анализируются британские и американские медиаисточники на предмет наличия фразеологических единиц, описывающих наиболее значимые спортивные события мира. Анализ фактологического материала позволяет сделать вывод об особенностях спортивного медийного текста как специфической среды функционирования фразеологических единиц. Материалом исследования послужили публикации наиболее авторитетных британских и американских периодических изданий и информационных интернет-ресурсов:* euronews.com, espn.com, sports.yahoo.com, The Guardian, The Telegraph.

Ключевые слова: *дискурс, медиатекст, спортивный медийный дискурс, фразеологизм, фразеологическая единица, идиома*

FUNCTIONING OF PHRASEOLOGICAL UNITS IN THE ENGLISH-SPEAKING SPORTS MEDIA DISCOURSE

I.A. Grokhovskaya
irinagroh83@gmail.com
Astrakhan State University

Abstract: *In the article the British and American media sources regarding existence of the phraseological units describing the most significant sports events of the world are analyzed. The analysis of factual material allows to draw a conclusion on features of the sports media text as a specific environment of functioning of phraseological units. Publications of the most authoritative British and American periodicals and information Internet resources served as material of a research are euronews.com, espn.com, sports.yahoo.com, The Guardian and The Telegraph.*

Keywords: *discourse, media text, sports media discourse, phraseologism, phraseological unit, idiom*

Очевидно, что в современном обществе спорт как особая сфера социальной и культурной деятельности людей приобретает всё большее значение. Данный феномен связан не только со зрелищностью этого вида человеческой активности, но и с тем фактом, что спорт – это способ эмоцио-

нальной компенсации [4]. Кроме того, в современных реалиях активная вовлечённость общества в спортивные события может рассматриваться своеобразным фактором формирования самоидентификации.

Исследователи спортивного медиадискурса (Е.Г. Малышева, А.А. Трубченинова, Р.В. Белютин и др.) отмечают, что наряду с другими общественно значимыми сферами (экономика, политика, социальные отношения), в спорте наметилась определённая тенденция к коммерционализации спортивных состязаний, их превращению в развлекательные шоу. Так, И.М. Быховская видит причины таких изменений в смене направления общего социокультурного контекста, а именно в процессах глобализации, экспансии массовой культуры, возрастании влияния СМИ на общественное мнение и потребности людей. Исследователь справедливо отмечает, что, решая свои, внешние для спорта задачи, СМИ меняют акценты, производят смысловую «перезагрузку» и новое символическое означивание спортивных событий, имён, ситуаций [2].

Н.Ю. Бердышева, в свою очередь, отмечает, что спортивный медиадискурс имеет свои особенности, главная из которых – сопряжение различных функциональных стилей в рамках СМИ как единой среды коммуникации. Это создаёт хорошо узнаваемый, динамичный, постоянно обновляемый медиадискурс, который в обычной речевой практике бытует как «спортивный стиль» [1]. Отметим, что использование фразеологических оборотов в рамках спортивного медийного дискурса является неотъемлемой частью процесса создания данного «спортивного стиля».

Вслед за М.В. Омелиным в рамках данного исследования под спортивным медиадискурсом мы понимаем разновидность языковой деятельности, соотнесённой с такой социокультурной сферой, как спорт, а также речь (устная и письменная) как передача спортивной ментальности – передача, которая характеризуется особой речевой системностью, представленной в корпусе текстов, реализуемых в поле массовой коммуникации по каналам СМИ [3].

В рамках данной статьи рассмотрим функционирование фразеологизмов в медиатекстах, посвящённых футбольной тематике.

Обратимся к довольно динамично представленному материалу о высшей футбольной лиге Британии, опубликованному 1 апреля 2019 года в издании *The Telegraph.* Статья под названием “Aaron Ramsey and Alexandre Lacazette too good for Newcastle as Arsenal go third” анализирует проведённый в этот день матч между двумя британскими командами – «Арсенал» и «Ньюкасл Юнайтед». Автор нейтрально описывает текущие моменты матча, при этом используя довольно интересные стилистические приёмы. Так, выражая свою точку зрения относительно игры команды «Ньюкасл», автор отмечает: “*They do, however, have a rugged organization that can sap the life out of any game*” («Тем не менее, они сделали это, т.к. их организованность и упорство помогают максимально выложиться в любой

игре»). В данном контексте зафиксировано использование ФЕ *sap the life*, которая в онлайн-словаре “Cambridge Dictionary” интерпретируется как “to make someone weaker or take away strength or an important quality from someone, especially over a long period of time” («сделать кого-либо слабее; в течение длительного времени забирать силу или важное качество»). В русском языке имеется как полный (*высасывать жизненную энергию*), так и частичный (*высосать/выжать все соки*) эквиваленты данного фразеологизма. По структурно-семантическим признакам ФЕ *sap the life* является фразеологическим единством с возможностью иметь как связное, так и свободное значение. По нашему мнению, данный фразеологизм в рассматриваемом контексте помогает автору публикации наиболее точно охарактеризовать игровой процесс и степень участия в нём команды «Ньюкасл».

Неотъемлемой частью спортивного медиадискурса являются текстовые онлайн-трансляции главных событий, позволяющих болельщикам следить за ходом матчей в режиме реального времени. Такого рода медиатексты наиболее экспрессивны и практически всегда содержат оценочные элементы. В рамках данного исследования рассмотрим освещение 13 апреля 2019 года футбольного матча британской премьер-лиги между командами “Crystal Palace” и “Manchester City”, представленного в онлайн-версии газеты “The Telegraph”. Наряду с использованием многочисленных метафор, восклицаний, эллипсисов, гипербол и т.п., в данном контексте была зафиксирована ФЕ *to look off colour*: “*Gabriel Jesus replaces Aguero, who again has looked off colour today*” («Габлиэль Джезус сменил на поле Агуэро, который сегодня вновь неважно выглядит»). Анализируемая ФЕ, согласно данным онлайн-версии словаря идиом “Farlex Dictionary of Idioms”, обозначает следующее: *to look sickly, unwell, or out of sorts, either physically or mentally* (*выглядеть болезненным, нездоровым или иметь различные недуги как физического, так и ментального характера*). На наш взгляд, частичными эквивалентами данной идиомы в русском языке можно рассматривать фразеологизмы *дела плохи*, *на себя не похож*, *неважно выглядеть*.

В том же медиатексте, ближе к завершению матча, говоря о преимуществе «Манчестера», автор отмечает: “*Two points still separate them at the top of the table and City still have that game in hand*” («Лишь два очка отделяют их от вершины турнирной таблицы, причем Сити обладает явным преимуществом»). В данном контексте отметим использование фразеологизма *to have in hand*, который в онлайн-версии словаря американских идиом “McGraw-Hill Dictionary of American Idioms and Phrasal Verbs” интерпретируется как “to have someone or something under control” («иметь под контролем кого-либо или что-либо»). По нашему мнению, частичным эквивалентом данной идиомы в русском языке является выражение *иметь в кармане*. Отметим, что фразеологизмы, используемые в рамках данного онлайн-репортажа, позволяют автору наиболее точно и полно отразить

происходящие в реальном времени события с целью вызова определённого эмоционального отклика у аудитории.

Широко обсуждаемой теме футбольной премьер-лиги посвящена очередная статья издания “The Telegraph” под названием “Jack Harrison scores winner as Leeds take advantage of Sheffield United’s slip up”. Автор публикации в нейтральных тонах описывает ход матча между командами «Лидс» и «Шеффилд Юнайтед», который разрешился в пользу первой команды в результате роковой ошибки игрока «Шеффилда». При этом в последнем абзаце медиатекста автор цитирует менеджера проигравшей команды, который с уважением отмечает, что команда противника с уверенностью продвигается к верхним строкам турнирной таблицы. Представляет интерес завершающее статью предложение: “You have to take your hat off to them” («Вам придётся снять перед ними шляпу»), в котором зафиксирована ФЕ *to take a hat off*. В словаре “Farlex Dictionary of Idioms” данный фразеологизм интерпретируется как «to praise, salute, congratulate, or pay tribute to someone or something» (хвалить, приветствовать, поздравлять или выражать почтение кому-либо или чему-либо). Отметим, что в русском языке имеется полный эквивалент данного фразеологизма – *снимать шляпу перед кем-либо.* ФЕ *to take a hat off* является идиомой, о чем свидетельствует соответствующая помета в словаре Farlex Dictionary of Idioms. По нашему мнению, идиома не случайно использована именно в последнем предложении публикации, а с целью создания общего положительного образа команды-победителя, а также для выражения одобрительного и уважительного отношения проигравшей команды к сопернику.

Рассмотрев и проанализировав различные варианты функционирования фразеологизмов в спортивном медийном дискурсе, необходимо выделить следующие моменты:

- наиболее обсуждаемыми в англофонных медийных источниках спортивной направленности темами являются футбол, баскетбол, гольф и бейсбол (в рамках данной статьи освещается исключительно футбольные медийные тексты);
- использование фразеологизмов в спортивном медиадискурсе не является распространённым стилистическим приёмом. Гораздо активнее в таких медиатекстах встречаются метафорические переносы, эпитеты, гипербола;
- большинство проанализированных нами спортивных текстов имеют нейтральную коннотацию и не несут оценочной нагрузки. За редким исключением спортивные медиатексты только знакомят читателя со значимыми спортивными событиями, при этом точка зрения автора не отражается.

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АКЦЕНТУАЦИЯ ХАРАКТЕРА ЛИЧНОСТИ

И.А. Гроховская, Д.М. Досмаева, М.Н. Царева
irinagroh83@gmail.ru, dina.dosmaeva@gmail.com, mashka1578@mail.ru
Астраханский государственный университет

Аннотация: *В статье рассматриваются проблемы акцентуации личности, исследуемые известными учёными, психологами и педагогами. Особое внимание уделяется личности и особенностям её характера. Актуальность настоящей статьи состоит в том, что акцентуация характера является сложнейшей социально-психологической и медицинской проблемой. Результатом проведённого исследования является анализ типов и особенностей акцентуаций характера.*

Ключевые слова: *личность, акцентуация, характер, индивидуальность, особенности*

PERSONALITY ACCENTUATION

I.A. Grokhovskaya, D.M. Dosmaeva, M.N. Tsareva
irinagroh83@gmail.ru, dina.dosmaeva@gmail.com, mashka1578@mail.ru
Astrakhan State University

Abstract: *This article deals with the problems of personality accentuation, studied by famous scientists, psychologists and educators. Special attention is paid on the personality and features of its character. The relevance of present article is that the accentuation of character is a complex socio-psychological and medical problem. The result of this research is an analysis of the types and features of character accentuations.*

Keywords: *personality, accentuation, character, individuality, features*

Исследователи отмечают, что своеобразные черты характера человека могут при определённых условиях затруднять его отношения с окружающими. У большинства людей особенности характера разнообразны, но в то же время одни черты характера могут преобладать над другими. Акцентуация, то есть чрезмерное усиление некоторых черт, пронизывает весь психический настрой индивидуума. Психотравмирующее воздействие на людей с теми или иными акцентуациями оказывает не любая трудная ситуация, а только та, которая наносит удар по наиболее уязвимому месту их характера [4].

Изучением вопроса об акцентуации характера занимались многие психологи и педагоги (К. Леонгард, А.А. Александров, А.А. Вдовиченко, А.Е. Личко, В.В. Ковалев), и, несмотря на то, что наука уже даёт ряд ответов, вопрос об акцентуации характера ещё актуален.

На наш взгляд, характер человека – это то, что определяет его поступки, а не случайные реакции на те или иные стимулы или сложившиеся обстоятельства. Поступок человека почти всегда сознателен и обдуман, может быть объяснён и оправдан. Говоря о характере, мы обычно вкладываем в представление о нём способность вести себя самостоятельно, последовательно, независимо от обстоятельств, проявляя свою волю и настойчивость, целеустремлённость и упорство.

Очевидно, что людей отличают друг от друга не только врождённые индивидуальные черты, но и приобретённые в течение жизни. Поведение человека зависит от того, в какой семье он вырос, в какой школе учился, кто он по профессии и т.д. Два человека со схожими натурами могут иметь весьма мало общего между собой, а с другой стороны, сходство жизненных обстоятельств может выработать общие черты у разных людей [1].

Наибольшую известность среди современных психологов и педагогов получил термин Карла Леонгарда, немецкого психиатра и психолога «акцентуированная личность» [5]. При этом А.Е. Личко утверждает, что

правильнее говорить об «акцентуациях характера» [6]. К. Леонгард описывает личность как понятие гораздо более сложное, чем характер. Она включает не только интеллект и способности, но и наклонности и мировоззрение.

В работах К. Леонгарда используется как словосочетание «акцентуированная личность», так и «акцентуированные черты характера». Вместо термина «психопат» К. Леонгард предложил использовать термин «акцентуированная личность». Акцентуация характера, по его мнению, является промежуточным звеном между психопатией и нормой. Под понятием «акцентуированная личность» понимается здоровый человек со своими индивидуальными особенностями [6].

Автор справедливо замечает, что акцентуация всегда предполагает усиление определённой черты. Акцентуированные черты далеко не так многочисленны, как индивидуальные. Акцентуация – это, по сути, те же индивидуальные черты, но обладающие тенденцией к переходу в патологическое состояние. При большей выраженности они могут разрушить структуру личности [4].

Многочисленные научные труды отечественных иследователей подтверждают, что в России более распространена классификация акцентуаций, предложенная известным детским психиатром, профессором А.Е. Личко. Он считает, что акцентуации характера сходны с психопатиями. Главное их отличие заключается в отсутствии признака социальной дезадаптации. Они не являются основными причинами патологического формирования личности, но способны стать одним из факторов в развитии пограничных состояний.

А.Е. Личко рассматривает все акцентуации как непостоянные изменения характера, сглаживающиеся с течением времени. Однако многие из них могут переходить в серьезные психические заболевания или же сохраняться на всю жизнь [7].

Современные исследователи (В.В. Ковалев, А.А. Вдовиченко, П.Б. Ганнушкин и др.) сходятся во мнении, что одной из самых распространённых практических ошибок является понимание акцентуации как патологии. К. Леонгард в своих работах подчёркивает, что акцентуированные люди не являются ненормальными. Он даже полагал, что человек без признаков акцентуации, не склонен развиваться в неблагоприятную сторону, но также маловероятно, что он как-нибудь будет отличаться в положительную. Акцентуированным личностям, наоборот, присуща готовность как к социально положительному, так и отрицательному развитию. Таким образом, отметим, что акцентуация является не патологией, а крайним вариантом нормы [2].

Существует два подхода к различиям индивидуальных особенностей человека. К первому относится так называемая теория черт, которая описывает индивидуальность как структуру, состоящую из различных элементов. К. Леонгард признаёт уникальность, множественность составляющих её

характеристик, черт, но при этом страдает эклектичностью и отсутствием целостности. Другой подход – теория типов – предлагает цельное, непротиворечивое и узнаваемое описание типа характера. Разумеется, количество типов ограничено, что даёт возможность узнать себя в одной из классификаций или увидеть отдельные стороны своего характера. Один из мастеров подростковой психотерапии Андрей Личко описал 11 простых и 20 смешанных типов характеров, но при этом мы можем говорить о том, что разнообразие людей вовсе не исчерпывается 31 типом характера.

Отметим, что в зависимости от степени выраженности выделяются два типа акцентуации характера – явная и скрытая.

Явная акцентуация относится к крайним вариантам нормы. Она отличается наличием довольно постоянных черт определённого типа характера. Однако выраженность черт определённого типа не препятствует возможности удовлетворительной социальной адаптации. Занимаемое положение обычно соответствует способностям и возможностям. В подростковом возрасте особенности характера часто заостряются, могут наступать временные нарушения адаптации, отклонения в поведении. С возрастом особенности характера остаются достаточно выраженными, но компенсируются и обычно не мешают адаптации.

Скрытую акцентуацию можно отнести не к крайним, а к обычным вариантам нормы. В обыденных, привычных условиях черты определённого типа характера выражены слабо или не проявляются совсем. Акцентуации в таком случае могут выявляться под влиянием тех ситуаций и психических травм, которые предъявляют повышенные требования к «месту наименьшего сопротивления». Психогенные факторы иного рода, даже тяжёлые, не только не вызывают психических расстройств, но и могут даже не выявить характера. Если же такие черты и выявляются, это, как правило, не приводит к заметной социальной дезадаптации [5].

Важность акцентуации личности доказывает заинтересованность в изучении данной темы таких известных учёных, как К. Леонгард, А.Е. Личко, Г. Шмишек и В.В. Ковалев. Анализ научных работ приводит нас к выводу, что немаловажную роль играет диагностика акцентуаций характера, так как они способны переходить в патологические состояния.

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ДВИЖУЩИЕ СИЛЫ И УСЛОВИЯ ФОРМИРОВАНИЯ ЛИЧНОСТИ

И.А. Гроховская, Т.Н. Иноземцева, Р.К. Каталиева
irinagroh83@gmail.com, itanya9376@gmail.com,
reginakatalieva1999@gmail.com
Астраханский государственный университет

Аннотация: *В данной статье раскрывается такая психологическая и педагогическая проблема, как развитие личности. Авторы пытаются ответить на вопрос: «Почему мы такие, какие мы есть?» Для этого рассматриваются и анализируются различные определения понятия «личность», выясняется, когда человека можно считать личностью, что для этого необходимо, описываются этапы формирования личности. В статье проанализированы различные мнения по поводу движущих сил развития личности и сделан вывод о том, что движущие силы формирования личности заключаются в противоречиях между изменяющимися потребностями человека и реальными возможностями их удовлетворения. Также делается акцент на том, что личность – это не только объект различных влияний, но и сознательный субъект саморазвития и деятельности, организатор своей жизни.*

Ключевые слова: *личность, формирование личности, развитие личности, движущие силы, наследственность, среда, воспитание, саморазвитие*

DRIVING FORCES AND CONDITIONS FOR THE FORMATION OF PERSONALITY

I.A. Grokhovskaya, T.N. Inozemtceva, R.K. Katalieva
irinagroh83@gmail.com, itanya9376@gmail.com,
reginakatalieva1999@gmail.com
Astrakhan State University

Abstract: *This article reveals such a psychological and pedagogical problem as the development of personality. The authors try to answer the question: "Why are we what we are?"For this purpose, various definitions of the concept of "personality" are considered and analyzed. It turns out when a person can be considered a personality, what is necessary for it, the stages of personality formation are described. The article analyzes different opinions on the driving forces of personality development and concludes that the driving forces of personality formation are contradictions between changing human needs and the real possibilities of their satisfaction. It is also emphasized that the person is not only the object of various influences, but also a conscious subject of self-development and activity, the organizer of his life.*

Keywords: *personality, personality formation, personality development, driving forces, heredity, environment, education, self-development*

Многие психологи современности и классики прошлого стараются дать ответ на вопрос: почему мы такие, какие мы есть; чем люди отличаются друг от друга, в чём заключаются причины этих различий, что движет формированием личности, при каких условиях она формируется? Вопросы, поставленные психологами, не сильно отличаются от тех, что задаёт студент, интересующийся поведением человека, однако эти вопросы часто формулируются по-другому, а методы, используемые в психологии личности, более систематичны и свободны от ошибок, встречающихся в повседневном анализе поведения человека. Знание о личности – это часть психологического знания, более полно отражающая интерес к человеку как к сложному человеческому существу и индивидуальности.

Научный подход к изучению личности сейчас, как и прежде, задаёт всё тот же главный вопрос: почему мы такие, какие мы есть? Теоретическая разработка ответа на этот вопрос характерна для ряда психологов: Б.Г. Ананьева, К.Л. Абульханова, И.М. Палей, С.Л. Рубинштейна, Д.З. Узнадзе, Е.В. Шорохова.

Проблема формирования личности является одной из центральных проблем в психологии и выступает как исследование движущих сил и условий формирования индивидуальных особенностей и различий между людьми. Каждому человеку необходимо найти своё место в жизни, определить свои цели, ценности, уметь преодолевать собственные

непосредственные побуждения ради чего-то другого. Для этого нужно совершенствоваться каждый день, каждый час, ведь только путём самовоспитания вырабатываются такие личностные качества, как сила воли, мужество, настойчивость, терпение, уверенность в своих силах и т.д.

Таким образом, развитие личности всегда имеет огромное значение в жизни людей, поэтому необходимо продолжать изучать движущие силы и условия формирования личности.

Отметим, что в психологии категория «личность» относится к числу базовых понятий. Невозможно не согласиться со сложностью феномена личности, это подтверждает и разнообразие ответов, и огромное количество расхождений во мнениях учёных. Как объект изучения личность – понятие абстрактное, которое объединяет многие аспекты, характеризующие человека: эмоции, мотивацию, мысли и переживания, восприятие и действия. Концептуальное значение личности многогранно: оно охватывает широкий спектр внутренних психических процессов, определяющих особенности поведения человека в различных ситуациях [5].

Понятие «личность» характеризует один из наиболее значимых уровней организации человека, а именно особенности его развития как социального существа. В данной статье мы будем опираться на определение личности, сформулированное А.Г. Маклаковым: «Личность – это конкретный человек, взятый в системе его устойчивых социально обусловленных психологических характеристик, которые проявляются в общественных связях и отношениях, определяют его нравственные поступки и имеют существенное значение для него самого и окружающих» [4, с. 471]. В то же время ни одно из множества существующих ныне определений понятия «личность» не может считаться единственным правильным, исчерпывающим, универсальным, так как личность – многоплановое, сложное образование.

Б.Г. Ананьев справедливо замечает, что человека можно считать личностью, если выполнены два критерия:

1) субъект способен к опосредованному поведению;

2) субъект способен к сознательному руководству собственным поведением.

Формирование личности – это совершенно особый процесс освоения социальной сферы общественного опыта. Существует два самых важных этапа формирования личности. Первый этап знаменуется установлением первых иерархических отношений мотивов, первыми подчинениями непосредственных побуждений социальным нормам. Второй этап выражается в появлении стремления и способности осознавать свои мотивы, проводить активную работу по их подчинению и переподчинению. При этом в психологии выявлены важные механизмы формирования личности – это механизм сдвига мотива на цель, механизмы идентификации и освоения социальных ролей [1].

При рассмотрении проблемы формирования личности авторы определяют причины, обусловливающие развитие человека. В центр исследования выдвигается превращение человека из объекта в субъект общественного развития. Несмотря на существование в психологии множества подходов, большинство из них основывается на двух методологических предпосылках: на принципах стремления к равновесию и к напряжению. Методологические представления о «самостоятельной силе развития» привели к выделению принципа саморазвития личности как исходного при изучении мотивации развития личности и определили общую стратегию поиска конкретных психологических феноменов и механизмов движущих сил формирования и развития личности.

Для этой стратегии характерны выделение положения о роли борьбы противоположностей, противоречия и гармония этих противоположностей как движущей силы формирования личности (Б.В. Зейгарник), а также положение о существовании источника саморазвития деятельности в самом процессе движения деятельности (А.Н. Леонтьев, С.Л. Рубинштейн).

Д.Н. Узнадзе ввёл представления о функциональной тенденции как источнике саморазвития, что послужило теоретической основой для конкретных разработок проблемы движущих сил развития личности ребёнка, проведённых Л.И. Божович и М.И. Лисиной. В работах Л.И. Божович были развиты идеи о потребности как движущей силе формирования и развития личности. М.И. Лисина и её коллеги разрабатывали представления о потребности в общении как особой движущей силе развития личности [2].

Исследователи сходны во мнении, что ни биогенетическую, ни социогенетическую концепции нельзя принять за основу понимания закономерностей развития личности, так как ни одна из них не способна выявить движущие силы психического развития. Предложенная немецким психологом В. Штерном теория механического взаимодействия двух факторов (среды и наследственности) также не позволяет это осуществить, так как в ней не преодолевались проблемы двух концепций развития, а скорее удваивались [5].

Обобщая всё вышеизложенное, отметим, что движущие силы формирования личности заключаются в противоречиях между изменяющимися потребностями человека и реальными возможностями их удовлетворения.

Приведём некоторые утверждения по поводу условий формирования личности. Э. Торндайк утверждает, что сознание и все духовные качества личности определяются биологически. Джон Дьюи считает, что человек рождается с готовыми моральными качествами, духовными потребностями, чувствами (нужная информация закодирована в генах). Холл, Гетчинсон, представители «биогенетического закона», считают, что ребёнок в своём развитии поочередно воссоздаёт все этапы исторического развития человека (период земледелия и скотоводства, торгово-промышленный и др.) и только после этого включается в современную жизнь. Согласно

социогенетическим теориям, развитие личности ребёнка в большей степени зависит от социальных условий. Также существует довольно популярная педагогическая концепция развития личности (которую привнес двадцатый век), т.е. сочетание биологического и социального факторов, но взаимодействие этих двух факторов, влияя на формирование личности, не всегда воздействует изначально планируемым образом [5].

В заключение отметим, что личность формируется под воздействием многих факторов, включая генетические, классовые, культурные и семейные, но необходимо учитывать и внутреннюю активность личности как сознательного субъекта саморазвития и деятельности. Личность зависит от внешних обстоятельств, но нельзя забывать, что она же активно их преобразует, формирует позицию и линию своей жизни (в определённых пределах, разумеется). На своём жизненном пути личность изменяется, проходит определённые этапы. Она выступает как организатор жизни, именно в этом проявляется её индивидуальный характер.

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ФОРМИРОВАНИЕ ПОЗНАВАТЕЛЬНОГО ИНТЕРЕСА У ШКОЛЬНИКОВ

И.А. Гроховская, А.Ю. Поддубная, Д.Ю. Светлова
irinagroh83@gmail.com, anast8dd@gmail.com, darasvetl2@gmail.com
Астраханский государственный университет

Аннотация: *В условиях современной школы необходимость развития у школьников познавательного интереса представляется очевидной, поэтому вопрос о том, каким образом можно обеспечить наибольшее его развитие, до сих пор остаётся открытым. Практическая значимость данной работы заключается в возможности решения на основе результатов исследования той или иной практической задачи, проведения дальнейших научных исследований, использования полученных данных в работе практических психологов или процессе подготовки тех или иных специалистов. В статье рассматриваются основные способы организации педагогом учебно-воспитательной деятельности, формирующей познавательный интерес у школьников, выявлены негативные тенденции его формирования.*

Ключевые слова: *дидактика, занимательность, игра в обучении, интерес, конкурентные ситуации, мотивация, педагогическое воздействие, познавательный интерес, проблемное обучение, психологические факторы, психология образования, развитие, смысловой барьер, учебно-воспитательная деятельность*

FORMATION OF PUPILS' INFORMATIVE INTEREST

I.A. Grokhovskaya, A. Y. Poddubnaya, D. Y. Svetlova
irinagroh83@gmail.com, anast8dd@gmail.com, darasvetl2@gmail.com
Astrakhan State University

Abstract: *In modern schools the necessity of the development of schoolchildren's, cognitive interest seems clear, therefore, the question of possibility to provide the highest level of its development is still debatable. The practical significance of this work lies in such points as: the possibility of solving practical problems, based on the results of the study; further research, using the data obtained in the work by practical psychologists or during the training of certain specialists. The article deals with the main ways of organization of educational activities by the teacher, forming the cognitive interest of students in learning, identified the negative trends of its formation.*

Keywords*: cognitive interest, competitive situations, development, didactics, educational activity, entertaining, game in training, interest, motivation, pedagogical influence, problem training, psychological factors, psychology of education, semantic barrier*

Учение, лишённое всякого смысла и взятое только
силой принуждения, убивает в ученике охоту
к овладению знаниями. Приохотить ребёнка к учению –
гораздо более достойная задача, чем приневолить.
К.Д. Ушинский

Современные исследования в области педагогики показывают, что в настоящее время информационное общество, научно-технический прогресс всё больше ждёт от человека высокого уровня профессиональных и деловых качеств, требуют развивать в себе способности творчески, быстро и безошибочно справляться в трудных ситуациях. Именно от школы ждут мыслящих, активных и творческих выпускников с широким кругозором, теоретическими и прикладными умениями.

Актуальность данной статьи заключается в необходимости развития познавательного интереса у школьников. Интерес школьников к учению является главным фактором в процессе освоения ими знаний и зависит от качества организации педагогом учебно-воспитательной деятельности. Вопрос о том, каким образом обеспечить наибольшее развитие познавательного интереса, до сих пор остаётся открытым. В рамках данного исследования представляется целесообразным рассмотреть теоретические аспекты понятия «познавательный интерес».

Г.И. Щукина определяет познавательный интерес как «избирательная направленность личности, обращенная к области познания, к её предметной стороне и самому процессу овладения знаниями» [4] .

В.Е. Пешкова выделяет следующие условия возникновения и развития интереса к учению [1]:

1. Организация обучения должна вовлекать ученика в процесс самостоятельного поиска и «открытия» новых знаний.
2. Разнообразие учебного труда.
3. Осознание и понимание учеником нужности, важности и целесообразности изучения предмета, преподаваемого учителем.
4. Связь нового материала с ранее усвоенными знаниями.
5. Трудность, но посильность обучения.
6. Высокая частота проверки и оценки работы школьника.
7. Яркость, эмоциональность учебного материала, личность самого учителя.
8. Игровое оформление задач, включающих «взрослые» жизненные ситуации, от решения которых зависит исход ситуации.

Г.И. Щукина справедливо замечает, что игра ставит ученика в условия поиска, пробуждает интерес к победе и, следовательно, стремление быть быстрым, собранным, находчивым, способным чётко и верно выполнять задачи, следовать правилам игры. Более того, в играх, особенно групповых, закладываются основы нравственных качеств личности.

Мотивация способствует формированию познавательного интереса у школьников и служит индикатором мастерства учителя. По мнению Г.И. Щукиной, наиболее простая методика стимулирования мотивации – создание занимательности занятий в классе или текста учебника. К элементам занимательности относятся: новизна, необычность, неожиданность, странность, несоответствие прежним представлениям. Именно они обостряют эмоционально-мыслительные процессы, побуждают пристально всматриваться в предмет, наблюдать, угадывать, запоминать, сравнивать, искать объяснения в имеющихся знаниях, находить выход из сложившейся ситуации [5].

На наш взгляд, основным в теории проблемного обучения является понятие «проблемная ситуация». Его психологическое содержание было раскрыто советским и российским психологом А.М. Матюшкиным, который утверждал, что в отличие от задачи проблемная ситуация создаёт состояние поисковой активности, возникающая при выполнении учебного задания, которое требует от учащихся поиска новых свойств предмета или способов достижения её решения. По мнению исследователя, задача учителя в проблемном обучении состоит в следующем: создать такую жизненную или учебную трудность, при которой учащийся понимает задачу, явление или ситуацию, пытается её решить или объяснить, но испытывает недостаток имеющихся знаний. Для более детального рассмотрения ситуации приведём пример небольшого проблемного вопроса на уроке математики: «Почему треугольник назван "треугольником"? Можно ли дать ему другое название, также связанное с его свойствами?». Проблемная ситуация вызывает у учащихся желание найти объяснение непонятному факту, мотивирует к учебной деятельности [1]. Однако при разном уровне подготовки и развития познавательной мотивации и мышления учащихся применение методов проблемного обучения будет малоэффективным. Как правило, решения, предлагаемые учащимися, вовлечёнными в поисковую деятельность, часто до конца не осмысливаются менее активными детьми [2]. Учитывая это обстоятельство, Ш.А. Амонашвили при применении методов проблемного обучения использовал специальный приём: каждый ученик, решивший задачу, подходил к нему и шёпотом называл решение. В этой ситуации другие дети имеют возможность продолжить самостоятельный мыслительный поиск. Также в аналогичных обстоятельствах учителя применяют систему письменных ответов.

По нашему мнению, «конкурентные ситуации» также существенно влияют на познавательный интерес школьников. Ученик, получивший задание работать с максимальной скоростью, в присутствии «соперника» начинает работать ещё быстрее (стимулирование деятельности), поэтому в классе такая работа продуктивнее, чем дома. Однако это подходит только для простых видов деятельности, для решения однотипных задач с использованием алгоритма, в то время как творчество требует работы дома: урок здесь будет оказывать тормозящее воздействие.

Исследователи сходятся во мнении, что ещё более эффективна такая методика мотивации, при которой учитель формирует у учащихся представления о роли предмета в их будущей профессии и в жизни. Это приводит к правильному формированию позитивных ценностных ориентаций детей по отношению к учебной деятельности [1].

Отрицательной мотивацией, по мнению В.Е. Пешковой, являются: скучное объяснение учителя, несоответствие содержания обучения опыту учащихся, слабость познавательной нагрузки, отрицательный эмоциональный фон. Постоянное применение учителем одних и тех же приёмов в учебной работе (нотации, выговоры, двойки) приводят к появлению «смыслового барьера» между учителем и учениками.

Не являясь прямыми источниками познавательного интереса, облик учителя, глубина и широта его познаний, умение эмоционально излагать материал оказывают существенное влияние на формирование интереса школьников. Под влиянием яркой личности учителя дети повышают работоспособность и качество обучения, а «серый» учитель – это почти всегда «серый» ученик. Живое слово учителя в сочетании с наглядностью оказывает большое влияние на учебу. В руках учителя находится судьба познавательных интересов учащихся: создание благоприятного микроклимата, обучение учащихся рассуждать, сравнивать и противопоставлять, находить общее и отличное.

Таким образом, познавательный интерес у школьников к учению формируется лишь при условии соответствующей организации учителем учебно-воспитательной деятельности, выявили негативные тенденции его формирования. Отметим, что учителю рекомендуется: применять проблемное обучение при одинаковом уровне подготовки учащихся; создавать «конкурентные» ситуации в решении простых задач, формировать в учениках осознание и понимание нужности, важности преподаваемого предмета, стараться быть яркой личностью, а также смелее искать и применять новые различные методики и приёмы в педагогической деятельности.

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ПЕДАГОГИЧЕСКИЕ УСЛОВИЯ РАЗВИТИЯ КРЕАТИВНОСТИ ЛИЧНОСТИ

И.А. Гроховская, В.Х. Хамзяева, Р.Р. Буштекеева
irinagroh83@gmail.com, mmmmm.rr@yandex.ru,
ruminabustekeeva@gmail.com
Астраханский государственный университет

Аннотация: *В данной статье исследуется изучение педагогических условий, ориентированных на проявление творческих задатков личности. Особое внимание уделяется трём группам педагогических условий. Первая группа направлена на личность и её особенности: различный тип восприятия мира, индивидуальные врождённые задатки личности, возрастные особенности каждого человека. Вторая группа включает педагогическую деятельность, направленную на проявление творческих задатков: умение педагога заинтересовать студента (ученика), мотивация учащихся, благоприятные условия для творчества, доверительные отношения между преподавателем и учащимся. Третья группа условий направлена на окружение личности: отношения с людьми и отношения в семье. Результатом данного исследования явился вывод о том, что роль педагогических условий велика и необходимо создавать экспериментальные программы и разрабатывать новейшие методы диагностики личности.*

Ключевые слова: *педагогические условия, особенности личности, мотивация, педагогическая деятельность, социальная среда (окружение и семья)*

PEDAGOGICAL CONDITIONS OF DEVELOPMENT OF CREATIVITY OF PERSONALITY

I.A. Grokhovskaya, V.Kh. Khamzyaeva, R.R. Bushtekeeva
irinagroh83@gmail.com, mmmmm.rr@yandex.ru,
ruminabustekeeva@gmail.com
Astrakhan State University

Abstract: *The study of pedagogical conditions focused on the development of the creative personality is regarded in this article. Three groups of pedagogical conditions are examined here. The first group shows the personality and its characteristics as well: different cultural backgrounds, individual features, age peculiarities. As with the main purpose of the teacher to develop pupils' creativity, to motivate pupils for studying and good relationships between pupils and teachers is, actually, described in the second group. The third group comes up with an idea to research the social backgrounds and influence of the family on individuals. To sum up, although the pedagogical conditions are very important, it is necessary to create experimental programmes and work out the new methods to study pupils' personalities.*

Keywords: *pedagogical conditions, personal characteristics (personality), motivation, pedagogical activity, social backgrounds (community and family)*

Педагогический процесс в данной статье мы рассматриваем как интегративное условие развития креативности. Вместе с тем в любом педагогическом процессе можно выделить так называемую вариативную составляющую условий субъективного характера, благоприятное сочетание которых будет способствовать развитию у личности искомого качества (в частности: креативности).

Представим теоретически именно эти специфические (частные) педагогические условия, проведем их дифференциацию. Первая группа – условия, связанные с субъектами развития и саморазвития личности. Вторая группа условий – целенаправленная педагогическая деятельность педагога по развитию креативности личности. К третьей группе условий мы отнесли социальную, включая семейную, ситуацию развития, т.е. влияние окружения на развитие креативности личности.

Итак, первая группа педагогических условий ориентирована на личность. Выделим её особенности:

1) психофизиологические особенности (ведущие репрезентативные системы);

2) врождённые особенности личности как условия развития способностей и, в частности, креативности;

3) возрастные особенности и связанные с ними сензитивные периоды развития креативности.

Раскроем подробнее условия первой группы.

Известно, что люди различаются по способностям зрительного, слухового восприятия, по психомоторным характеристикам. Эти различия проявляются в детстве, трудно поддаются изменению, даже при специальной педагогической работе.

Неповторимость индивидуального опыта каждого человека предопределяет своеобразие его восприятия мира. Это объясняется значительными различиями в восприятии информации, в способе мышления, поведении. Следовательно, для повышения эффективности педагогического процесса, необходимо, согласно Р. Бендлеру и Д. Гриндеру, учитывать эти различия на практике, преподавать в наиболее доступном для учащихся виде, то есть используя именно ту модальность, на основе которой ученик осуществляет репрезентацию мира [1].

Отдельно отметим, что модальность (от лат. *modus* – размер, способ, образ) – ключевой психологический элемент – «свобода индивидуального выбора» (Р. Штайнер, Ф.Г. Кумбе, Ч. Сильберман) [3]. Это термин, который в литературе по психологии и физиологии означает принадлежность к определённой сенсорной системе и используется для характеристики либо ощущения (слуховое, зрительное, тактильное и т. п.), либо сигнала. Иными словами, модальность – форма отражения раздражителя в определенной сенсорной системе (зрительной, слуховой, тактильной)

В современной науке существуют различные гипотезы о связи между модальностями и личностными особенностями, полом, возрастом, социокультурным контекстом.

Предполагается также, что один и тот же субъект может использовать различные модальности в разных контекстах, в частности: социальный эмоциональный опыт воспринимается скорее в визуальной или аудиальной модальности, так как сигналы о нашем спонтанном взаимодействии с другими людьми поступают от внешних зрительных или слуховых источников.

Таким образом, поскольку индивидуальные репрезентации мира различны, с целью эффективного осуществления любых виды коммуникаций (в том числе учебных) необходимо учитывать данные различия.

Сказанное позволяет сделать ещё один акцент на врождённых особенностях. В педагогической работе важно учитывать, что врождённые особенности (в том числе задатки) оказывают существенное влияние на процесс развития и в значительной мере предопределяют контуры будущих достижений.

Наряду с индивидуальными, не менее важны и возрастные особенности в развитии различных видов креативности.

В становлении личности исследователи выделяют сензитивные периоды – свойственные определённому возрасту наилучшие сочетания условий для развития психических свойств и процессов. Как отмечает

А.И. Савенков, преждевременное или запаздывающее по отношению к этому периоду педагогическое воздействие оказывается недостаточно эффективным и неблагоприятно сказывается на развитии личности [4].

Вторая группа условий связана с целенаправленной педагогической деятельностью по развитию креативности личности.

Выделим два направления такой работы. Во-первых, это направленность педагогической деятельности на развитие креативности, организация педагогического пространства согласно целям творческого развития личности. Во-вторых, это содержательное и технологическое обеспечение (программы, методы, средства, формы, процедуры, направленные на развитие креативности).

Оба выделенных направления обеспечиваются следующими педагогическими условиями.

1) организация педагогической солидарности как свободы творчества (создание позитивных образцов творческого мышления, поведения, отношений; креативность педагога; ослабление регламентированного, принятие и подкрепление творческого поведения);

2) работа педагога в зоне ближайшего развития креативности личности (педагогические усилия, направленные на идентификацию актуального состояния креативности, создание мотивации творческого саморазвития, продвижение в зону ближайшего развития и др.);

3) организация безопасного творческого пространства (доверительные отношения, позитивные ожидания, создание ситуаций успеха; материальные условия для творческой деятельности и др.) [4].

Третья группа обусловлена социальной ситуацией как условием развития креативности: социальное окружение (среда развития); семейная ситуация развития.

Очевидно, что среда играет исключительную роль в формировании и проявлении творческой личности. Социальная ситуация развития приобретает вполне конкретный характер благодаря повторяющимся нормативным ситуациям, а также возникающим в их контексте новым ситуациям, обусловливающим отдельные шаги в развитии личности. В социальной ситуации особое место в развитии креативности ребёнка принадлежит такому фактору, как позитивные условия семейной среды: достаточное внимание; формирование мотивации как доминанты творческой деятельности; позитивное подкрепление нестереотипного поведения, различных проявлений творчества; эмоциональная и психологическая поддержка креативной активности; креативность родителей.

Названные выше характеристики (безусловное принятие креативности личности, позитивная деятельность и результат его творческого процесса) являются обособленными и влияют на конечный результат. Это связано с тем, что, как правило, поведенческие характеристики такой личности (отсутствие внимания к условностям и авторитетам, независимость

в суждениях, чувство юмора, яркий темперамент, отсутствие порядка и организованности в обыденных делах) нередко вызывают отрицательное отношение окружающих.

Итак, на основе теоретического анализа научной литературы были выделены три группы педагогических условий развития креативности.

В заключение подчеркнём, что признание роли педагогических условий, в которых происходит становление креативной личности, свидетельствует о необходимости создания специализированных методов диагностики, выявления критериев и уровней развития креативных качеств личности, а также разработки и апробации экспериментальных программ.

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МУЛЬТИЛИНГВИЗМ

Ж.Т. Диденко, С.С. Диденко
snezhannadidenko@yandex.ru
Средняя школа № 40 г. Астрахани

Аннотация. *Статья посвящена явлению мультилингвизма и особенностям данного феномена. Особое внимание уделяется искусственному и естественному мультилингвизму. В современном мире мультилингвы имеют бóльшую востребованность на рынке труда, так как обладают возможностью охватить более обширный сегмент клиентов и выполнять ряд обязанностей, который может быть недоступен людям, владеющим только одним языком.*

Ключевые слова: *мультилингвизм, мультилингвы, воздействие на мозг, дети*

MULTILINGUALISM

Zh.T. Didenko, S.S. Didenko
snezhannadidenko@yandex.ru
Secondary school № 40, Astrakhan

Abstract. *The article is devoted to the phenomenon of multilingualism and the peculiarities of this phenomenon. Special attention is paid to artificial and natural multilingualism. In the modern world, multilinguals have a greater demand on the labor market, as they have the ability to cover a larger segment of clients and perform a number of duties that may not be available to people who speak only one language.*

Keywords: *multilingualism, multilinguals, impact on the brain, children*

В 1983 г. американским экономистом Т. Левитта впервые был предложен термин «глобализация», который означал феномен слияния рынков. Сам процесс глобализации имел место ещё в период античности, однако после Второй мировой войны глобализационные процессы значительно ускорились. Сейчас этот термин обозначает целую систему процессов воздействия разнообразных факторов международного значения на все стороны общественной жизни; другими словами, глобализация – это процесс всемирной интеграции и унификации всех сфер общественной жизни. Одним из следствий глобализации можно назвать явление мультилингвизма, распространившегося вследствие языковых контактов между различными этносами. Масштабному распространению мультилингвизма способствует не только глобализация, но и социальная открытость. Самыми распространёнными формами мультилингвизма являются билингвизм и трилингвизм, которые, в свою очередь, имеют свои подформы (по возрасту и способу усвоения языка, по последовательности освоения языков, по мастерству владения языками и т. д.).

По среде освоение языка мультилингвизм можно разделить на естественный и искусственный. Естественный мультилингвизм приобретается в среде носителей данного языка, в то время как искусственный является результатом целенаправленного изучения. Естественные мультилингвы отличаются от искусственных тем, что они обладают биполярной национальной картиной мира и сильно выраженной устойчивостью к колоссальным умственным нагрузкам. На данный момент более распространённым является искусственный мультилингвизм, в частности искусственный билингвизм. Изучение второго иностранного языка, чаще всего английского, является обязательным в рамках школьной программы, хотя некоторые родители принимают решение отдать ребёнка в кружок иностранного языка уже во время посещения детского сада ввиду безусловной пользы этого для самого ребёнка.

Мультилингвы имеют большое количество преимуществ по сравнению с монолингвами. В современном мире мультилингвы имеют бóльшую востребованность на рынке труда, так как обладают возможностью охватить более обширный сегмент клиентов и выполнять ряд обязанностей, который может быть недоступен людям, владеющим только одним языком. Некоторые исследователи считают, что мультилингвизм положительно влияет на ВНП страны. Кроме экономического превосходства явление мультилингвизма оказывает положительное влияние на организм человека, в частности на головной мозг. Учёными доказано, что у мультилингвов отмечена более высокая плотность серого вещества в нижней теменной коре [1]. Знание нескольких языков влияет на клеточную архитектуру мозга и реконструирует его. Некоторые учёные считают, что мультилингвизм увеличивает адаптивность, пластичность человеческого мозга; владеющие несколькими языками гораздо быстрее и в какой-то степени легче приспосабливаются к спонтанным изменениям обстоятельств. Также доказано, что знание нескольких языков замедляет развитие болезни Альцгеймера, которая проявляется в разрушении нервных клеток, ответственных за передачу импульсов между мозговыми структурами, что вызывает необратимое ухудшение памяти, потерю элементарных навыков и деменцию. Мультилингвы более многозадачны, они способны параллельно решать несколько различных проблем и обладают бóльшей концентрацией внимания.

Для того чтобы назвать индивида мультилингвом, необходима выработка специальных критериев ввиду существования таких форм многоязычия, как пассивный и мнимый мультилингвизм. Рассмотреть эти формы можно на примере билингвизма, который можно назвать частной формой проявления мультилингвизма. Пассивные билингвы способны понимать второй язык, но не могут говорить на нём или имеют сложности в выражении своих мыслей на втором языке. Мнимый (рассеянный) билингвизм, или, как его называют некоторые специалисты, недолингвизм, возникает при прерывании изучения первого языка на стадии еще несформировавшихся грамматических шаблонов и вокабуляра в результате переключения на второй язык. Чаще всего это приводит к недостаточному владению обоими языками, ниже стандартов носителей языка. Примером мнимых билингвов могут послужить дети мигрантов. Помимо них специалисты называют цыган классическими репрезентантами явления недолингвизма, так как цыганский язык не отвечает требованиям современности, из-за чего в словарный запас представителей этого народа включает в себя языки своего окружения. К критериям, которые отделяли бы «истинных» мультилингвистов от описанных ранее форм, П. Ауэр и Л. Уэй относят уровень владения языком, лингвистическую компетентность и траектории языкового развития индивида.

Уровни владения языками обычно сформированы у человека в разной степени, и зависит это от множества факторов. Во-первых, не

существует абсолютно идентичных социальных сфер действия языков. Во-вторых, изучение родственных языков гораздо легче, чем языков, принадлежащих к другой семье. К тому же изучение языков, начатое в раннем возрасте, даётся гораздо легче, чем изучение тех же языков, но в более позднем возрасте. Это обусловлено безграничностью восприятия ребёнка и его гибкой памятью. У детей, изучающих иностранные языки, интенсивно развиваются когнитивные способности. Образование бóльшего количества серого вещества мозга, отвечающего за анализ информации, активнее ведётся именно при изучении иностранных языков раннем возрасте. Многоязычие помогает наращивать в мозгу когнитивные резервы, которые реструктурируют мозг и улучшают его работу. Когнитивный резерв – это способность мозга справляться с последствиями его повреждения или возрастными изменениями. Он характеризует «активный» механизм противостояния развитию патологического процесса в головном мозге [2]. Очевидная польза от изучения иностранных языков заключается в расширении кругозора, преодолении коммуникационных барьеров и нахождении нового хобби ребёнком.

Многие учёные называют мультилингвизм социокультурным феноменом, так как количество говорящих на нескольких языках растёт с каждым годом. В условиях современности знание хотя бы двух языков уже является необходимым для человека. Мультилингвизм стал одним из компонентов глобализации и присущ практически всем регионам в мире, выражаясь в различных формах. Явление мультилингвизма берёт на себя всё больше и больше функций, сближая культуры различных стран, образуя социально-коммуникативную сферу среди жителей этих стран и открывая им широкие перспективы.

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УДК 80

РАЗВИТИЕ STEAM – ОДИН ИЗ ОСНОВНЫХ ТРЕНДОВ В МИРОВОМ ОБРАЗОВАНИИ

Л.Д. Кривых
lud-krivykh@mail.ru
Астраханский государственный университет

Аннотация: *Статья посвящена проблеме применения новых технологий в обучении иностранному языку. Обосновывается значимость разработки иных форм и методов преподавания английского языка студентам информационно-технологических специальностей.*

Рассматривается актуальность использования проектной методики в преподавании иностранного языка. Подробно излагается использование проектной методики на практических занятиях по английскому языку со студентами информационно-технологических специальностей. Привлекается внимание к вопросу использования новых информационно-коммуникационных технологий. Приводятся примеры использования подкастов при развитии умений аудирования.

Ключевые слова: *STEAM, новые технологии обучения, проектная методика, сервис подкастов*

STEAM DEVELOPMENT – ONE OF THE MAIN TRENDS IN WORLD EDUCATION

L.D. Krivykh
lud-krivykh@mail.ru
Astrakhan State University

Abstract: *The article deals with the application of new technologies in teaching foreign languages. Substantiates the importance of the development of other forms and methods of teaching English to students of information technology disciplines. We consider the relevance of the use of project techniques in the teaching of a foreign language. The paper provides the detailed exposition of the use of project techniques on a practical training in English with students of information technology professions.*

As well as drawing attention to the use of new information and communication technologies of the Internet. The article includes examples of the use of podcasts in the development of listening skills.

Keywords*: STEAM, new technology training, the project methodology, support of podcasts*

Дисциплины, которые становятся самыми востребованными в современном мире: естественные науки, технология, инженерное искусство, творчество, математика – STEAM: S – science, T – technology, E – engineering, A – art, M – mathematics.

STEAM-учебный план основан на идее обучения учеников с применением междисциплинарного и прикладного подхода. Вместо того чтобы изучать отдельно каждую из пяти дисциплин, STEAM интегрирует их в единую схему обучения.

Основные причины приоритетности STEAM образования следующие. В ближайшем будущем в мире будет резко не хватать IT-специалистов, программистов, инженеров, специалистов высокотехнологичных производств и др.

В отдаленном будущем появятся профессии, которые сейчас даже представить трудно, все они будут связаны с технологией и высоко технологичным производством на стыке с естественными науками. Особенно будут востребованы специалисты био- и нанотехнологий.

Специалистам будущего требуется всесторонняя подготовка и знания из самых разных образовательных областей естественных наук, инженерии и технологии.

Чем отличается от традиционного обучения наукам и математического образования STEAM-образование? Оно подразумевает смешанную среду обучения и показывает ученикам, как научный метод может быть применен к повседневной жизни [2]. STEAM – это одно из направлений реализации проектной и учебно-исследовательской деятельности в школе, в университете.

В 2014 году в Иерусалиме на Международной конференции «STEAM forward» поразили следующие заявления, с которыми нельзя не согласиться:

– STEAM-образование должно начинаться с самого раннего дошкольного возраста;

– наука должна быть праздником, который нужно готовить самому, наука должна быть интересна и полностью захватывать (Science is fun);

– язык науки – английский язык. Самые значимые научные ресурсы публикуются на английском языке, нобелевские лауреаты говорят на английском языке.

Интенсификация процесса перехода к информационному обществу, связанная с широким внедрением новых информационных технологий и компьютерных средств телекоммуникации, обусловливает необходимость разработки иных форм и методов преподавания английского языка студентам информационно-технологических специальностей.

В силу своей сложности и многоаспектности лингвистические исследования в настоящее время осуществляются на основе комплексных междисплинарных подходов и анализируются с позиций методики

преподавания, новых информационных технологий, профессионально-культурной специфики речевого поведения и т.д. [1].

В настоящее время основной целью обучения студентов информационно-технологических специальностей является формирование общей коммуникативной и профессиональной коммуникативной компетенции специалистов по информационным технологиям.

Проектная методика при этом позволяет реализовать индивидуальный подход к изучению языка с учетом многоуровневой системы преподавания. Индивидуальные проекты рассматриваются нами как дополнительная форма самостоятельной работы студентов. Проектная методика также обеспечивает более высокий уровень языковой подготовки студентов, имеющих хорошие коммуникативные навыки. С другой стороны, данная методика может эффективно использоваться и тогда, когда необходимо ликвидировать отставание обучающегося от учебной программы.

В настоящее время в нашем вузе на факультете математики и информационных технологий обучаются студенты из Ганы и Сенегала. У них возникают проблемы в обучении из-за недостаточного знания русского языка. Преподаватели и студенты 2–3 курсов решили им помочь и перевести лекции по информатике на английский язык.

Тип проекта междисциплинарный.

Цели проекта:

– формирование социолингвистической компетенции;

– формирование навыка технического перевода;

– приобретение знаний из различных источников.

Задачи проекта:

– научиться самостоятельно искать необходимую информацию;

– научиться обрабатывать информацию, полученную от учителя и самостоятельно;

– научиться находить правильные термины при переводе, адекватные языку оригинала;

– научиться представлять результаты своей работы с использованием информационные технологий.

Предметные области – иностранный язык, информационные технологии, математика.

Ожидаемый результат – создание презентаций.

Участники – студенты 2–3 курсов (направление подготовки «Информационные технологии»).

Продолжительность проекта – 1 семестр.

В результате реализации проекта студенты:

– учатся применять знание основ перевода текста на практике.

– расширяют знания по английскому языку, математике и информационным технологиям.

Межпредметный проект, как правило, выполняют во внеурочное время. Этот проект требовал квалифицированной координации со стороны специалистов, слаженной работы многих творческих групп студентов, имеющих четко определённые задания. Необходимо отметить, что большинство участников отнеслись к выполнению заданий добросовестно и ответственно.

По окончании работы студенты написали свои отчёты по проделанной работе.

Проектный метод предполагает принципиально новый подход: «Подумай, вообрази, поразмысли над тем, каким путем и какими средствами это можно было бы выполнить».

Преимущество внедрения интернет-технологий в процесс обучения иностранному языку уже не вызывает сомнений и не требует дополнительных доказательств. В дидактическом плане интернет включает в себя два основных компонента: формы телекоммуникации и информационные ресурсы [3, с. 11].

Одной из форм телекоммуникации является подкаст(podcast) (Вид социального сервиса, позволяющий прослушивать, просматривать, создавать и распространять аудио и видео передачи в социальной сети) [3, с. 160]. Для изучающих английский язык директория подкастов размещена по адресу www.podomatic.com, а также www.future learn.com., www.British Council.com Использование социального сервера подкастов на практических занятиях по английскому языку для развития умений аудирования со студентами (направление подготовки» Информационные технологии»)

Модель обучения аудированию включает 3 стадии: до прослушивания, во время прослушивания, после прослушивания.

Тема: Jobs. My Future Profession.

Подкаст”I Thought You Liked Your Job.” (www.futurelearn.com)

1. До прослушивания

Задание 1. Прочитайте заголовок и выразите свои предположения по поводу содержания предстоящего подкаста (диалога, интервью, лекции и т.п.)

Задание 2. В группах обсудите следующие вопросы:

– What do people want from work?

– What do you want from work?

2. Во время прослушивания

Задание 1: Прослушайте интервью и ответе на следующий вопрос:

– What was the main problem of Mali?

Задание 2. Послушайте подкаст. Он разбит на 3 части. После прослушивания каждой из частей ответьте на вопрос:

– Why does Mali look so tired?

– What does Mali like about her job?

– What do you think? Does Mali really want to change her job?

3. После прослушивания

Задание 1. Можно обсудить содержание подкаста, выразить своё оценочное отношение к нему, развить одну из идей и т. д.

– What are you good at?

– What do you like doing?

– What kind of job do you like?

Использование информационно-коммуникационных технологий в обучении иностранному языку позволяет создать оптимальные условия для одновременного формирования иноязычной коммуникативной и информационной видов компетенций.

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ИЗОМОРФИЗМ И ИЗОФУНКЦИОНАЛИЗМ В КОГНИТИВНОМ АСПЕКТЕ

Н.Д. Кручинкина
ndk-07@mail.ru
Национальный исследовательский
Мордовский государственный университет им. Н.П. Огарева

Аннотация: *Цель исследования: показать роль принципов изоморфизма и изофункционализма в минимизации мыслительных усилий для номинатора при языковом проецировании того или иного типового события, а для реципиента – при декодировании типа функциональных событийных отношений, репрезентированных в соответствующих пропозитивных номинантах. Исходной позицией явилось постулирование функциональной сущности субстрата пропозитивного номинанта – событийного номината. Результат исследования: изоморфное и изофункциональное инвариантное языковое проецирование типового события является когнитивно обусловленной закономерностью.*

Ключевые слова: *типовое событие, событийный номинат, пропозитивный номинант, изоморфизм, изофункционализм, языковое сознание, принцип экономии*

ISOMORPHISM AND ISOFUNCTIONALISM IN THE COGNITIVE ASPECT

N.D. Kruchinkina
ndk-07@mail.ru
National Research Mordovian State N.P. Ogarev University

Abstract: *The purpose of the study: to show the role of the principles of isomorphism and isofunctionalism in the minimization of mental effort for the nominator in the linguistic projection of a typical event, and for the recipient – when decoding the type of functional event relations, represented in the relevant propositive nominees. The initial position was the postulation of the functional essence of the substrate of the propositive nominee – event nominate. The result of the study: isomorphic and isofunctional invariant language projection of a typical event is a cognitive pattern.*

Keywords: *typical event propositional nominee, isomorphism, isofunctionalism, language consciousness, principle of economy*

Известный лингвист Е. Курилович, ссылаясь на идею Л. Ельмслева, активизирует мысль последнего о существовании между двумя сторонами знака – означаемым и означающим – параллелизма. Л. Ельмслев называет отношение между планом выражения и планом содержания солидарными, что в его интерпретации означает: «выражение и содержание … необходимо предполагают друг друга» [1, с. 72; 9, с. 47–49]. Существенным для того периода развития лингвистического учения было утверждение лингвиста о том, что и знак в целом в его двусторонней сущности солидарен с двусторонностью обозначаемого, т.е. с внеязыковой действительностью [1, с. 80; 9, с. 57–58]. Л. Ельмслевым солидарность понимается в аналогичности структурирования двух сторон знака. [1, с. 83; 9, с. 57–58].

Е. Куриловичем для определения подобной структурной солидарности двух взаимосвязанных сторон внутри языкового знака использован термин *изоморфизм.* Лингвист не случайно говорит об изоморфизме на примере двух разноуровневых структурных образований: слога и предложения [6, с. 21–22]: оба этих комплекса «обладают глубоким структурным параллелизмом» [6, с. 21].

Ещё более очевидным является функционально-структурный параллелизм **внутри** одного структурированного знака – пропозитивного номинанта: между функциональными структурами его означающего и его означаемого. Функционально-структурное соответствие этого целостного в своей двусторонней сущности комплекса находится в функционально-структурном изоморфизме и изофункционализме и с его субстратом – событийным номинатом, т.е. с соответствующим типовым событием реальной действительности, воспринимаемым языковым сознанием реципиента – потенциального номинатора. Мы ранее аргументировали закономерность такого соответствия. Оно связано с тем, что в ином случае язык не имел бы отражательной функции а, значит и важнейшей своей функции – коммуникативной [4].

Так как в нашем случае речь пойдёт о знаке пропозитивной природы, принцип функционально-структурного соответствия нами разделен на изоморфную и изофункциональную составляющие. Рассмотрим несколько примеров инвариантного пропозитивного выражения наиболее структурированных типов событийных номинатов. Это событийные номинаты с функциональными отношениями адресации (*Le père offre un portable à son fils. Мама покупает дочери книгу.*) и локации (*Le garçon met le manuel dans son sac à dos. Учитель ставит словарь на полку.*). Как сами отражённые типовые события, так и их инвариантные репрезентации имеют трёхместную структуру, т.е. они структурно изоморфны. Во внутренних функционально-структурных отношениях в каждой паре приведённых примеров трёхместные структуры пропозитивного означающего (внутризнакового выражения) представлены трёхместными структурами и пропозитивного означаемого.

В репрезентативном плане данная внутризнаковая трёхместность соответствует трёхместности самих типовых событий адресации и локации. Типовое событие адресации, как об этом говорит и сама внутренняя форма термина, включает в себя **стратегию** адресации (передачи) некоего объекта от адресанта адресату. Соответственно, типовое событие адресации трёхместно по своей сути: это адресант, адресуемый объект и адресат. Типовое событие локации означает зависимое (каузируемое) перемещение некоего объекта в некое пространство. Динамика процесса каузируемого перемещения объекта **фокусируется на пространство**. Функциональная структура этого типового события, соответственно, включает и в этом случае три обязательных конституента: локализанта, локализуемый объект и локатив (пространство).

Такое функционально-структурное соответствие объяснимо и закономерно не только с позиции репрезентативной функции пропозитивного знака. Эта его функция в данном случае продиктована антропологическим фактором [3; 5]: участием языкового сознания на этапах восприятия событий, их идентификации, категоризации, а также на этапе языковой номинативной репрезентации по принципу экономии усилий. Экономия мыслительного процесса языкового сознания обеспечивается соблюдением принципа аналогии при функциональном и структурном уподоблении инвариантной проекции пропозитивного номинанта соответствующему типовому событийному номинату.

О влиянии антропологического фактора на экономию языкового выражения в разных её проявлениях говорилось как о главной антропоцентрической характеристике языка [8, с. 320]. Известный французский лингвист А. Мартине, глубоко исследовавший языковое проявление экономии, объяснял языковую экономию **и минимизаций умственных усилий** [7, с. 126; 10**,** с. 177–178]. В. Никис уже позднее также ссылался на антропологические причины языковой экономии [11, с. 113–116].

При инвариантной пропозитивной номинации анализируемых типовых событий, воспринятых языковым сознанием, соблюдается внезнаковый структурно-квантитавный изоморфизм между конституентами типовых событий и инвариантов пропозитивных номинантов в прогрессивной линейной последовательности участников: от позиции инициатора события через позицию объекта к позиции субстанции в роли стратегической цели событийного процесса. В пропозитивном означающем (простом предложении) изоморфизм проявляется в аналогии прогрессивной последовательности синтаксических конституентов в направлении от семантико-синтаксического подлежащего через посредство прямого дополнения к косвенному дополнению в пропозитивном номинанте с функциональным отношением адресации, и к обстоятельству места в пропозитивном номинанте с функциональным отношением локации. В пропозитивном означаемом этих инвариантов пропозитивных номинантов, соответственно, со-

блюдается изоморфизм относительно синтагматической структуры событийного субстрата [2].

Наряду с этим соблюдается **изофункционализм** функциональных конституентов пропозитивных номинантов по отношению к функциональному составу участников типовых событий 1) адресативного и 2) локационного характера: 1) адресант – объект адресации – адресат; 2) локализант – объект локации – локатив.

Изоморфизм соблюдается между субстанциальным содержанием участников типовых событийных номинатов и их субстантивной репрезентацией в инвариантных пропозитивных номинантах. Так, в анализируемых нами типах событийных номинатов инициаторами событий адресации и локации являются лица, в пропозитивных номинантах – имена этих лиц, объектами – неодушевленные конкретные субстанции, в пропозитивной репрезентации – имена этих субстанций. В роли адресата выступают лица, в пропозитивном номинанте – их имена. В роли локатива выступают разные виды пространств, в пропозитивных номинантах – их имена.Вывод: изоморфная и изофункциональная проекции типовых событий имеют мотивированый характер. Этот глубокий параллелизм обеспечивает реципиенту, в частности, адекватное первичное восприятие материальной картины событийного мира: через призму родного языка ребёнку, а позднее и более взрослому реципиенту, начинающему изучать иностранный язык. Глубокий изоморфизм и изофункционализм событийного проецирования являются, как показывают наши исследования, необходимыми и универсальными закономерностями в рамках первичной номинации языковым сознанием событийного мира и для адекватной его репрезентации языковым реципиентом.

Это связано и с необходимостью иметь такого типа языковые репрезентации событийного мира в качестве отправной точки. Данный факт системно демонстрируется авторами букварей родного языка и учебников по иностранным языкам. Первичное восприятие общей или этнокультурной картин мира в наше время происходит не только в ходе непосредственного наблюдения и последующего означивания, но и по большей части опосредованно: в их языковой (текстовой, дискурсивной) или иконической (иллюстративной) репрезентации. Без такой отправной точки невозможно дальнейшее креативное пользование языком в речи, при котором в ходе развития и совершенствования процесса восприятия внеязыковой картины событийного мира используются уже разные вариантные (неизоморфные) способы её языкового отражения.

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ДЕЛОВАЯ РОЛЕВАЯ ИГРА КАК ЭФФЕКТИВНОЕ СРЕДСТВО СОЗДАНИЯ ПРОФЕССИОНАЛЬНОЙ СРЕДЫ ПРИ ОБУЧЕНИИ ИНОСТРАННОМУ ЯЗЫКУ В КОЛЛЕДЖЕ

Н.А. Шарина, А.В. Долгополов
studentsfrc@mail.ru
Санкт-Петербургский пожарно-спасательный колледж

Аннотация: *В нашей статье мы исследуем и анализируем педагогические, методические и лингвистические механизмы, инструменты и приемы написания проведения и осмысления деловой ролевой игры в колледжах МЧС. Мы рассматриваем все способы и методы взаимодействия педагога на психологический мир студента в целях его самореализации и погружения в профессиональную деятельность. Мы рассматриваем игру как эффективное средство для создания профессиональной компетенции.*

Ключевые слова: *деловая ролевая игра, интерактивная методика, взаимодействие преподавателя и студентов, общение спасателей и пострадавших, воздействие на психику и мышление студентов, роль преподавателя, роль студентов, МЧС. Пожар, тушение, спасение, помощь, взаимовыручка, УРС – учебно-речевая ситуация, создание сценария игры, реализация, апробирование сценария в игре, подготовка к игре*

INNOVATIVE TECHNOLOGIES AS A RESOURCE FOR THE QUALITY IMPROVEMENT OF LANGUAGE EDUCATION OF STUDENTS IN COLLEGE

N.A. Sharina, A.V. Dolgopolov
studentsfrc@mail.ru
St. Petersburg Fire and Rescue College

Abstract: *In our article we investigate and analyze pedagogical, methodical and linguistic techniques of writing and understanding of the business role-playing game in the colleges of the Ministry of Emergency Situations. We consider all ways and methods of interaction of the teacher on the psychological world of the student for the purpose of his self-realization and immersion in professional activity. We consider the game as an effective means to create professional competence.*

Keywords*: business role-playing game, interactive methodology, interaction between teacher and students, communication between rescuers and victims, impact on the psyche and thinking of students, the role of the teacher, the role of students, Ministry of Emergency Situations. Fire, extinguishing, rescue, help, mutual assistance, teaching and speech situation*

«Мои ученики будут узнавать новое не от меня: они будут открывать это сами. Моя главная задача - помочь им раскрыться, развить собственные идеи» - писал известный швейцарский педагог И.Г.Песталоцци. [3].

В нашем исследовании статье мы выдвигаем гипотезу о том, что деловая ролевая игра способствует эффективному развитию и приобретению языковый речевой и профессиональной компетенции вследствие того, что образование и развитие необходимых гибких стабильных динамичных навыков говорения, общения , слушания и взаимодействия формируются на предметной реальной основе в условиях, максимально приближенных к катастрофической ситуации, то есть спасение людей в ЧС службами МЧС.

Методика обучения спасателей в ходе преподавания английского языка в рамках подготовки и реализации деловой игры.

Первый этап – подготовительные репетиционные занятия, то есть это чтение и анализ профессионально ориентированных текстов аудитории; перевод подобных текстов, сочиненных студентами на английский язык; построение простейших фраз по теме катастроф и спасению людей; просмотр видео фильма на английском языке и прослушивание диалогов без визуальных опор, просмотр презентации преподавателя или составление своей для закрепления лексики. Характер презентации определяется типом занятия, на котором она планируется к использованию. Презентации бывают: Вводно-мотивирующие, информационные, развивающие, обобщающие, контрольные [1]. Второй этап – деловая игра в поле. Роли спасателей

и пострадавших взаимозаменяемы с целью проживания всех сценарных ролей поочередно. Студенты активно осваивают учебный материал в ходе выполнения заданий деловой ролевый игры. В речи спасателей запрещено использовать модально-оценочные фразы например, трус, вы глупец, у вас истерика, вы не профессионал. Никакого оценивания не должно присутствовать речи. Это может ранить и задеть самолюбие, чувства пострадавшего. Поэтому, следует соблюдать строгий речевой этикет, чтобы не навредить пострадавшим.

Умения студентов, требующиеся для ролевой деловой игры:

1. Вступление в диалог с коллегами и командиром.
2. Планировать и создавать речевые сообщения высокого качества и уровня.
3. В наименьшем отрезке времени при максимальной скорости мышления и реагирования воспринимать, осознавать и идентифицировать ситуацию катастрофы и описывать ее.
4. Принимать и понимать речевые сигналы, стимулы и сообщения.
5. Отправлять коллегам в письменном и устном виде речевые сообщения, адекватные ситуации.

Умения преподавателя иностранного языка по формированию концепта деловой игры:

1. Определение ролей.
2. Ознакомление с моделями построения коммуникативных актов играющих – спасателей и спасаемых.
3. Языковой и речевой тренинг по усвоению и употреблению тех или иных диалогических структур общения МЧС и пострадавших.
4. Оценка качества и уровня речевой компетенции обучаемых.
5. Создания сценария и диалогов речевой игры и алгоритма действий игроков.
6. Презентация видеоконтента или фильма с рассматриваемыми ситуациями.
7. Обсуждение проблем, поднимаемых и решаемых в фильме.
8. Изменение ролей в процессе погружения в игру.

Обоснование психологической мотивации на обучение в игре. Экстремальный речевой акт в условиях экстренной необходимости в ЧС требует особой мобилизации и сосредоточенности всех систем человеческого организма, в том числе и речевых центров головного мозга. В ЧС человек испытывает стресс, он борется со своими страхами, с неопределённостью. В человеке просыпается страх за свою жизнь, за безопасность своих родных и близких. Психологическая подавленность тормозит процессы, контролирующие не только социальное, но и речевое поведение человека. Устойчивость к стрессу, умение сопротивляться своему страху, способность подавлять волнение – это основные задачи ЧС. Формирование деловых профессиональных качеств спасателя МЧС и пожарных включает

в себя навыки и умения психологического характера, развитие стрессоустойчивости, преодоление страха и привитие инициативной психологии. Экстренный характер поведения людей в ЧС, а также опасность, страх, борьба являются неотъемлемыми компонентами ситуации сопротивления негативным обстоятельствам, преодоление которых становится целью деятельности спасателей и пожарных в МЧС.

Преимущества делового обучения в игре:

1. Достигаются речевая и языковая активизация, мобилизация всего изученного и усвоенного.

2. Ускоряются процессы возбуждения, усиливаются моторика, психосоматические процессы, приобретаются умения самореализации, самоконтроля, инициативы, ответственности, которые основываются на инстинкте самореализации в обществе.

Мотивационные условия учебно-деловой игры с помощью погружения студентов в чрезвычайную ситуацию (на основе инсценирования диалогов и полилогов по теме «Поведение людей в ЧС»). Актуальным в педагогике считаются полевые деловые игры, формирующие устойчивые стереотипы поведения и гибкого стрессоустойчивого мышления студентов. Игра создает мышление в динамике. Параллельно отрабатываются действия будущих специалистов в ЧС, и всё это с привлечением иностранного (английского) языка. Интерактивный социально-педагогический контекст и поведенческое взаимодействие активно влияют на речевое социальное контактирование студентов, играющих и проживающих роли спасателей и пожарных в имитируемой учебно-речевой ситуации. Согласно определению Е.И. Пассова**,** «учебно-речевая ситуация – это задаваемые учителем условия, необходимые для осуществления учащимся речевого действия в соответствии с намеченной коммуникативной задачей» [4]. Побуждение к активному поведению обусловлено потребностями пострадавших, которых нужно спасти, наличием соревновательного компонента и азарта борьбы с обстоятельствами, спортивной воли к победе и желанием самореализации. Динамизм и мобильность направляют к поставленной цели, отрицают пассивное созерцание, стимулируют все системы человеческого организма, активизируют психосоматические процессы, повышают энергетические ресурсы, улучшают духовное и душевное состояние студентов. Расширение возможностей, свобода выбора и разнообразие средств и моделей поведения и желание спасти людей – это положительные стимулы к повышению мотивации.

Научная новизна использования деловой игры в процессе преподавания английского языка заключается в том, что вопреки скучному и однообразному типу обучения во время взаимодействия и общения в реальной имитируемой действительности студенты воодушевляются и начинают испытывать горячий интерес к профессии и изучению иностранного языка. Они участвуют в рабочем процессе, который состоит из этапов спасения

людей, что предаёт интерактивному методу особое личностно значимое значение. Этот метод противоречит пассивному анализу текста профессиональной направленности. Он задействует мозговые психические и биологические процессы молодого организма, вовлекает учащихся в активный поиск решений в деятельности спасателей.

Параметры игры. Поведение спасателей. Обязанности преподавателя. Языковое обучение и речевое взаимодействие становится неотъемлемой частью всего педагогического процесса благодаря погружению в социальную и нравственную проблематику работы спасателей. Внедрение в психику обучаемых строгих правил, языковых примеров внутри процесса спасения людей позволяет преподавателю иностранного языка обогащать, расширять и приумножать палитру педагогических средств воздействия на студентов. Одним из них является использование ролевой деловой игры с опорой на профессиональные ситуации. Преподаватель своевременно и оперативно информирует студентов о правилах и ходе деловой игры, знакомит их со сценарием взаимодействия, с ролями, предписанными в данном сценарии. Он обучает языку будущих спасателей, ставит перед ними ясные цели и задачи речевого контакта, контролирует действия игроков, следит за адекватным выполнением задач, анализирует ошибки.

Обязанности студента – участника игры. Мотивация студентов. Студент имеет свободу выбора своих решений в принятии определенных обязанностей по спасению людей. Он использует речевые средства коммуникации в ситуациях, которая имитирует реальную опасность. Он применяет на практике все ранее полученные языковые знания и умения во взаимодействии и координации с другими игроками, спасателями и пострадавшими. Он должен следовать строгому алгоритму действий.

Мотивацией к обучению в сфере МЧС является психолого-соматический комплекс целеполагания и прагматической ориентации обучаемых, состоящий из эмоционально-интеллектуального осознания собственного желания обучаться и воспитываться по данному профилю и специфике. В этом случае идёт процесс профессионального становления личности. Под мотивацией понимают сложный синтез переживаний и ментальных представлений обучаемых во взаимодействии в учебно-научной и учебно-профессиональной среде и особой социально значимой и специфической деятельности, которая требует от учащегося добровольных усилий по освоению предмета и самодисциплине, базирующейся на самоконтроле и желании совершенствоваться и развиваться. К мотивации относят следующие виды заинтересованности и вовлечённости студентов в профессиональную среду и сферу жизнедеятельности:

а) обучение терминологии и языку профессии;

б) обучение навыкам и умениям для практического овладения методикой специалистов данного профиля;

в) обучение системе знаний и логических операций профессионалов данной сферы социума.

Управление своим сознанием, подсознанием и мышлением, включая речевую активность, а также самоконтроль и бесстрашие в сочетании с волевой жаждой к победе и стремлением к намеченной цели – это основные методы самостоятельной работы студента по координации своей мыслительной, речевой и социальной деятельности в условиях занятия по воссозданию условий, приближенных к реальной ЧС в полевых условиях. Воспитание своих чувств, эмоций, соблюдение правил и принципов боевого братства, сотрудничество, трудолюбие, поддержание своих коллег и сочувствие к пострадавшим – это основа формирования нравственных качеств любого спасателя МЧС и пожарного.

Развитие и совершенствование навыков исполнения долга, умение преодолевать трудности препятствия, совершать физические и моральные поступки, действия по ликвидации ЧС – это задачи, преследуемые педагогами, придумавшими сценарий деловой игры. Импульсное желание проявить свою волю в действии и исполнение долга, продвижение цели самопожертвования признаётся первоочередным моральным свойством спасателя, готового на подвиг. Воспитать и сформировать подобные качества невозможно без активного погружения студентов в ситуации, в которой они обязаны участвовать в роли взрослых отважных героев – спасателей. Аудиторная работа не позволяет привить данные черты характера. Полевая деловая игра, наоборот, представляет широкую палитру и разнообразный арсенал методов и способов по алгоритмизации воспитательного процесса, по его структурному воплощению внутри многообразия УРС и ЧС. Педагогика подразумевает интерактивные имитационные игры и соревнования. Целеполагание и реализация воспитательных целей становится доступной.

Критерии оценки и уровни компетенции учащихся. Одним из критериев важности, который признаётся первостепенным, является самостоятельность и адекватность активной социально-речевой позиции. Если ученик активно проявляет себя в роли спасателя и ярко выражает свои речевые намерения в вербальном воплощении, то преподаватель обязан определить его уровень речевой компетенции как повышенный и практический значимый.

Формирование критериев оценки включает в себя шкалу и перечень элементов оценивания:

1. Яркая структура оптимальной речи.
2. Высокий темп и яркость тембра голоса и интонации.
3. Количество слов в речевой фразе, грамотность.
4. Лексическое разнообразие единиц речи.
5. Максимальное соответствие ситуации общения и адекватное употребление используемых профессиональных клише и идиом.
6. Умение направить вербальный сигнал собеседнику и получать ответную реплику в соответствии с заданным смыслом и целью высказывания.
7. Вовлечённость, инициативность, мотивационный результат.

8. Использование различных коммуникативных стратегий при интерактивном взаимодействии спасателей МЧС.

После проведения игры и осуществления видео- и аудиозаписи, преподаватель обязан проследить все способы и приемы организации речевого и социального контекста игроков. Он должен реализовать методику, исправление речевых, языковых, а также поведенческих ошибок студентов, сделать их анализ и предоставить свой очерк о сделанных ошибках студентам на финальном итоговом занятии. В присутствии других учителей и учащихся, организаторы игры оповещают публику о том, что удалось и не удалось реализовать как педагогическое проектирование.

В качестве доказательства результативности игровой методики преподаватель-организатор всегда приводит наглядные примеры взаимодействия игроков ключевой социальный контакт игроков. Главным достижением игры признаётся повышенная вовлечённость и мотивация студентов с учётом профессиональной специфики их деятельности. Основными выводами нашего следования могут быть результаты интерактивного взаимодействия всех участников игры.

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INCREASES IN THE AMOUNT OF PRECIPITATION ON THE HISTORY OF THE LIFE OF SPROUTED PLANTS IN THE SPRING AND AUTUMN OF THE COLD DESERT ONE-YEAR-OLD ERODIUM OXYRHYNCHUM (GERANIACEAE) AND OTHERS

A.F. Abitavanova, M.Sh. Nurieva
aneliya_96@mail.ru, marina.nurieva.94@mail.ru
Astrakhan State University

Abstract: *The article states that an increase in precipitation increased seed production and the total biomass for plants germinating in spring (SG) more than for plant germination in autumn (AG). The signs of the life cycle of SG plants in E. oxyrhynchum are more sensitive than in AG plants.*

Keywords*: Climate change, cold desert, plant life history, Erodium oxyrhynchum, increased precipitation*

ВЛИЯНИЕ КОЛИЧЕСТВА ОСАДКОВ НА ИСТОРИЮ ЖИЗНИ ПРОРОСШИХ ВЕСНОЙ И ОСЕНЬЮ РАСТЕНИЙ ХОЛОДНОГО ПУСТЫННОГО ОДНОЛЕТНЕГО ERODIUM OXYRHYNCHUM (GERANIACEAE)

А.Ф. Абитаванова, М.Ш. Нуриева
aneliya_96@mail.ru, marina.nurieva.94@mail.ru
Астраханский государственный университет

Аннотация: *Увеличение количества осадков повысило производство семян и общую биомассу для растений, прорастающих весной (SG), больше, чем для прорастания растений осенью (AG). Признаки жизненного цикла растений SG у E. oxyrhynchum более чувствительны, чем у растений AG.*

***Ключевые слова**: изменение климата, холодная пустыня, история жизни растений, Erodium oxyrhynchum, увеличение количества осадков*

Due to climate warming, the global and regional water cycle is changing, and this will have a great impact on terrestrial ecosystems. Since plants are a critical part of terrestrial ecosystems, changed water cycles inevitably will affect their growth and reproduction. In particular, the effects of increased/decreased amount of precipitation on the different life history stages of plants are an important issue in ecological research. Overall, a change in amount or pattern of precipitation can affect most life history characteristics of plants, but plant responses may vary with the species [4].

Increased precipitation can significantly increase, have no effect on or decrease seedling emergence. During the vegetative growth stage, increased precipitation can promote the production of new leaves and branches and increase the number of leaves, flowers and fruits. Biomass accumulation of annual species had a significant linear increase with increased rainfall. However, the annual non desert species *Polygonum cascadense* allocated more biomass to reproductive organs in dry than in wet years. With an increase in amount of precipitation, below – ground biomass increased in the perennial rhizomatous grass *Leymus chinensis*, while above-ground biomass increased in the perennial bunchgrass *Stipa grandis*. In addition, the maternal plant environment may cause a change in germination percentage and rate of seeds. Seeds produced in cool wet years often are more dormant than those produced in dry warm years.

In arid and semi-arid regions, moisture is the most important limiting factor for plant growth, and precipitation (including snowmelt) is the main source of moisture. In cold arid and semi-arid regions (i.e. cold deserts), plant species can be winter annuals and spring ephemerals, summer annuals, herbaceous perennials or woody perennials. Winter annuals or spring annual have fast growth rates, high light use efficiency and allocate a high percentages of biomass to seeds. They complete their life cycle quickly by utilizing winter snowmelt and spring rainfall. Thus, winter annuals or spring annual plants are very sensitive to changes in amount of precipitation [2].

Some annual species in the cold deserts of northwest China have two germination seasons: autumn and spring. When rainfall is abundant in autumn, seeds germinate in autumn and plants overwinter as rosettes and complete their (winter annual) life cycle the following spring. When precipitation in autumn is scarce, seed germination is delayed until the following spring, at which time water from snowmelt wets the soil, and the plants quickly complete their (spring ephemeral) life cycle in spring and early summer. This germination strategy may be a form of bet hedging that spreads the risk of mortality in the extreme environment of the cold deserts of northwest China. Examples of annual species whose seeds germinate in both autumn and spring in this desert include Plantago minuta, Eremopyrum distans, Astragalus arpilobus, Isatis violascens and Diptychocarpus strictus [7].

Spring-germinating and autumn-germinating plants of a species differ significantly in most life history characteristics, including post-germination life span, size, fruit production, reproductive biomass and seed dormancy of offspring. Plasticity in the entire life cycle of plants likely is an adaptation to unpredictable habitats, especially the effects of precipitation, and it may be a kind of bet-hedging strategy.

Erodium oxyrhynchum (Geraniaceae) is the most common winter annual/spring species in the Gurbantunggut Desert. It occurs in Kazakhstan, the Caucasus, Western Asia and China, where it is mainly distributed in Xinjiang. This species is common in the Gurbantunggut Desert of Xinjiang, where its coverage can reach 20–30 % in May. E. oxyrhynchum has two germination seasons in some years: spring and autumn. Spring-germinated plants complete their life cycle (spring ephemeral) in about 2 months, before the onset of summer. Autumn-germinated plants overwinter as rosettes and complete their (winter annual) life cycle the following spring, with their life cycle being about 6 months in length. In a field site in the Gurbantunggut Desert, found that spring annual species with short life cycles were more sensitive to nitrogen deposition than annual species with long life cycles. Therefore, based on significant differences in the life cycle of sprouted plants in spring and autumn, it was hypothesized that signs of SG life cycle in E. oxyrhynchum are more sensitive to an increase in precipitation than in AG plants [1].

Generally, higher land plants do not grow under submerged conditions and aquatic plants, cannot grow in terrestrial growth conditions. On the other hand, amphibious plants can acclimate to both terrestrial and submerged conditions. Amphibious plants have been hypothesized to develop leaves optimized for each environment. *Hygrophila difformis*, a heterophyllous amphibious plant, develops serrated and dissected leaves when grown in terrestrial and submerged conditions, respectively. Furthermore, dissected leaves develop when *H. difformis* is treated with ethylene under terrestrial growth conditions. Although this morphological change is regulated by ethylene, it remains unknown whether ethylene induces the leaves to functionally acclimate with the underwater condition.

Terrestrial angiosperms growing in water face problems with carbon limitation. In the submerged condition, gas diffusion resistance is 10^4 times higher than in the terrestrial condition, and stomatal gas exchange for photosynthesis and respiration is restricted. Underwater photosynthesis decreases due to limited CO_2 uptake [3].

Hygrophila difformis acclimates to a submerged environment by developing leaves with a characteristic morphology that are capable of photosynthesis optimized for the submerged environment. Ethylene treatment of terrestrial plants in our study, leaf morphology and underwater photosynthetic ability were changed to the same levels as those of submerged leaves, indicating that leaf morphology and photosynthetic function are regulated by ethylene to permit acclimation to the submerged condition. Furthermore, leaves acclimated to submerged condition had a high HCO_3^- affinity. The study showed that processes

that require proteins, such as HCO3-transporters, are involved in the acclimatization of photosynthesis with an amphibian H. difformis. This plant probably contains genes and regulatory mechanisms that prove to be valuable resources for the detection of genes in higher plants. Further characterization and understanding of this acclimatization mechanism will provide new resources for the detection of regulatory systems in higher enterprises [2].

It is evident that a quantitative understanding of dispersal is key for predicting how environmental changes, and consequent changes in dispersal vectors, will impact plant populations and communities. Operationalizing this goal and moving seed dispersal ecology towards a predictive science, however, requires confronting a wide array of interacting factors and stochastic elements. Functional group frameworks, in which species are categorized by ecological functions and the resulting groups treated as analytical units, have helped researchers confront complexity in other ecological subdisciplines and have been tentatively explored in seed dispersal [6].

Due to their complexity, seed dispersal processes are difficult to quantify empirically. Since the quantification of these processes forms the basis for understanding plant population and community dynamics, methods to reduce this complexity are essential. Both biotic and abiotic dispersal vectors can influence which seeds are dispersed, the risks and costs of dispersal, the spatial direction and distance that seeds travel, the probability that seeds will encounter specific microhabitats and the probability of seed aggregation. For seeds transported by abiotic vectors, wind and water speeds and turbulence determine the distance and direction of seed movement: not only are these factors intrinsically variable, but that variation interacts with the physical structure of the environment and the size and shape of the seed. In biotic dispersal, the set of disperser animals interacting with a seed may dictate its survival, growth and eventual reproduction. Dispersal vectors vary in their interactions with landscape structure, implying that the mechanism of dispersal may dictate the composition and arrangement of a plant community [5].

Some plant species exhibit extreme specialization in microhabitats and require dispersers to move seeds to these locations. The preferences and physiology of dispersers may influence the direction and distance of seed dispersal. Stochastic events may include rare, long-distance dispersal events, which are difficult to observe and measure but can be critical for colonization of new geographic regions and provide connectivity among habitat patches across a landscape. Behavioral aspects of biotic dispersers, such as local aggregation, social organization, mating system, competition and territoriality, can influence both spatial and temporal dispersal of seeds, with potential ramifications for seed aggregation and competition between seeds [5].

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УДК 9

THE TOURIST GUIDE. THE ORIGINS AND TYPES

D.P. Grigrishev, M.S. Aidaralieva
grigrishev_95@mail.ru, aidaralievamarina@mail.ru
Astrakhan State University

Abstract: *This article discusses the types of leadership: the concept of the word and its modern meaning. Special attention is paid to the origin of this phenomenon. Two lines of origin of the modern tourist guide are a Pathfinder and a mentor. These two "lines" have led to the development of a wide range of guidebooks, from religious guidebooks to guides on special interests.*

Keywords: *guide, origins, pathfinder, mentor*

ТУРИСТИЧЕСКИЙ ПУТЕВОДИТЕЛЬ. ПРОИСХОЖДЕНИЕ И ТИПЫ

Д.П. Грыгрышев, М.С. Аидаралиева
grigrishev_95@mail.ru, aidaralievamarina@mail.ru
Астраханский государственный университет

Аннотация: *В статье рассматриваются типы путеводителей: понятие слова и его современное значение. Особое внимание уделяется происхождению этого явления. Две линии происхождения современного туристического гида – это следопыт и наставник. Две эти линии привели к развитию широкого спектра путеводителей: от религиозных путеводителей до руководств по особым интересам.*

Ключевые слова: *путеводитель, происхождение, следопыт, наставник*

The origins of the guide. The role of the modern tourist guide has its direct historic origins in the Grand Tour of the 17th and 18th centuries and in the beginnings of modern tourism, which eventually superseded the Grand Tour in the 19th century. Its antecedents, however, are many and diverse and reach far back into mythology, allegoric literature, history, and geographic exploration. To understand the structure and dynamics of the role of the modern tourist guide, one has to examine these antecedents, because they set the cultural background against which the modern role developed [3].

For all its apparent simplicity, «guiding» is a complex concept: and while there are many different types of guiding, some of this complexity marks the tourist guide. A good start to appreciate that complexity can be made by considering an authoritative dictionary definition of the term: the Oxford English Dictionary defines the concept «guide» as «One who leads or shows the way, especially to a traveler in a strange country; spec. one who is hired to conduct a traveler or tourist (e.g., over a mountain, through a forest or over a city or building) and to point out objects of interest» [1]. In another, but also relevant, sense, a guide is, according to the same source, «One who directs a person in his ways or conduct. . .»

The two definitions obviously relate to very differently structured social roles. The role of the modern tourist guide, however, also developed from diverse antecedents: one, *the pathfinder*, which embodies primarily the first of these definitions: the other, *the mentor*. Which embodies, essentially, elements of the second. Both these antecedents are, in a modified way, reflected in the role structure of the contemporary tourist guide.

The antecedent role of the pathfinder, or the geographical guide who leads the way through an environment in which his followers lack orientation or through a socially defined territory to which they have no access, is simpler and easier to document. In the absence of maps, guide - books, signposts, and other orientational devices, strangers entering an unknown territory were, in the past, dependent upon guides to lead the way and gain access in face of an often suspicious or hostile local populace. Guidance of this kind was especially in demand by armies who penetrated an unreconnoitred territory and travelers and explorers who dared to enter unknown lands.

The role of the mentor, or personal tutor or spiritual advisor, is much more complex in origin, heterogeneous in nature, and difficult to trace historically. The role is, of course, most fully developed and institutionalized in those religious settings in which a specialist serves as a «‘guru» to the novice, adept, or seeker, guiding him towards insight, enlightenment, or any other exalted spiritual state. This kind of guiding may appear of little relevance to our subject, were it not for the fact that the spiritual advance of the adept is frequently represented as an allegorical pilgrimage, which takes the form of an imaginary geographic journey, in which the spiritual advisor plays a role analogous to that of the geographic guide.

It is this double sense of guidance-geographical as well as spiritual - which marks the ideal leader of a religious pilgrimage, and which was subsequently transferred to the role of the tutor leading the young Englishman on the cultural pilgrimage of the Grand Tour to the centers of European leaning or classic antiquity.

The role of the modern tourist guide combines and expands elements from both antecedents, that of the pathfinder and that of the mentor. The two, however, do not necessarily merge harmoniously: rather there exist incongruencies and ten-

sions between these two major components of the modern role, which at least partly account for its developmental dynamics as well as its further differentiation.

Types of guides. Tourist guides are categorized on the basis of the nature of Tourist place they guide about. Classification of Guides on the basis of the nature of the tourist destination:

1. Heritage

a. History: One who gives information of the past, moreover found at Palaces, Forts, Museums, Battlefields, Tombs / Mausoleums, Temples, Churches etc

b. Archeological: One who gives information on the ancient civilizations and the bygone era , found at museums and archeological sites like the Giza Pyramids, Harappa & Mohenjo-Daro, Nalanda University, Machu Picchu etc

c. Architecture Guide: One who gives information of the art and construction strategy of the monuments and masterpieces from the past, found especially outside Temples, Palaces, Tombs / Mausoleums, Towers etc

2. Culture Guide

One who gives information on the lifestyle patter on the native society of that particular Tourist Destination:

a. Cuisine Guide: One who gives information on the Agriculture, cultivation, and staple diet of a place, delicacies of that region and where to eat what and when. He /she takes the guest around the city making them taste specialties prepared at different food shops and restaurants. Places visited are Farms, Restaurants, Sweet Shops, Chocolate Factory, Cheese Factory, Vineyards, Orchards etc

b. Religious Guide / Temple Guide / Pilgrim Guide: One who gives information on the religion, gods & goddesses, mythology, traditions, rituals etc, such guides are hired especially during festival times, they are found at temples, and other shrines

3. Adventure Guide

- Mountaineering Guide
- Trekking Guide
- Skiing Guide
- Surfing Guide

e. Scuba Diving / Snorkeling Guide

4. Forest / Wilderness Guide

- Hunting Guide
- Safari Guide

5. Business Guide

- Real Estate Consultant

6. Coach Guide

- City Tour Guide

7. Nature Guide

- Desert Guide
- Hill Station Guide
- Botanical Garden Guide

8. Special Interest Guide

• Cruise Guide, Golf Guide, Shopping Guide, Hotel Guide, **Wedding Guide etc**

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THE ANALYSIS OF MODERN LANGUAGE-LEARNING APPLICATIONS

Yu.V. Zhukova, V.V. Nabieva

Julia-zhukova777@yandex.ru, nabievavicktoria@yandex.ru

Astrakhan State University

Abstract: *In this article it is offered to consider the mobile applications helping to learn English. On the basis of the complex analysis which is carried out after the experiment on work with mobile applications regarding independent studying of English by students of non-language orientation their high efficiency was proved. Comparison is between five applications. These applications are intended for learning of foreign languages and replenishment of a lexicon,*

creation of sentences with the correct grammar, reading texts, for the purpose of fixing of a foreign language.
Keywords: *language-learning apps, English, training technique*

АНАЛИЗ СОВРЕМЕННЫХ МОБИЛЬНЫХ ПРИЛОЖЕНИЙ ПО ИЗУЧЕНИЮ ИНОСТРАННОГО ЯЗЫКА

Ю.В. Жукова, В.В. Набиева
Julia-zhukova777@yandex.ru, nabievavicktoria@yandex.ru
Астраханский государственный университет

Аннотация: *В данной работе предлагается рассмотреть мобильные приложения, помогающие в изучении английского языка. На основании комплексного анализа, проведённого после эксперимента по работе с мобильными приложениями на предмет самостоятельного изучения английского языка студентами неязыковой направленности, была доказана их высокая эффективность. Сравнение происходит между пятью приложениями. Эти приложения предназначены для изучения иностранных языков и пополнения словарного запаса, построению предложений с правильной грамматикой, чтению текстов с целью закрепления иностранного языка.*
Ключевые слова: *мобильные приложения по изучению языка, английский язык, методика обучения*

Modern society is characterized by a great influence of computer technologies. The era of virtualization has led to an innovative vector in present educational process [2]. For this reason many developers of IT-sphere began to think of that how to facilitate studying of English and to make it interesting and cheerful [1]. From the methodical point of view, the first we will consider the “Lingualeo” mobile application which is the educational platform for a learning of foreign language built in a playful way. The students who downloaded it on the mobile phones left approving comments and showed interest in training. The decision to use this product is dictated by the fact what imposed students that the application gives an opportunity to choose own level (initial, professional, etc.). Undoubted plus of the application is display of the image of the studied subject which allows to develop associations with a word in a foreign language and to learn this word quicker, pronunciation of this word is also carried out. Along with the usual dictionary where it is possible to recognize transfer and pronunciation of a new word not by an occupation subject, one more factor noted by students as positive and interesting was existence of the own dictionary where it is possible to add unknown lexical units. Due to this educational platform students can listen to music, read the book, watch the movie and keep own micro blog in English. Nevertheless, students were disappointed that many training exercises

on grammatical constructions are absent in the demoversion, and on further grammatical exercise machines the paid subscription follows.

The second application "Semper" is also actively used for studying of English. The main feature of this application is the following fact: at installation on the smartphone of the above-stated application it is possible to activate support function, namely in attempt of pressing a label of the social network Instagram or VKontakte start is postponed, and on the screen the task from the application of Semper is highlighted. You will be able to continue work with social networks only after the solution of a task, after that you will be included in the program necessary to you, it motivates and does not irritate because it is enough to perform the only task. This application offers an easy way of learning foreign language without craming, gives information on the interesting facts without special waste of time. Lessons in this program are grouped in topics and are created not by some, but different authors. The application is intended for studying more than fifty languages.

For the analysis the "Duolingo" mobile application which at the moment the most widespread in the world of applications for a learning of foreign language and numbering about 120 million users, ten of which Russian-speaking was also chosen. The program consists of separate big subjects, for example: food, fashion, clothes, is in each subject on several lessons. The application is focused on studying of new words, the particular emphasis is placed on pronunciation. It is possible to carry the pleasant interface to pluses of the application, are well made and lessons are in details thought out, daily reminders, a possibility of creation of schedules of visit, the application is free. During the experiment students referred monotony of lessons which quickly become boring to application minuses. Students also noted insufficient amount of grammatical material.

"Drops" is the application for a learning of foreign languages, it is also focused on storing of words in playful way by means of pictures, rebuses and puzzles. By means of Drops it is possible to learn up to 28 languages, since English and finishing Japanese, Chinese, Hindi. In the application there are several tens of sections with words and phrases on concrete subject, and lexicon automatically blabs out that you could fix pronunciation. The application is focused on studying of words on association with pictures, repetition and storing of new words. It is possible to refer usability of the application, interesting design to undoubted pluses, when studying new words there is a repetition of earlier studied material of last day, to each word the interesting picture is given at the expense of what the word is remembered in association. There are following minuses of this application: the five-minute timer, the necessity of purchase of a subscription, the application is focused only on beginners.

"Lingua.ly" is one more educational startup which is engaged in language, digital approach to teaching languages, it is not so interesting application, it is focused on reading texts, for the purpose of expansion of a lexicon.The application is focused on reading texts for the purpose of expansion of a lexicon. Stu-

dents noted the following pluses of the application: when reading texts in English, having come across an unknown word, you press it and at once the translation jumps out, this word is automatically included in your dictionary, at regular reading texts at the user a certain list of words unknown to it in the dictionary is typed, having come into this section it is possible to teach these words by means of certain tasks, the fact that texts can be chosen on certain subjects is convenient. But the application is focused on the average level of knowledge of English, for beginners material is quite difficult.

It is necessary to refer to shortcomings of mobile applications the lack of a colloquial segment, namely discussion of the studied material, opportunities to build a statement in several variations and also insufficient illumination of phonetic material, there is no work on tempo of speech and diction.

One of the most interesting tasks in "Busuu" is a dialogue system where the user needs to squeeze the passed words in "chat" of two people. also there are written exercises, the fact that mistakes which are made by players then are corrected by English-speaking players of a game is unusual. They though are not professional teachers, but because the error is corrected at once by several players, leaving a certain comment, a game becomes more interesting. Thanks to it we can understand the reason of the wrong writing. This application one of the best for practice of written English. "Busuu" is not the free application, for a subscription is required passing demo-to the version

Above the applications including three stages of studying of English were considered.

1. studying of foreign words for the purpose of replenishment of a lexicon;
2. correct grammar;
3. reading of texts for the purpose of fixing of a foreign language.

Some applications are focused on studying of words their pronunciation and writing that is necessary at the first stages of studying of language.The second are also concentrated on studying of new words, but already with a training of grammatical constructions which are necessary at creation of offers. The third is directed to reading texts as when reading foreign books, memory already acquires both the text, and words the correct grammar is in addition postponed. For fixing of the studied material the program is ready for constant repetitions of already studied words and frequent repetition of words in which you made mistakes for the purpose of their correction. Also many of programs send SMS of the notice that it is time to update the knowledge or there was a new game which is offered to you for approbation.

In the conclusion it should be noted that the applications considered above though are directed to certain blocks of a learning of foreign language: some on replenishment of a lexicon, following on the complete translation of texts and elements of knowledge of grammar, but in general help to find skill of communication and communication of people from the different countries. During the conducted research the following applications were tested: Duolingo, Lingualeo,

Drops, Lingua.ly, Semper, Bussuu. At everyone is both pluses and minuses, superiority can undoubtedly be given to the Duolingo and Drops applications as in them all criteria are collected at once selection of which will allow downloaded them fully to learn a foreign language. At the same time and the dictionary which is obligatory when studying language, a postscoring which is necessary for the correct pronunciation of a word, well and the last criterion is broad availability and usability.

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УДК 08

USE OF MEDIERE RESOURCES IN THE EDUCATIONAL PROCESS OF BIOLOGY IN SCHOOLS

Sh.M. Islimgazieva
Sholpan_0297@mail.ru
Astrakhan State University

Abstract: *Biology as an object has a wide space for using media education in the educational process. This article is about improving the quality with the help of media resources in the general educational process. One of the advantages of using multimedia technology in teaching is to improve the quality of learning due to the novelty of activity, interest in working with a computer. The use of the computer in the classroom has become a new method of organizing active and meaningful work of students, making the lessons more vivid and interesting.*

Keywords: *media, media resources, information technology, biology, educational process, media, Internet, ICT, innovative methods, pedagogy, students*

ИСПОЛЬЗОВАНИЕ МЕДИАРЕСУРСОВ В УЧЕБНОМ ПРОЦЕССЕ БИОЛОГИИ В ОБЩЕОБРАЗОВАТЕЛЬНЫХ ШКОЛАХ

Ш.М. Ислямгазиева
Sholpan_0297@mail.ru
Астраханский государственный университет

Аннотация: *Биология как объект имеет широкое пространство для использования медиаобразования в учебном процессе. Эта статья посвящена улучшению качества с помощью медиаресурсов в общеобразовательном процессе. Одним из преимуществ использования мультимедийных технологий в обучении является повышение качества обучения в связи с новизной деятельности, интересом к работе с компьютером. Использование компьютера в классе стало новым методом организации активной и значимой работы студентов, делая уроки более яркими и интересными.*

Ключевые слова: *СМИ, медиаресурсы, информационные технологии, биология, образовательный процесс, СМИ, Интернет, ИКТ, инновационные методы, педагогика, студенты*

Nowadays, teenagers are so used to the huge amount of information, the volume of which is constantly increasing, that they do not imagine life without media: press, television, radio, video, computer, Internet. Therefore today, education should give the student not only the sum of basic knowledge, skills and skills, but also the ability to perceive and master new knowledge, new types and forms of activity. "A school that wants to be truly democratic and open, in fact, must equip its students with the sum of some ready-made knowledge, and give them advantages in enriching social experience in the practice of communication with the media" (Stephanie Danzero).

To do this, it is not enough to have only a teacher and teaching aids in the education system, a broad informational field of activity is necessary: various sources of information, different views on the same problem that motivate the learner to think independently, and search for his own reasoned position.

It is necessary to teach schoolchildren to correctly formulate their information needs and queries, effectively and quickly carry out independent search for information using various search engines, store and efficiently process a large flow of information, etc. Today this is possible thanks to media education, which becomes an important factor in shaping the consciousness and outlook of students and performs the unique function of preparing the younger generation for life in the information space [1].

In a number of countries, media education is an active preparation of a new generation for life in modern information conditions, perception and understanding of various information, awareness of the consequences of its impact on the psyche, mastering the ways of communication on the basis of non-verbal

forms of communication and using technical means and modern information technologies.

One of the advantages of using multimedia technology in teaching is to improve the quality of learning due to the novelty of activity, interest in working with a computer. The use of the computer in the classroom has become a new method of organizing active and meaningful work of students, making the lessons more vivid and interesting [2].

ICT technologies are used by me at various stages of the lesson:

1) when explaining the new material (color pictures and photos, slideshows, video clips, 3D-drawings and models, short animations, plot animations, interactive models, interactive drawings, auxiliary material) as an interactive illustration displayed with a multimedia projector on screen (at present this is actual due to the fact that not always the tables and charts are in the teacher's possession);

2) for self-study of the teaching material by students in the lesson during the performance of a computer experiment in accordance with the conditions set by the teacher (in the form of work sheets or computer testing), with the resulting conclusion on the topic being studied;

3) in the organization of research activities in the form of laboratory work in combination with computer and real experiment. It should be noted that when using a computer, the learner gets much more opportunities for self-planning experiments, their implementation and analysis of results compared to actual laboratory work;

4) for repetition, fixing (tasks with choice of answer, tasks with the need to enter a numerical or verbal response from the keyboard, thematic task sets, tasks using photo, video and animation, tasks with response, interactive tasks, auxiliary material) and control knowledge (thematic sets of test tasks with automatic testing, control and diagnostic tests) at levels of recognition, understanding and application.

When the students perform virtual laboratory works and experiments at these stages, the students' motivation increases - they see how the received knowledge can come in handy in real life;

5) home experiments can be performed by a student on a worksheet with appropriate adaptation and if there is a home of a training disk for this course.

Biology as an object has a wide space for using media education in the educational process. The biology curriculum includes a large number of laboratory, practical and project works, in which students can independently master content, working with a variety of sources of information (encyclopedias, biological and environmental dictionaries, posters, video fragments, articles from magazines and newspapers, photographs, etc.), instruments, laboratory equipment.

Involvement of students in the project activity using information technology allows them to expand their horizons, to show the practical significance of the acquired knowledge. When registering the results, students can use sound,

video and photo materials to help make the project work interesting and informative. With the help of a digital apparatus, schoolchildren take photos of different kinds of plants and animals, natural and urban landscapes, etc., which are then used in presentations.

Presented multimedia presentations contain interesting photo materials, video materials, representing experiments, diagrams and graphs that clearly demonstrate the changes in the environment. These materials can be used in biology lessons, using a computer and a projector, photos are displayed for the entire class. Also from photographs you can make homemade color slides, which can then be used both in class and in class in extra-curricular work.

An important principle of design and research work in biology is the joint work of the teacher and students, where the teacher helps the student select and formulate the topic, determine the purpose and objectives of the project, develop a plan and determine the stages of work, help pick up the necessary literature, make a presentation. At the same time, the teacher should clearly understand that the use of various media: computer, multimedia presentations, the Internet, while carrying out project work, are not only visual aids with the help of which the effectiveness of teaching is improving. When doing design work, students learn to correctly find and apply the necessary information, to argue their own statements, to find errors in the information received and to make proposals for their correction. Thus, the use of media education in the course of biology contributes to the development of critical thinking among students, forming their own point of view on information from various sources.

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OVERPOPULATION OF THE PLANET

N.M. Kolokolova, L.A. Bashmakova, E.A. Borisov
kolokolovan@rambler.ru, mlabashmakovs@gmail.com,
zhenechka.borisov.2000@list.ru
Astrakhan State University

Abstract: *This article addresses the issue of Earth overpopulation. Particular attention is paid to changes in statistics in recent years. The causes of overpopulation of the Earth and its consequences are being studied. The result of this study was the conclusion that the problem is not in the number of people on the planet, but in the rational use of consumed resources.*

Keywords: *overpopulation, causes, consequences, solutions, overpopulation statistics*

ПЕРЕНАСЕЛЕНИЕ ПЛАНЕТЫ

Н.М. Колоколова, Л.А. Башмакова, Е.А. Борисов
kolokolovan@rambler.ru, mlabashmakovs@gmail.com,
zhenechka.borisov.2000@list.ru
Астраханский государственный университет

Аннотация: *В данной статье рассматривается вопрос о перенаселении Земли. Особое внимание уделяется изменению статистики в последние годы. Изучаются причины перенаселения Земли и его последствия. Результатом этого исследования стал вывод о том, что проблема заключается не в количестве людей на планете, а в рациональном использовании потребляемых ресурсов.*

Ключевые слова: *перенаселение, причины, последствия, решения, статистика перенаселения*

Overpopulation is an undesirable condition where the number of existing human population exceeds the carrying capacity of Earth. Overpopulation is caused by number of factors. Reduced mortality rate, better medical facilities, depletion of precious resources are few of the causes which results in overpopulation. It is possible for a sparsely populated area to become densely populated if it is not able to sustain life. Growing advances in technology with each coming year has affected humanity in many ways. One of these has been the ability to save lives and create better medical treatment for all. A direct result of this has been increased lifespan and the growth of the population. In the past fifty or so years, the growth of population has boomed and has turned into overpopulation.

In the history of our species, the birth and death rate have always been able to balance each and maintain a population growth rate that is sustainable.

It is clear to all of us that the planet is not expanding. There is only so much space on Earth, not to mention only so many resources – food, water and energy – that can support a human population. So a growing human population must pose some kind of a threat to the wellbeing of planet Earth, mustn't it? Not necessarily. "It is not the number of people on the planet that is the issue – but the number of consumers and the scale and nature of their consumption," says David Satterthwaite, a senior fellow at the International Institute for Environment and Development in London. He quotes Gandhi: "The world has enough for everyone's need, but not enough for everyone's greed."

The number of "modern human beings" (Homo sapiens) on Earth has been comparatively small until very recently. Just 10,000 years ago there might have been no more than a few million people on the planet. The one billion mark was not passed until the early 1800s; the two billion mark not until the 1920s. As it stands now, though, the world's population is over 7.3 billion. According to United Nations predictions it could reach 9.7 billion people by 2050, and over 11 billion by 2100. Population growth has been so rapid that there is no real precedent we can turn to for clues about the possible consequences. In other words, while the planet might hold over 11 billion people by the end of the century, our current level of knowledge does not allow us to predict whether such a large population is sustainable, simply because it has never happened before. We can get clues, though, by considering where population growth is expected to be strongest in the years ahead. Satterthwaite says that most of the growth over the next two decades is predicted to be in urban centers in what are currently low and middle-income countries. Population growth has been so rapid that there is no real precedent we can turn to for clues about the possible consequences. In other words, while the planet might hold over 11 billion people by the end of the century, our current level of knowledge does not allow us to predict whether such a large population is sustainable, simply because it has never happened before. We can get clues, though, by considering where population growth is expected to be strongest in the years ahead. Satterthwaite says that most of the growth over the next two decades is predicted to be in urban centers in what are currently low and middle-income countries.

Causes of overpopulation it took hundreds of years to reach one billion inhabitants, yet in little over two centuries this figure multiplied sevenfold. Why? There are a series of factors that favored the spectacular growth:

1. Falling mortality rate, mainly due to medicine: the Industrial Revolution brought with it a revolution in the world of medicine. Scientific progress allowed us, from then onward, to overcome diseases that previously could only end in death. The invention of vaccines and discovery of antibiotics such as penicillin saved thousands of lives and were a key factor in unfettered population

growth. As the number of annual deaths fell, while births remained constant, so the population increased.

2. Progress in food production: for its part, scientific research and technological improvements saw more efficient agricultural production, resulting in year-round crops, more resistant seeds, pesticides, and so on…. aspects that Malthus had not taken into account when putting forth his catastrophic theory condemning the human race to disappear. Improvements In fishing and livestock methods also contributed to the provision of more food with which to nourish the population.

3. Migration and urban concentration: in certain countries, the impact of migration and accumulation of the population in cities was very important, but not only with respect to demographic growth, but also in relation to wealth generation. Currently, over half the global population live in cities of more than 300,000 inhabitants and which are expected to continuing growing until they reach 70 % of the population.

Growing advances in technology with each coming year has affected humanity in many ways. Overpopulation thus contributes to some of the most compelling environmental problems which encompass:

1) Depletion of Natural Resources.
2) Accelerated Habitat Loss.
3) Amplified Climate Change and Global Warming.
4) Loss of Biodiversity.
5) Depreciation of Fresh Water.
6) Lower Life Expectancy and Diminished Quality of Life.
7) Emergence of New Pandemics and Epidemics.

The failure to foresee and prevent the negative consequences of the scientific and technological revolution threatens to plunge mankind into an environmental or social catastrophe. Today, the main problem facing the demography of science, and the world community as a whole, is the overpopulation of the Earth. About 1800 years, it took mankind to bring its number to one billion, but in just 100 years, thanks to an unprecedented demographic explosion in the 20th century, Earth's population increased more than 6 times.

A world population that needed some millennia before reaching the number of 1 billion people, but then added some billions more after 1920 in less than a century: the social, cultural, economic and ecological consequences of such an evolution are so complex that they can lead to fear and indifference at the same time. What kind of constructive reaction is possible and productive in view of such an enormous issue?

There are several impractical population control solutions out there, but we're more interested in strategies that are feasible. Here are some of the ways we can fight overpopulation across the globe.

1.Improve the quality of life of the population. Since modern development and life quality are strongly linked, modern developmental indicators such as

literacy may be used to convey the quality of human life. Most lower-income countries have achieved improvements in some indicators over the past decades. Adult literacy rate rose from 43 % in 1970 to 60 % in 1985. Food production per head has kept pace with or outstripped population growth in all continents

2. Rational resource consumption. “The problem lies not in the number of people on the planet, but in the number of consumers, the scale and nature of their consumption,” said David Sattertwaite, a senior researcher at the International Institute for Environment and Development in London. He quotes Gandhi: "There is enough for all in the world, but not for the greed of all."

Because of the positive population momentum, the world population will certainly continue to grow in absolute figures, even though the yearly growth rate in percentages is already on the decline for several years. The biggest contribution we could make therefore, with an immediate favourable impact for ourselves and the rest of the world, is to change our consumption pattern and deal with the structural overconsumption of the world’s richest countries.

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LOCAL FAUNA AS A BACKGROUND FOR THE DEVELOPMENT OF HUNTING AND FISHING IN ASTRAKHAN REGION

N.M. Kolokolova, I.V. Galaktionova
Kolokovan@rambler.ru, Black_cat1986@bk.ru
Astrakhan State University

Abstract: *Astrakhan region is rich in animal resources, which provides a prerequisite for industrial tourism, both for hunting and for fishing. Of particular interest for hunting in the Astrakhan region is feathered game. The hunting of mammals is less popular. As a rule, the load on different parts of the landscape in the Astrakhan region depends on the hunting season. Special mention is such a type of recreational activities as scuba diving. The objects of this type of hunting are usually large fish. For this type of recreation, the most suitable are the areas of the delta with the greatest transparency of the water, the so-called "black waters". Due to the relative diversity and abundance of the local ichthyofauna, the region has a good prerequisite for fishing. Moreover, in the region both amateur and sport fishing are equally well developed.*

Keywords: *animal resources, hunting, underwater hunting, fishing, crayfish*

МЕСТНАЯ ФАУНА КАК ПРЕДПОСЫЛКА ДЛЯ РАЗВИТИЯ ОХОТЫ И РЫБАЛКИ В АСТРАХАНСКОЙ ОБЛАСТИ

Н.М. Колоколова, И.В. Галактионова
Kolokovan@rambler.ru, Black_cat1986@bk.ru
Астраханский государственный университет

Аннотация*: Астраханская область богата животными ресурсами, что даёт предпосылку для промыслового туризма, как для охоты, так и для рыбалки. Особый интерес для охоты в Астраханской области*

представляет пернатая дичь. Менее популярна охота на млекопитающих животных. Как правило, нагрузка на различные участки ландшафтов в Астраханской области зависит от сезона охоты. Отдельного упоминания стоит такой вид рекреационной деятельности, как подводная охота. Объектами этого вида охоты, как правило, являются крупные рыбы. Для этого вида рекреации наиболее подходящими являются участки дельты с наибольшей прозрачностью воды, «чёрные воды». Благодаря относительному разнообразию и многочисленности местной ихтиофауны в регионе имеется хорошая предпосылка для рыбалки. В регионе одинаково хорошо развиты любительская и спортивная рыбалка.

Ключевые слова: *животные ресурсы, охота, подводная охота, рыбалка, раки*

Astrakhan region is rich in animal resources, which provides a prerequisite for industrial tourism, both for hunting and for fishing.

Of particular interest for hunting in the Astrakhan region is feathered game. Namely various waterbirds geese (gray, white-fronted), duck (Ruddy, shelduck, mallard, wigeon, shoveler, pintail, sulfur duck, teal Garganey, teal Teal, goldeneye, pochard, red-dive, tufted, merganser large, patches), swans, coots, cormorants, geese, common chugs, corncrakes, moorhen, lapwings, stone sinkers, curlews, snipe, gornenepy, etc.

The hunting of mammals such as boars, foxes, European hares, muskrats, martens, raccoons, etc., is somewhat less popular.

The best places for hunting are in the landscapes of the delta, floodplains, and the silt-hillock plain. As a rule, the load on different parts of the landscape in the Astrakhan region depends on the hunting season. In the region, it is distinguished by two-spring-summer and autumn-winter.

The spring-summer hunting season is characterized by a large load on water areas, since it is precisely in this season that predominantly waterfowl and game birds are hunted.

In the autumn-winter period, hunters move to the near-water spaces and mammals are more likely to be hunted [1].

Special mention is such a type of recreational activities as scuba diving.

The objects of this type of hunting are usually large fish, such as: catfish, carp, asp, pike, crucian carp, etc.

The active underwater hunting season starts in March (complete ice melting) and lasts until December (freezing).

The best places to practice this type of recreation are the Volga Delta, in areas where there are a lot of flooded trees and backwaters. In such places, most fish accumulate, which guarantees a successful underwater hunting [2]. Somov is best caught in the underwater pits, which are many lonely in the delta and floodplain.

For this type of recreation, underwater hunting, the most suitable are the areas of the delta with the greatest transparency of the water, the so-called "black waters". The most transparent water is in March, November and December. April, September and October are characterized by low transparency. In May - early June, a seasonal flood is characteristic of the floodplain and the delta, the fish spawns on flood meadows (poloi). The most suitable period for diving and hunting is the period from the second half of June to the first half of September, the water warms up well and is fairly transparent (visibility is up to 4–5 m).

Due to the relative diversity and abundance of the local ichthyofauna, the region has a good prerequisite for fishing.

Moreover, in the region both amateur and sport fishing are equally well developed. Of course, due to the severe pollution of the Volga, the time has passed in the region when fish could be caught on a tiny piece of red rag. However, if you are in the right season in the right place, you can catch a few large fish.

The objects of fishing in the region are usually: grass carp, white bream, chub, crucian carp, rudd, bream, tench, gudgeon, roach, carp, catfish, pike perch, silver carp, bleak, sabrefish, pike, ide, long-toed fishes.

The best season for fishing in the Astrakhan region is summer, because Most of the local ichthyofauna are active this season. White carp, bream, tench, rudd, gudgeon, sabrefish, bleak are well caught from non-predatory fish throughout the season. With periodic success, you can catch a grouser, a carp, a crucian, a roach, a silver carp. Catfish are well caught from predatory fish throughout the summer. The first two months you can catch asp. In June and August – pike. June is also favorable for catching perch and ide [3].

Also, in the first half of summer, thick-skinned crayfish are very active.

The autumn season is not so productive. During his first period, you can catch a lot more loot than in the second. So, from September to mid-October you can catch carp, rudd, roach from non-predatory fish. Further, the catch of these fish is declining. Bleak also continues to be caught until the end of October. In September you can catch bream, carp, grass carp, sabrefish. With periodic success, you can still catch the Guster, tench, minnows, silver carps.

From predatory fish in the fall it is good to catch pike and pike perch. And best of all from early September to late October. In November, their numbers begin to decline. In September, as in summer, catfish continues to catch well. An ide can be caught between mid-September and mid-November. With periodic success in the fall you can catch a ruff and a perch. With the same success at the beginning of autumn, you can catch the asp, chub.

Crayfish are actively caught from early September to mid-October.

The winter period most stingy for prey for fishermen. Their not predatory fish with an average periodicity caught roach. With the same result from the beginning to the middle of January and from the middle of December a bleak is caught. In February, the rudd begins to show activity.

Their predators throughout the winter with an average frequency of ruff caught. In December and February it is still possible to catch a pike.

The spring period in terms of the productivity of fishing is similar to the autumn one. But it has its differences. Their non-predatory fish first wake up the rudd. After half a month, the gustera, roach, bream, minnow, bleak, sabrefish become more active. From the middle of April carp, grass carp and tench begins to catch. In May, you can already catch a silver carp.

From the predators in the spring, the pike is actively beginning to catch, as during this period there is a lot of potential prey for it. From the middle of March, perch and chub begin to catch as well. After a fortnight, the chub becomes just as numerous and active. The pike perch and ide begin to be perfectly caught from the middle of April. After all, the catfish begins to be caught from the middle of May.

Long-fingered crayfish in this period I begin to be massively caught only from mid-May, but the first few groups can be caught at the beginning of the month.

Responsibility for the state and development of recreational fishing is carried out by the Astrakhan Department of Sevkasrybvod through 12 regional departments of supervision, protection and use of water-biological resources of Russia in the Astrakhan region [4].

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BACKGROUND AND CONTAINING FACTORS FOR THE DEVELOPMENT OF YACHT TOURISM IN ASTRAKHAN REGION

N.M. Kolokolova, I.V. Galaktionova
Kolokovan@rambler.ru, Black_cat1986@bk.ru
Astrakhan State University

Abstract: *The article is devoted to the development of yacht tourism in the Astrakhan region. For its writing were used such methods as the study of literature and other sources of information on the topic under consideration and text analysis. One of the main conditions that contributes to the development of yacht tourism in the Astrakhan region is the branching of the hydrological network.The second positive factor for this is a large area of water area, sufficient depth, significant irregularity of the coastline. The third factor is a favorable climate for yachting, namely, a long summer season, a small amount of precipitation, a small average ball of water disturbances. receive training in ship management and obtain a skipper's or captain's license. The fifth positive factor for the development of yacht tourism in the region is the aesthetics of Astrakhan landscapes. However, factors such as the difficult economic situation in the country, the dilapidation of RIVMAR ships and the underdevelopment of special infrastructure make it difficult to develop this type of tourism.Conclusion: Astrakhan region has a high potential for the development of yacht tourism, but it remains unfulfilled.*

Keywords: *Yacht tourism, Astrakhan region, high potential*

ПРЕДПОСЫЛКИ И СДЕРЖИВАЮЩИЕ ФАКТОРЫ ДЛЯ РАЗВИТИЯ ЯХТЕННОГО ТУРИЗМА В АСТРАХАНСКОЙ ОБЛАСТИ

Н.М. Колоколова, И.В. Галактионова
Kolokovan@rambler.ru, Black_cat1986@bk.ru
Астраханский государственный университет

Аннотация: *Статья посвящена развитию яхтенного туризма в Астраханской области. Для её написания были использованы такие методы, как изучение литературы и других источников информации по рассматриваемой теме и анализ текста. Одно из главных условий которое способствует развитию яхтенного туризма в Астраханской области это – разветвленность гидрологической сети. Второй позитивный для этого фактор – большая площадь акватории, достаточная глубина, значительная изрезанность береговой линии. Третий фактор – это благоприятный для яхтинга климат, а именно длительный летний сезон, небольшое количество осадков, небольшой средний бал волнений воды. Сле-*

дующий позитивный для яхтинга фактор – наличие яхт-клуба РИВМАР, где можно не только арендовать судно для внутренних и зарубежных поездок, но и пройти обучения управлению судами и получить лицензию шкипера или капитана. Пятый позитивный фактор для развития в регионе яхтенного туризма – это эстетичность астраханских ландшафтов. Однако такие факторы как тяжёлая экономическая ситуация в стране, ветхость судов РИВМАР и неразвитость специальной инфраструктуры затрудняют развитие этого вида туризма. Астраханская область обладает высоким потенциалом для развития яхтенного туризма, но он остаётся не реализованным.

Ключевые слова: *яхтенный туризм, Астраханская область, высокий потенциал*

In this paper, we use such methods as the study of literature and other sources of information on the subject under consideration and the analysis of the text.

Yacht tourism is a type of recreation, which implies a temporary departure of a tourist outside the permanent residence for the purpose of a short trip, during which the means of transportation and the main lodging place is a small-sized vessel (sailing, motor or hybrid yacht), owned or rented [1].

Yacht tourism is a complex of services including:

– rental of both cruise and sports yachts with and without crew (if tourists have appropriate skills and international certificates);

– Reception and maintenance of their own yachts tourists in various ports and yachts in the world;

– development of exclusive yacht routes with the provision of the necessary infrastructure;

– organization of sailing trophies, regattas and flotillas, as well as ensuring participation in regular international competitions and flotillas;

– training in sailing / motor yacht management in Russia and abroad, assistance in obtaining international certificates;

– technical and legal advice, assistance in obtaining visas and other necessary documents for a yacht trip

One of the main conditions that contributes to the development of yacht tourism in the Astrakhan region is the branching of the hydrological network. The region is amazed by the huge number of sleeves extending from the Volga (the largest of which is Akhtuba. Bakhtimir and Buzan) of the Eriks. The area of the Volga-Akhtuba floodplain is more than 2 million km², and the delta is 11,000 km². This is a positive factor, because in order for yachts to disperse without emergency, each ship must have at least 12 m². The average depth of the river is 10 km, which is more than enough for the draft of large ships [2].

The second factor is relief. The rugged coastline in the form of bays, creeks, bays is necessary in order ideal for sailboats to take shelter with strong wind and waves [3].

The third factor is climate. It is mainly semi-desert, arid, warm, formed under the influence of circulating atmospheric processes of the southern zone of temperate latitudes. The average temperature in the region varies from north to south 10–18 ° C. Annual rainfall is small, 70 % fall in autumn. A large number of sunny hours per year – 2441 [4]. Summer lasts 5 months (from May to October). The average wind speed is 2.9 m / s, which is enough for a medium-sized ship to move. The favorable moment is the high frequency of low waves, less than 3 points according to the Official Scale of the World Maritime Organization, within the given water area [5]. Ice bed is set in the first half of December until the second half of March Its thickness ranges from 4 to 10 cm.

The fourth factor is the yacht club RIVMAR. In the Astrakhan region for 24 years there is a yacht club, where for a certain fee you can get training, and get a license skipper or captain. Training time depends on the desired specialty. Also, in the yacht club, you can rent a boat for domestic and foreign trips. In total, more than 20 vessels of yacht, motor and yacht-motor ships are presented for the choice of a potential tenant. The club also organizes regattas from time to time [6].

The fifth factor is the aesthetics of landscapes. Of course, a sense of aesthetics for each individual. What seems aesthetic to one person may seem deformity to another. But the landscapes of the Astrakhan region are so diverse: from the steppes in the northern part of the region to the deserts of the south. From the river complexes of the floodplain and the delta, to the wide sea spaces adjacent to the Astrakhan region, the honor of the Caspian Sea. Urban landscapes are not far behind in this diversity: in A.O. you can see how old villages (in Russian, Tatar, Kazakh and other styles) and modern cities (Akhtubinsk, Astrakhan) where on the quays can be seen as old-fashioned houses XVIII–XIX centuries and modern modernist buildings [7]. Every vacationer will find in this variety that meets his tastes.

However, one can not ignore the negative factors for the development of yacht tourism, namely: the difficult economic situation in the country, forcing people to save on entertainment. Many ships RIVMAR require overhaul. Not developed special yacht routes, too few equipped berths and service stations [8].

Conclusion: Astrakhan region has a high potential for the development of yacht tourism. But despite this, due to the protracted crisis in the country, the dilapidation of the ships of the RIVMAR club and the lack of the necessary infrastructure, yacht tourism is not developed here.

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INNOVATIVE CARTOGRAPHY

N.M. Kolokolova, V.S. Kalynova
kolokolovan@rambler.ru, victoriousmaid@gmail.com
Astrakhan State University

Abstract: *The article is devoted to the study of the role of cartography in the present. It examines innovative technologies in the field of cartography, which raise the standard of living of a modern person. Moreover maps that reflect science in the form of modern art have been found.*

Keywords: *cartography, map, GIS – geographic information system, digital map, alternative cartography*

ИННОВАЦИОННАЯ КАРТОГРАФИЯ

Н.М. Колоколова, В.С. Калынова
kolokolovan@rambler.ru, victoriousmaid@gmail.com
Астраханский государственный университет

Аннотация: *Статья посвящена исследованию роли картографии в современном мире. Рассматриваются инновационные технологии в сфере картографии, повышающие уровень жизни современного человека. Были найдены примеры альтернативной картографии, отображающей науку в виде современного искусства.*

Ключевые слова: *картография, карта, ГИС – геоинформационные системы, цифровые кары, альтернативная картография*

The International Cartographic Association defines cartography as the discipline dealing with the conception, production, dissemination and study of maps. Cartography is also about representation – the map. This means that cartography is the whole process of mapping.

Cartography is a complex, an ever-changing field, but at the center of it is the map-making process. As such, it is a unique mixture of science, art and technology and calls for a variety of in-depth knowledge and skills on the part of the cartographer [1].

Early forms of cartography were practiced on clay tablets and cave walls. As technology and exploration expanded maps were drawn on paper and depicted the areas that various explorers traveled [5].

Cartography made a technological leap during World War I with the development of aerial photography. Then came radars and GPS, as maps moved into the digital sphere. Through this technology, our understanding of maps has changed entirely [4].

The application of Geographic Information Sciences (GIS) continues to grow as a global research tool for understanding the world around us. Cartography, the process of making maps, has benefited greatly from advancements in GIS technology in recent years.

Modern cartography influences our lives in ways that probably don't seem obvious to most of us. Services that are simple for users, such as ordering a rideshare from apps like Uber or Lyft, are only possible due to innovations in modern cartography.

Modern cartography might seem like a contradiction when considering the historical origins of cartography and traditional map-making. However, cartography remains as relevant as it was centuries ago thanks to the advent of GPS, data globalization, and location analytics.

Modern cartography allows GIS professionals to understand everything from climate change to where companies should open businesses. And, the possible applications extend far beyond our own planet.

However, the particular need, demand, question, or problem of a human user is often taken into account only when the data-driven or technology-driven application, product, or system has been built. Often, this causes problems or leads to products, systems, and applications that are not accepted, not efficient, or simply not usable. By starting from the question What are the demands, questions, problems, or needs of human users in respect to location? We could eventually apply data and technology in a sense that they serve such user-centered approaches rather than determine the use.

Maps can be seen as the perfect interface between a human user and big data. In this respect, maps and cartography play a key role. Maps are most efficient in enabling human users to understand complex situations. Maps can be understood as tools to order information by their spatial context. Maps can be seen as the perfect interface between a human user and all that big data and thus

enable human users to answer location-related questions, to support spatial behavior, to enable spatial problem solving, or simply to be able to become aware of space [6].

Modern GIS are out to make map-making simpler, giving away tools for ordinary users to pinpoint locations, draw routes and attach photos or video to existing online maps [2].

Today, maps can be created and used by any individual stocked with just modest computing skills from virtually any location on earth and for almost any purpose. In this new mapmaking paradigm, users are often present at the location of interest and produce maps that address needs that arise instantaneously. Cartographic data may be digitally and wirelessly delivered in finalized form to the device in the hands of the user or the requested visualization derived from downloaded data in situ.

Maps and other cartographic products are attractive. Many people like to use maps; to play around with maps, for instance, on the Internet; or simply to look at them. We can witness a dramatic increase in the number of users and use of maps currently [6].

Modern cartography has led to the creation of numerous digital tools that enhance the accuracy of traditional maps. One example is new technology that addresses color blindness by allowing GIS experts to see what a map looks like to a color-blind individual. Color-coding technology takes the guesswork out of designing maps that are accessible to a larger audience.

Modern cartography tools have also contributed to greater accessibility in urban planning, public education, public safety programs and more. For example, the accessibility index is a geoprocessing tool and script that calculates an accessibility score for destinations. Information from the accessibility index can be used to plan where to build new schools and libraries, or which locations to host after-school programs.

Location intelligence is also an integral piece of modern cartography and disaster management. In understanding how to respond to natural disasters, GIS specialists use location analytics to determine evacuation routes for areas impacted by hurricanes. By using digital maps in conjunction with evacuation route data, GIS professionals can overlay evacuation routes across maps of affected cities or keep visualizations up-to-date for much larger regions. The collection of this data began in the early 2000’s to deal with the influx of hurricanes in the United States, and now provides visualizations of clear and safe routes inland [7].

Today, satellites and digital mapping tools have turned modern cartography – the science and art of map-making – into a technology-driven field. With accuracy all but guaranteed, new ways of visualizing space have emerged in the process. They mix art, experience and topography, approaching the physical world through the lens of time, perspective and storytelling [4].

Maps are primarily meant to be factual, accurate, and informative. They are supposed to help us find our way, understand our environment, and inform our decisions. They have been designed and used for centuries for highly strategic purposes such as planning and executing war, locating valuable resources, collecting taxes, claiming territories, and participating in the creation and recognition of nation-states. These strategic domains have required accurate maps, designed through objective, scientific processes using more and more precise and relevant data measurements, techniques, and procedures. Although they can be used for other needs [3].

Chelsea Nestel, a PhD student specializing in cartography at the University of Wisconsin-Madison, her creations span graphic design, comics and traditional mapping techniques. One of her hand-drawn creations shows the territories of the United States according to the mythical beasts and monsters that supposedly inhabit them. Another presents the world through the flow of tweets that followed earthquakes in Haiti, Chile, Japan and Turkey between 2010 and 2011.

Her most personal map, titled "Sum," is a depiction of her own body based on X-ray scans, blended with a collage of words and personal memories. "Mapping tools are so advanced that there's no really limit to what maps can show and do," she said. "And that includes exploring emotions and subjectivity."

Welsh-born artist Gareth Wood, who goes by the name Fuller, borrows the tools of cartography to create geo-pictorial maps of world cities and present "the sense of a place." His huge, detailed artworks depict landmarks alongside pop culture symbols and other curiosities [4].

Humor, which has been combined with maps in many different ways outside the discipline of cartography, can contribute to the re-composition of the field of cartography. In fact, humor has been combined with maps in many different ways for many different purposes in media outside the discipline of cartography. Humorous maps appear on T-shirts, game boards, post cards, books, and computer screens, and in magazines, computer games, and movies. Designed by caricaturists, cartoonists, designers, and artists, they can serve different ends, such as advertising, entertain-ing, and making political and social statements [3].

Good City Life, a collective of researchers with no background in cartography, has been making maps according to how people feel about their cities.

One of the resulting cartographies is Happy Maps, a series of online maps that use algorithms to sort through geotagged images and calculate the most scenic routes. Another is Chatty Maps, a project that documents what people hear on the streets and considers how soundscapes influence their perception of their environments. Each map is color-coded, with noises rendered in different hues.

Smelly Maps, a third experiment by Good City Life, works on a similar premise, but focuses on tracking smells.

Smells also underpin the maps made by Kate McLean, program director for graphic design at the UK's Canterbury Christ Church University. Her charts

guide people on city walks -- or "smellwalks" -- after which she gathers their olfactory impressions and uses them to visualize the "smellscape" [4].

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OCEAN POLLUTION WITH OIL

N.M. Kolokolova, E.A. Kashirskaya
kolokolovan@rambler.ru, black_panther_97@inbox.ru
Astrakhan State University

Abstract: *The article discusses the impact of oil and petroleum products on aquatic ecosystems, describes the behavior of oil in sea water, the nature of the effect of oil pollution on marine organisms. The mechanisms of pollution and the consequences of oil spills are described here too. It is concluded that, for many reasons, pollution by oil and oil products causes complex changes in the structure and function of natural ecosystems, as well as disruption of metabolic processes, which leads to a decrease in species diversity.*

Keywords: *world ocean, oil, oil products, pollution, ecology, environment, ecosystem*

ЗАГРЯЗНЕНИЕ ОКЕАНА НЕФТЬЮ

Н.М. Колоколова, Е.А. Каширская
kolokolovan@rambler.ru, black_panther_97@inbox.ru
Астраханский государственный университет

Аннотация: *В статье рассматривается воздействие нефти и нефтепродуктов на водные экосистемы, описывается поведение нефти в морской воде, характер влияния нефтяного загрязнения на морские организмы. Анализируются механизмы загрязнения и последствия разливов нефти. Авторы статьи приходят к выводу, что по многим причинам загрязнение нефтью и нефтепродуктами вызывает сложные изменения структуры и функции природных экосистем, а также нарушение метаболических процессов, что приводит к уменьшению видового разнообразия.*

Ключевые слова: *Мировой океан, нефть, нефтепродукты, загрязнение, экология, окружающая среда, экосистема*

The oceans are the richest source of mineral, energy and animal resources. This leads to a gradual strengthening of its role in the life of all mankind. If you develop a rational, science-based approach to consumption and create conditions for artificial reproduction, the oceans can become an inexhaustible source of resources for humanity. Thus, it is possible to solve such global challenges facing humanity as the food and commodity crisis [1].

Most of the oceans problems associated with the consequences of human activity. Particularly disastrous effects are caused by water pollution with oil products Accidents on oil platforms, oil tankers and tankers can cause extremely

serious consequences. Also causes big problems dumping household waste and garbage. Every year millions of tons of oil products enter the World Ocean in different ways. At the same time, only one ton of oil covers with a continuous film a huge area of the water surface, which leads to a dramatic change in all chemical and biological processes.

The problems of the World Ocean are undoubtedly the problem of the whole of human civilization. To solve them, coordinated steps of all countries are necessary, since the death of the ocean will mean the death of mankind. [1]

To the most harmful contaminants of the ocean are oil and oil products. Every year the World ocean gets 5 million tons of pollution from Maritime transport and coastal cities, coastal runoff, loss at sea oil on the shelves, etc. are of Particular concern accidents large tankers carrying oil.

Emergency, of pouring over the side of the tanker wash and ballast water - all this leads to the presence of the constant fields of pollution on the routes sea routes [2].

Exxon Valdez oil spill, massive oil spill that occurred on March 24, 1989, in Prince William Sound , an inlet in the Gulf of Alaska, Alaska , U.S. The incident happened after an Exxon Corporation tanker, the Exxon Valdez, ran aground on Bligh Reef during a voyage from Valdez , Alaska, to California. Delayed efforts to contain the spill and naturally strong winds and waves dispersed nearly 11,000,000 gallons (41,640 kilolitres) of North Slope crude oil across the sound. The spill eventually polluted 1,300 miles (2,092 kilometres) of indented shoreline, as well as adjacent waters, as far south as the southern end of Shelikof Strait between Kodiak Island and the Alaska Peninsula . Alaska Sen. Ted Stevens emerged as a strong proponent of securing federal funds to pay for the damage. Thousands of workers and volunteers helped to clean up after the oil spill, and Exxon provided $2.1 billion in funding. Despite these cleanup efforts, the spill exterminated much native wildlife, including salmon, herring, sea otters, bald eagles, and killer whales [3].

The 147,000 tons oil tanker Sea Empress ran aground on February 15th 1996 at 8.07 pm, despite being under the control of one of Milford Haven's harbour pilots. The fact that it took over 24 hours for a heavy tug, to reach the Sea Empress may well have contributed to the extent of the disaster, as by that time the weather had worsened. Off-loading of the oil still aboard did not start until 24th February. The Sea Empress lost around 70,000 tonnes of her cargo of North Sea crude oil.

Oil lapped Skomer's shoreline, just 30 metres from the cliffs at Skomer Wick, a nesting site for 14,000 birds. Seabirds need to keep their feathers clean in order to be able to remain buoyant and insulated. Birds can preen oil from their feathers, and in doing so, can ingest poison which kills them within days. It is estimated that between 20,000 and 40,000 seabirds, mainly scoter and guillemots, but also cormorants, red-throated divers, mute swans and razorbills died as a result of the disaster.

The Sea Empress lost far more of her cargo than the 37,000 tonnes spilled by the Exxon Valdez into Prince William Sound in 1989, killing half a million seabirds and countless fish [4].

The accident at the oil platform in 2010 in the Gulf of Mexico turned into an environmental disaster, the scale of which is simply amazing. The main cause of ecological disaster is oil spill. Oil from the damaged well (as well as associated gases) continuously flowed for 152 days (until September 19, 2010), and during this time the ocean waters received more than 5 million barrels of oil. This oil has caused irreparable damage to the ocean and many coastal areas of the Gulf of Mexico.

In total, almost 1,800 kilometers of coastlines were contaminated with oil, white sandy beaches turned into black oil fields, and an oil slick on the ocean surface was visible even from space. Oil has caused the death of tens of thousands of marine animals and birds [5].

The effect of oil pollution is disastrous, especially on the aquatic flora and fauna [6].

Damage to ecosystem: Oil pollution is a major threat to our ecosystem, especially the aquatic ecosystem. Ecological impact of oil spills on the aquatic animals depends on the location of the oil spills and also on the sensitivity of the local organisms to oil pollution. Oil spills greatly decrease animal breeding population and also harm their nesting habitats. This leads to the consequent shrinkage of the local prey population thus unbalancing the aquatic food chain and ecosystem. Plants in the water also cannot survive in poisonous oily environment and die a pre mature death, ahead of their life cycles [6].

Economic loss: Oil spillage if happens in high concentrations is very difficult to clean, no matter how much effort is invested into it. Also, the cleanliness regime is anything but cheap. Huge amount of money need to be spent to tidy up the oil spillage mess and then also the result may not be 100 % satisfactory. Oil pollution is proportional to considerable economic loss. Also, spillage of crude oil is of great loss as crude oil is precious and very expensive [6].

Altering the water temperature: The oil layer present at the surface of water will tend to absorb more heat from sun rays and may significantly increase the surface water temperature. Also, it might block the sunlight from reaching into the depths of water with uneven heat distribution across the depths of the water body. This can alter the natural hydrodynamics of the water bodies which may lead to lesser oxygen supply at certain depths of water.

Effect on coastal areas: The shore lines and sandy beaches in coastal areas may also be an indirect victim of oil water pollution. The oil contaminated water is usually swept across the shoreline by the waves in high tides. This makes the beaches dirty and unsafe for the human population as well. Thus, coastal areas are continuously contaminated due to oil pollution [6].

Degrades water quality: Oil pollution seriously degrades the water quality on a long-term basis. Being insoluble in water, oily water always exists as bi-

layer. Also, at the shore lines, the current of waves might even turn the oily water into a turbid oil water emulsion (wherein the oil and water exist as a single turbid phase due to constant mechanical mixing forces). This degrades the quality of water further.

Industry problems: Many industries use clean water from natural water bodies for cooling purposes. Industries like power plants, nuclear plants and desalination plants need constant water supply from surface waters. These industries may also pose a risk of getting oily and contaminated water due to oil pollution.

Suffocation cause by oil spills and oil poisoning are among. Because oil floats on top of water, less light penetrates into the water, limiting the photosynthesis of marine plants and phytoplankton. Oil spills reduce oxygen absorption of the water, causing oxygen dissolution under oil spills to be even less than the deep sea levels [6].

The oil penetrates and opens up the structure of the plumage of birds, reducing its insulating ability, and so making the birds more vulnerable to temperature fluctuations and much less buoyant in the water.

It also impairs birds' flight abilities, making it difficult or impossible to forage and escape from predators.

An oil effect on coastal vegetation is also important. Algae and other local plants have been reported to be eradicated. Animals that come in touch with high concentrations of oil die of oil poisoning. Worms, microorganisms and young sea creatures are more sensitive. Humans and other animals living near the sea are also threatened.

In order to deal with oil pollution, it is essential to take sufficient preventive and control measures around the globe. Water is the most important natural resource and it`s quality is of utmost importance [6].

Findings: Oil is a dangerous polluter of the oceans. There are many sources of its entry into the ocean. The greatest pollution of oil occurs due to emergency situations during its production and transportation, removal of oil products by rivers, surface runoff of industrial territories. This creates a global environmental problem. Dozens of states are involved here. Since oil is a necessary element of the development of technology and technology, it is used in almost all spheres of human activity, it is impossible to abandon its production. However, since oil is detrimental to animals and plants, and the water polluted by it is dangerous to humans, it is necessary to reduce its content in the oceans, develop new safe technologies for its extraction and elimination of straits, as well as strictly monitor compliance with the requirements for extraction and transportation.

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THE ROLE OF ORTHOPHOTO IN MODERN CARTOGRAPHY

N.M. Kolokolova, A.N. Kuzmina, D.N. Stukalova
kolokolovan@rambler.ru, anna.trukuz0210@gmail.com
Astrakhan State University

Abstract: *The article is devoted to the study of the role of orthography in modern cartography. New methods are increasingly being introduced into the mapping system are considered here. The reasons for using the method of orthography and its advantages in comparison with obsolete methods were also identified here.*

Keywords: *orthophoto, cartography, map, orthophoto method, GIS*

РОЛЬ ОРТОФОТОГРАФИИ В СОВРЕМЕННОЙ КАРТОГРАФИИ

Н.М. Колоколова, А.Н. Кузьмина, Д.Н. Стукалова
kolokolovan@rambler.ru, anna.trukuz0210@gmail.com
Астраханский государственный университет

Аннотация: *Статья посвящена исследованию роли ортфографии в современной картографии. Рассматриваются новые методы, внедряемые в систему картографирования. Выявляются причины использования ортфографии и её преимущества по сравнению с устаревшими методами.*

Ключевые слова: *ортофотография, картография, карта, метод ортофографии, ГИС*

The growth of image-processing technology has initiated the emergence of digital orthophotography. An orthophoto is an image of ground features in their true map coordinates, created photogrammetrically from aerial photography. Think of an orthophoto as a picture and a scalable map. Digital orthophotos are a proven alternative for applications ranging from infrastructure management to appraisal mapping. A digital orthophoto is simply a computerized version of a conventional orthophoto: a raster image of ground features in their true map positions.

Russell K. Bean was the first to introduced the term Orthophotography [2].

Orthophoto imagery serves as an important layer in a Geographical information system because it provides inexpensive and accurate based maps. The traditional orthophotograph rectification displaces buildings and bridges, which are both modelled in the digital terrain models.

The prospective of the digital systems to make available orthophotos quickly and cheaply was appreciated by the users of Geographic Information Systems (GIS), who needed up-to-date backdrops for GIS applications [6].

Majority of the GIS users' worldwide lack the competence to carry out their own conventional photogrammetric mapping, but can carry out orthorectification with the help of digital photogrammetric systems. The introduction of digital photogrammetric cameras opened up the prospect of a fully digital workflow, from camera to orthophoto.

Orthophotomap a photographic map of a locality on an exact geodetic basis. An orthophotomap is obtained through an aerial photographicsurvey and the subsequent conversion of the aerial photographs from a gnomonic to an orthogonal projection by the efficientmethod, developed in the mid-1960's, of differential orthogonal photo conversion. In contrast to the well-known method ofconverting aerial photographs by zones, the new method automatically eliminates the distortions in an aerial photographcaused by the locality's relief and by deviations of the camera's axis from vertical during the survey. This is effected by thesuccessive projection of the image being converted in the smallest possible sections by means of special devices calledorthophotoprojectors. Orthophotographs, that is, aerial photos converted by this method, make possible the compilation oforthophotomaps for any region, thus significantly expanding the use of material from aerial photographic surveys fortopographical, geological, and other planning and surveying purposes [3].

The phases of work required to produce a digital ortho-photographic map are the following: 1) Topographic operations; 2) Creation of a terrain model; 3) Rastering of air photos; 4) Production of ortho-photographic imagery; 5) Overlaying of cadastral maps.

Aerial photographs play an important role in GIS data acquisition and visualization. First, they help provide a solid visual effect. Many people are more able to put spatial concepts into perspective when seeing photos. In addition, the secondary and perhaps more vital role is to provide a basis for gathering spatial information. Examples of this are features such as roads, vegetation, water features. Before this information can be gathered in a way that is useful for a GIS system, the aerial photographs must be prepared in a way that removes distortion from the image. This process is called orthorectification. Without this process you wouldn't be able to do such functions as make direct measurements of distances, angles, positions, and areas [7].

Technical equipment used for orthophotography the orthophotoscope, an optical device. The first instruments designed to produce orthophotographs were by Lacmann in Germany and Ferber in France at the beginning of the 1930's. After Ferber's design, a series of designs were built by the Gallus firm and tested by the «Service Geographique de l'Armee» as well as the French Cadastral Service. Neither agency decided to adopt orthophotography.In 1955, Russell Bean of the Topographic Branch of the U.S. Geological Survey invented the orthophotoscope, which was initially used to make orthophotographs for use by geologists of the same agency. The T-64 model was a modified Kelsh analog stereoplotter that profiled the stereo model while the operator manually raised

and lowered the film level based on the terrain height. Successful model designs were produced by the USGS, such as the U-60, T-61, and in 1964, the T-64 model that was put into production by the Kelsh Instrument Company [1].

The orthoimage can be overlaid with other maps containing other urban or technical elements like a power supply network, a dam, a road, a cable television network, a construction project, etc. Photogrammetry allows to obtain useful maps containing a lot of information helping making decisions.

Orthophotos are much faster and easier to create than establishing of a new area conventional map and they can be reproduced on a regular basis thanks to the cost efficiency and quick operability of drones

These photographs are shot by air and the ease with which our Unmanned Aircraft Systems (UAS) can perform low altitude slow flight is particularly adapted for their acquisition [9].

The precision of an orthophoto is directly proportional to the resolution of the image captured by the embedded digital camera on board.

With the automated navigation flight, the Remotely Piloted Aircraft System (RPAS) will fly over the area to explore in a systematized way covering it completely. A percentage of overlap between the pictures will bring out the reliefs, the same way than the human stereoscopic vision does. The flight plan used by the operator will be uploaded on the drone on a case by case basis and will be adjusted to correspond to each specific photogrammetry mission.

Depending on the navigation path, the drone will scan the area on parallel axes and with a shift of a few degrees to precisely reach this stereoscopic human vision effect through the onboard camera [4].

Once on the ground, the images are analyzed, processed and corrected in order to eliminate distortions including the effect of the relief displacement. It calculates the Digital Elevation Model (DEM which is a topographic representation of an area) in order to correct them and adjust any associated terrain deforming errors.

Used in several fields, such as the urban & land use planning, administrative departments management, communication, agriculture, archeology and others, photogrammetry allows the identification of objects and geometric shapes projecting their measurements on the horizontal plane.

The global drone industry is literally taking off and providing architects, engineers, surveyors and many others in different disciplines with an amazing new tool to innovate and refine old methodologies in their respective fields.

The first simple thing to remember is to take overlapping photos of a structure, object or location. Good photogrammetry software will be designed to make 3D models out of photos and will be able to determine where to stitch together captured information and where to cut out excess visual 3D data.

There’s no need to eliminate photos from the ground all together and combing ground photography and aerial photogrammetry from a UAV (with a decent camera attached) can prove ideal for large-scale construction projects that

cover a significant amount of land, which may or may not include some tricky geography [10].

An unmanned Aerial Vehicle (UAV) system has the ability to quickly and inexpensively collect highly detailed data of smaller areas. Once data collection is complete, fast and automatic data processing allows for speedy end product deliveries [5].

Capturing the topography gives surveyors, architects and engineers a leg up in anticipating particular obstacles for the building and construction of any given project. Manual on-site measurements are not as exact as a photogrammetric 3D model, and they aren't as easy to share either. Photographing the area from a UAV allows construction workers, surveyors and architects to keep better track of building materials they order and diagnose and anticipate ways to increase cost efficiency and safety.

The digital orthophoto method reproduces a vertical aerial photograph into a comparable of a traditional map. Which in-turn retains the advantages of a photograph-visually displaying actual land features, cultural, and the built environment, relatively than identifying those features using lines and symbols.

Digital orthophotograph has become a commercial production reality due to the primarily increased availability of more powerful computers at reasonable prices.

Orthophotos have a variety of uses, and once in digital format, they can be viewed and printed at various scales, which are extremely valuable in the development of land information systems and land use planning issues such as zoning, transportation, and agriculture [8].

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CONTAMINATION OF CHINA'S SOIL COVER

N.M. Kolokolova, A.A. Savenkova
kolokolovan@rambler.ru, savenkova1999an@gmail.com
Astrakhan State University

Abstract: *This article examines the contamination of the soil cover in China. The focus is on the types of soil pollution in China. The concentration of heavy metals in the soils of China is presented in the tables. Information on the pollution of millions of hectares of agricultural land and urban soils is being investigated. The article summarizes the proposed solutions to highly polluted areas of soil cover, and methods that exist at the moment*

Keywords: *pollution, soil cover, China, concentration, heavy metals, hectare, district*

ЗАГРЯЗНЕНИЕ ПОЧВЕННОГО ПОКРОВА КИТАЯ

Н.М. Колоколова, А.А. Савенкова
kolokolovan@rambler.ru, savenkova1999an@gmail.com
Астраханский государственный университет

Аннотация: *В статье изучается загрязнённость почвенного покрова Китая. Концентрация тяжёлых металлов в почвах Китая представлена в таблицах. Исследуется информация о загрязнении миллионов гектаров сельскохозяйственных угодий и городских почв. В статье резюмируются предлагаемые пути решения сильно загрязнённых районов почвенного покрова и методы, существующие на данный момент.*

Ключевые слова: *загрязнение, почвенный покров, Китай, концентрация, тяжёлые металлы, гектар, район*

Soil is the subsystem for biogeochemical cycles such as nutrient recycling, energy exchange, moderation of greenhouse gas fluxes and recycling of carbon. Soil management is key to maintaining high quality food and fiber production for the world's growing population. However, as agricultural inputs, urbanization and economic development continue, heavy metals are being deposited into soil. The concentration of heavy metals in the soil, due to agricultural input, fast urbanization and industrialization is a problem affecting a large area of China. As heavy metals are not degraded through chemical and physical weathering, their concentrations are increased through time, altering soil properties and minimizing the availability of nutrients for biological activities [1]. Following recognition of soil pollution as a serious problem in China, nationwide surveys of soil were conducted between 2005 and 2013. These surveys covered more than 70 % of China's land area. The survey reported that 16 % of soil samples

and 19 % of agricultural soil was contaminated with heavy metals. Of the soils considered to be polluted, 82.4 % of contamination was due to metals and metalloids and the rest (17.6 %) was due to organic contaminants. Over 6 million hectares of farmland was polluted with industrial and urban wastes in the early 1990s, and soil affected by acid rain expanded from 1.5 to 2.5 million ha from 1985 to 1994. A relatively recent analysis also reported that about 10 million hectares of arable land in China was polluted by heavy metals [2]. Scientists pay special attention to the concentration of heavy metals on agricultural land. Heavy metals concentrations have been rapidly increasing in China. The concentrations of heavy metals were below background values in only a few instances, and all mean concentration values were higher than their reference values (Table).

Table

Concentration of Soil Heavy Metals in Agricultural and Urban Soils across Sample Sites (mg.kg)

	Place	As	Pb	Cd	Zn	Cr	Ni	Cu	Hg	Reference
In agricultural soil	Beijing	-	18.48	0.18	81.10	75.74	-	28.05	-	16
	Guangzhou	10.9	58.00	0.28	162.60	64.65	-	24.00	0.73	17
	Yangzhou	10.2	35.70	0.30	98.10	77.20	38.50	33.90	0.20	18
	Wuxi	14.3	46.7	0.14	112.9	58.6	-	40.4	0.16	19
	Gansu	11.2	21.44	-	-	38.82	-	27.20	0.15	22
	Chengdu	11.3	77.27	0.36	227.00	59.50	-	42.52	0.31	21
	Taihang	6.16	18.80	0.15	69.96	57.77	25.04	21.22	0.08	22
	Zhengzhou	6.69	17.11	0.12	-	60.67	-	-	0.08	23
	Kunshan	-	30.48	0.20	105.93	87.73	31.08	34.27	0.20	24
	Xuzhou		56.20	2.57	149.68	-	-	35.28	-	25
	Jinghe	14.9	22.44	0.14	-	44.21	-	-	-	26
	Hainan	8.06	48.01	0.28	52.17	22.67	15.51	30.25	-	27
Mean		**10.4**	**37.55**	**0.43**	**117.72**	**58.87**	**27.53**	**31.71**	**0.24**	
SD		**3.05**	**19.57**	**0.71**	**54.13**	**18.49**	**9.72**	**6.85**	**0.21**	
Skewness		**0.05**	**0.72**	**3.24**	**0.99**	**-0.45**	**-0.28**	**0.1**	**2.2**	
Kurtosis		**-0.9**	**-0.43**	**10.64**	**0.84**	**0.25**	**-0.24**	**-0.78**	**5.27**	
In urban soil	Beijing	-	28.60	0.15	65.60	35.60	27.80	23.70	-	28
	Guangzhou	-	108.6	0.50	169.24	-	25.67	62.57	-	29
	Shanghai	-	70.69	0.52	301.40	107.90	31.14	59.25	-	30
	Qingdao	-	62	0.3	201	54	17.3	55.0	-	31
	Jinchang	-	40.3	-	118.0	194.7	910.3	1226.3	1.11	32
	Hangzhou	-	75.7	1.30	148	47.5	24.1	41.0	-	33
	Changsha	-	89.40	6.90	276.00	121.00	-	51.40	-	34
	Hongkong	-	94.60	0.62	125.00	23.10	12.40	23.30	-	35
	Luoyang	-	65.92	1.71	215.75	71.42	-	85.40	-	36
	Nanjing	-	107.3	-	162.60	84.70	-	66.10	-	37
	Changchun	-	54.81	2.92	109.69	-	73.50	41.85	-	38
	Taicang	-	17.98	0.11	92.01	63.61	29.95	32.37	-	39
	Fuyang	-	40.59	0.37	159.85	-	21.92	40.77	-	40
	Shenyang	-	470.2	8.59	599.92	-	-	209.06	-	41
	Xuzhou	-	43.3	0.54	144.1	78.4	34.3	38.2	-	42
	Fuzhou	-	44.85	0.74	101.19	26.13	12.25	23.54	-	43
Mean		**-**	**88.43**	**1.81**	**186.83**	**75.67**	**101.7**	**129.9**	**-**	
SD		**-**	**105.3**	**2.64**	**127.34**	**48.24**	**255.1**	**295.7**	**-**	
Skewness		**-**	**3.56**	**2.04**	**2.52**	**1.41**	**3.44**	**3.86**	**-**	
Kurtosis		**-**	**13.5**	**3.24**	**7.58**	**2.46**	**11.8**	**15.1**	**-**	
Background value in all soil, China		**9.6**	**23.5**	**0.079**	**68**	**57.3**	**26.9**	**20.7**	**0.038**	58

The greatest variation was observed for zinc (Zn). Non-ferrous metal mining and smelting activities are a major source of Zn and show a high pollution rate (49.04%) in China. Uneven distribution of mining sites and high Zn production may be responsible for this high spatial variation and elevation over background levels. These results and the variability of other metals are indicators of human influence. High variability indicates greater anthropogenic effects which alter the concentration of heavy metals. Mercury (Hg) showed the least variability with a SD = 0.21, which is very close to the mean (0.24). In addition, cadmium (Cd) showed the highest asymmetric distribution across sites (skewness = 3.24 and kurtosis=10.64). In response to the decline of farmland and the growing demand for food in China, agricultural intensification with modern inputs has increased. Irrigation, and use of chemical fertilizers and insecticides have accelerated the metals concentration of agricultural soils in China. Chemical fertilizers and insecticides contribute to the high pollution rate for Cd (7.24 %) and nickel (Ni) (3.04 %), as well as 2 % pollution of soil samples by copper (Cu) and Hg. Furthermore, waste discharged from 1.6 million enterprises in townships and others that have recently migrated to rural areas for cheaper land and low labor costs are other major sources of soil contamination. According to a report of the Environmental Monitoring Department in 2009, these enterprises discharged 5.9 billion tons of waste water and 13.2 million tons of particulate emissions in rural areas of China [3].

In urban areas, the concentration of heavy metals tends to exceed the MPC standards based on the results of a recent study. As seen in Table 1, the concentration levels of heavy metals in urban soil were generally higher than in agricultural soil. This is a clear manifestation of the degree to which anthropogenic factors are contributing to spatial variability of heavy metal concentrations. With the exception of Cr and Ni in some urban areas and Pb in Taicang, the concentrations of all other heavy metals were higher than their background values. The ratio of heavy metals concentrations to background values, known as the pollution index, also differed notably across locations. For instance, Pb (mean 108.6 : background value 23.5) in Guangzhou, Cd (6.90 : 0.079) in Changsha, Zn (599.92 : 68) in Shenyang, as well as Cr (194.7 : 57.3), Ni (910.3 : 101.7) and Cu (1226.3 : 209.1) in Jinchang showed the highest pollution indices, indicating high additions to soil. The higher SDs of some metals reflect differences in the concentrations of heavy metals among study sites.55 Additionally, CU experienced the highest asymmetric distribution with a greater degree of peakedness (kkewness=3.86 and kurtosis=15.1). Generally, heavy metals are natural elements of soil and their natural concentrations are low.56 However, enhanced concentrations are very harmful and a direct response to urbanization and industrialization.5 Unless serious measures are taken, the problem will continue, as urbanization has been rapid in China, increasing from 18 % in 1978 to 46.6 % in 2009 and is predicted to reach 65 % by 2030 [4].

In connection with this situation, methods have been developed to combat pollution of China's soil cover. Locating and controlling large pollution emission sources such as mining, smelting and other metal consuming industries is the first step to combatting soil pollution with heavy metals. This requires more rigorous monitoring and enforcement of environmental protection laws.10 In 2011, China's first heavy metal pollution control plan for a particular area, Xiangjiang river basin, was officially approved by the State Council.54 In the same year, the "12th National 5-Year Plan for Comprehensive Prevention and Control of Heavy Metal Pollution" was approved.83 The main goals of this plan are to establish a complete heavy metal pollution control and risk assessment system for the environment and health, effective control of pollution by reducing discharges of major heavy metals (Hg, Cr, As, Cd, and Pb) in key regions (eastern and central China) by 15 % between 2011 and 2015, taking 2007 as reference, ensuring that discharges of major heavy metals in non-key regions do not exceed 2007 levels, and significantly reducing pollution incidents. An important focus of risk management for polluted soil is the phytoavailability of heavy metals.The acidic content of soil can be modified to reach the target soil pH (around 6.5) by various materials, but these efforts differ in their capacity for soil acid neutralization, reaction rate and cost. The uptake and distribution of heavy metals varies across and within crop species [5]. Identifying cultivars' genetic variation in heavy metal accumulation is essential for replacing high-accumulating with low-accumulating cultivarsPaddy water and fertilizer management. One of the major sources of dietary As and Cd is paddy rice, and severity varies across different water management practices. Field experiments in seven major rice cultivars by Hu et al. indicated a significant increase of soil acid (hydrochloric acid) and extractable As concentrations, and a decrease in extractable Cd.91 In addition, soil redox status heavily affects the bio-availability of some elements (Cr, Fe, As) and is directly influenced by the amount of soil moisture. This highlights the importance of water management in minimizing heavy metal contamination [6].

If soil is heavily polluted, growing non-food crops and plants such as cotton, flax, broomcorn, grass, flowers and ornamental plants are the best remediation options. For instance, covering the heavily degraded alpine meadow in Qinghai-Tibetan with Elymus nutans significantly improved total concentrations of phosphorus, neutral phosphatase, urease, and catalase as well as upgraded microbial biomass carbon, nitrogen and phosphorus in soil. These non-food plants have economic value in addition to improving soil quality. Broom corn biomass could be used to make fiber and biogas, trees can be used for building materials, area greening, and seeds of castor oil plants can be used to make soap. Selected use of metal-accumulating plants for soil cleaning is an emerging technology which is low-cost and environmentally friendly. There are four main functions of this technology: phytoextraction, the use of metal accumulating plants to remove toxic metals from soil; phytovolatilization, evaporation of certain metals from aerial parts of the plant; phytostabilitzation, the use of plants to eliminate

the bioavailability of toxic metals in soils; and rhizofiltration, the use of plant roots to remove toxic metals from polluted waters. For example, phytoextraction using non-irrigated rice cultivars grown for 2 years eliminated 883 g Cd ha−1, decreased the total soil Cd content by 38%, and minimized the grain Cd content by 47% in subsequently grown Japonica food rice. Selection of crop varieties with low heavy metal absorbability is very important for lowering heavy metals concentrations in the edible parts of plants to levels lower than food safety standards [7].

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CARTOGRAPHY AND ITS ERROR FOR EARLY AND MODERN STAGES OF DEVELOPMENT

N.M. Kolokolova, R.M. Sambaev, O.D. Sambaeva
kolokolovan@rambler.ru
Astrakhan State University

Abstract: *Since the formation of cartography and its development, it was permissible to have errors in it, as in any other science. The development of cartography takes place in modern times, refuting the old and finding new methods of study. This article is devoted to the study of errors made by cartographers of antiquity and modernity.*

Keywords: *cartography, cartographic errors, map, modernity*

КАРТОГРАФИЯ И ЕЁ ПОГРЕШНОСТИ НА РАННЕМ И СОВРЕМЕННОМ ЭТАПАХ РАЗВИТИЯ

Н.М. Колоколова, Р.М. Самбаев, О.Д. Самбаева
kolokolovan@rambler.ru
Астраханский государственный университет

Аннотация: *Со дня становления картографии и её развития допустимо было присутствие в ней погрешностей, как и в любой другой науке. Развитие картографии происходит и в современности, опровергая старые и находя новые методы изучения. Данная статья посвящена исследованию ошибок, допускаемых картографами древности и современности.*

Ключевые слова: *картография, картографические ошибки, карта, современность*

Cartography is the study and practice of making maps. Combining science, aesthetics, and technique, cartography builds on the premise that reality can be modeled in ways that communicate spatial information effectively.

Set the map's agenda and select traits of the object to be mapped. This is the concern of map editing. Traits may be physical, such as roads or land masses, or may be abstract, such as toponyms or political boundaries [1].

Cartography is allied with geography in its concern with the broader aspects of the Earth and its life. In early times cartographic efforts were more artistic than scientific and factual. As man explored and recorded his environment, the quality of his maps and charts improved [2].

The Greenwich Meridian became an international reference point in 1884.

In 1900-ies of the maps have become more detailed with improvements in printing and photography that made production cheaper and easier cards. In addition, remote sensing methods, first aerial photography, and with the launch of the first satellites – space survey, which allowed to obtain detailed maps of the entire surface of the earth, began to actively develop. Currently, digital maps occupy a much larger volume of cartographic than printed ones [6].

One problem in creating maps is the simple reality that the surface of the Earth, a curved surface in three-dimensional space, must be represented in two dimensions as a flat surface. This necessarily entails some degree of distortion, which can be dealt with by utilizing projections that minimize distortion in certain areas. Furthermore, the Earth is not a regular sphere, but its shape is instead known as a geoid, which is a highly irregular but exactly knowable and calculable shape.

Maps of all scales have traditionally been drawn and made by hand, but the use of computers has revolutionized cartography. Most commercial-quality maps are now made with software that falls into one of three main types: CAD, GIS, and specialized illustration software. Functioning as tools, maps communicate spatial information by making it visible. Spatial information is acquired

from measurement of space and can be stored in a database, from which it can be extracted for a variety of purposes. Current trends in this field are moving away from analog methods of mapmaking and toward the creation of increasingly dynamic, interactive maps that can be manipulated digitally.

Cartographic representation involves the use of symbols and lines to illustrate geographic phenomena. This can aid in visualizing space in an abstract and portable format. The cartographic process rests on the premise that the world is measurable and that we can make reliable representations or models of that reality [3].

Some of the earliest known maps date back to 16,500 B.C.E. and show the night sky instead of the Earth. In addition, ancient cave paintings and rock carvings depict landscape features like hills and mountains and archaeologists believe that these paintings were used to navigate the areas they showed and to portray the areas that the people visited.

Maps were also created in ancient Babylonia (mostly on clay tablets) and it is believed that they were drawn with very accurate surveying techniques. These maps showed topographical features like hills and valleys but also had labeled features. The Babylonian World Map is considered the earliest map of the world but it is unique because it is a symbolic representation of the Earth. It dates back to 600 B.C.E.

The earliest paper maps that were identified by cartographers as maps used for navigation and to depict certain areas of the Earth were those created by the early Greeks. Anaximander was the first of the ancient Greeks to draw a map of the known world and as such he is considered to be one of the first cartographers. Hecataeus, Herodotus, Eratosthenes, and Ptolemy were other well-known Greek map makers. The maps they drew came from explorer observations and mathematical calculations.

The Greek maps are important to cartography because they often showed Greece as being at the center of the world and surrounded by an ocean. Other early Greek maps show the world being divided into two continents – Asia and Europe. These ideas came largely out works as well as other early Greek literature [4].

The problem of cartographic materials is manifested in the fact that the map as a channel of information transmission has certain restrictions, in particular on the amount of information transmitted. When drawing up a map of all the elements of its content, the relief is usually given the lowest priority. Therefore, with a very high density of the elements of the situation, the horizontal or the signature of the heights of the earth's surface are not mapped to avoid congestion of the map. As a result, often in some parts of the plan of built-up areas the relief is presented with insufficient detail. When you create a digital elevation model programmatically, the ground surface in such areas is smoothed so that elevation errors from the model can far exceed the tolerances set for the original map.

A number of problems of digital mapping are related to the technologies, technical means, software and information support. As for technical means, today these problems are solved.

Currently, the effectiveness of digital map technologies is almost entirely determined by the quality of the software. To be more specific about software, it must be divided into two categories: imported and domestic. Foreign software is significantly more expensive than domestic; often the cost of software for one workplace exceeds the cost of equipment. In addition, localized versions of the software are either missing or appear late [5].

In the field of cartography, technology is constantly being improved to meet the needs of new generations of cartographers and to correct errors.

Advances in photochemical technology, such as lithographic and photochemical processes, made it possible to create non-distorting shape maps that contained small parts and were resistant to moisture and wear. This also eliminates the need for engraving, which further reduces the time required to play the card.

In the middle and end of the twentieth century, advances in electronic technology led to a new revolution in cartography. Especially such devices as plotters, printers, scanners, analytical stereo plotters, which along with visualization, image processing, spatial analysis and database management, made the production of printed maps easier, in particular, allowed to produce maps with different characteristics, without the need for engraving a new printed plate [6].

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PETROLEUM POLLUTION OF CASPIAN SEA

N.M. Kolokolova, A.V. Tolochkina
kolokolovan@rambler.ru, a.tolochkinaaktau@gmail.com
Astrakhan State University

Abstract*: This article examines the oil pollution of the Caspian Sea. Oil development, which left extensive traces of past pollution, the active development of the oil field and, in general, intense anthropogenic pressures that have a detrimental effect on the natural ecosystems of the Caspian Sea, are considered. We study the natural formation of oil stains, as well as emissions of mud volcanoes. In 1846, the world's first oil well near Baku was drilled in Bibi-Eybat. After this, the active development of the oil field began. Despite the economic benefits, there are some problems that are also described in this article.*

Keywords: *Caspian Sea, oil, oil pollution, oil impact, oil spill*

НЕФТЯНОЕ ЗАГРЯЗНЕНИЕ КАСПИЙСКОГО МОРЯ

Н.М. Колоколова, А.В. Толочкина
kolokolovan@rambler.ru, a.tolochkinaaktau@gmail.com
Астраханский государственный университет

Аннотация: *В статье изучается нефтяное загрязнение Каспийского моря. Рассматриваются нефтеразработки, которые оставили обширные следы прошлых загрязнений, активное развитие нефтяного промысла и в целом интенсивные антропогенные нагрузки, оказывающие вредное воздействие на природные экосистемы Каспийского моря. Авторы ознакомились с естественным образованием нефтяных пятен, а также выбросами грязевых вулканов. В 1846 году в Биби-Эйбате была пробурена первая в мире нефтяная скважина под Баку. После этого началось активное развитие нефтяного промысла. Несмотря на экономические выгоды, есть некоторые проблемы, которые также описываются в статье.*

Ключевые слова: *Каспийское море, нефть, нефтяное загрязнение, нефтяное воздействие, нефтяной разлив*

The Caspian Sea is the largest closed reservoir on Earth, which can be classified as the largest drainless lake, or as a full-fledged sea, due to its size, and also due to the fact that its bed is composed of oceanic crust. The Caspian Sea located at the junction of Europe and Asia. It washes five countries: Azerbaijan, Iran, Kazakhstan, Russian Federation and Turkmenistan [1].

Humanity learned about the existence of oil for a long time. The first documented evidence of oil extraction dates back to the 7th and 8th centuries, when

oil was drawn naturally or through primitive extraction methods in the western shores of the Caspian Sea in what is now the capital of Azerbaijan, Baku. The Arabian traveler Marudee reported in the 10th century that both black and white oil were being extracted in the Baku region. In his exploits of central Asia, Marco Polo later wrote of oil's medicinal and religious uses by the people of Baku. Oil was exported out of Baku into the Middle East as early as the 14th century. However, large-scale commercialization of oil did not occur until the mid-19th century, when the world's first oil well was drilled near Baku in 1846 at Bibi-Aybat [1]. Despite the economic benefits, there are some problems.

The Caspian Sea is non-tidal and confined, the sea's ability to absorb pollution is less than that of an open ocean. Additionally, oil spills can remain localized, becoming a greater threat to marine life than if they were broken up and dispersed by a rough sea. These make certain aspects of offshore drilling in the Caspian unique. Oil companies need to be careful about using data from the North Sea or other less confined seas in environmental impact assessments. Environmental groups call for a lower level of pollution than in other offshore drilling areas in order to protect the sea's fish and marine life from what they believe will be higher concentrations of pollutants [1].

The technogenic impact on the environment is manifested in all stages of operation of oil and gas complex and the main pollutants are the petroleum hydrocarbons, chemicals, acid-forming substances, phenols [3]. Of all pollutants released into the Caspian Sea, the main part falls on the oil, oil products, phenols. Petroleum products trapped in the aquatic environment, are exposed to numerous processes and as a result the polluted water bodies is undergoing significant changes. Oil pollution affects negatively to the quality of water and hydrobiont habitat conditions [4].

Zooplankton of water ecosystems is among the most rich nutrient food for juvenile fish. The productivity of the fish depends on the abundance and biomass of zooplankton. Planktonic organisms serve the bioindicators of regime of the waterbodies and pollution [5]. Zooplankton communities of the Caspian Sea are determined by the ratio of the three main groups: rotifers, copepods and Cladoceras [6]. Studying the impact of oil pollution on water ecosystems is relevant in connection with the development of oil producing complex [7].

Investigations into the pollution of the Caspian Sea, mainly of the petroleumhydrocarbons and their influence on the sea and coastal communities, began in the middle of the last century. But the systematic observations of dynamics of pollutants both in coastal areas of the sea, mostly subjected to anthropogenic influence, and in the open sea began only at the end of the 1970safter organization of a marine environment monitoring system, conducted by Hydrometeoservice of the Soviet Union [1].

In the period from 1978 to 1992 control of the water pollution of the North Caspian was conducted in the framework of the Soviet Union national program of seawater monitoring at the stations of five standard cross-sections.

Besides temperature, salinity, and the concentration of dissolved oxygen and nutrients, determination of concentrations of ammonium, petroleum hydrocarbons, phenols, detergents, chlorinated pesticides (since 1985), and also heavy metals – mercury (since 1986), zinc and copper (since 1989) and lead (since 1990) was included. On the whole 3174 stations were employed [8].

Oil pollution sources in the Seawater are mainly due to the following:

a) Daily extraction and transportation of oil in the Sea.

b) Oil tankers accidents.

c) Oils spillage from the oil tankers [9, 10].

The Caspian Sea belongs to the world largest oil-bearing regions. Total oil reserves of the Caspian Sea region are estimated at above 250 billion barrels [11], which puts it in the second place after the Middle East. The main sources of the Caspian Sea surface pollution are considered to be offshore oil production as well as natural oil seepages at the sea bottom. According to some estimates [12], about one million tons of oil leaks annually into the Caspian Sea [13].

According to a study by scientists, the sea surface pollution in the vicinity of Oil Rocks is caused not only by «dirty» oil production techniques (oil production and oil-well drilling, underwater oil-rig repair, pipeline breaks). Even before drilling started at Oil Rocks in 1949, the sea surface in this region was famous for its natural oil slicks. It is now believed that the oil pollution around this oil-drilling platform is caused not solely by man-made discharges and leaks, but is rather a result of natural seeping activity at the sea bottom. The amount of oil ingress to the sea in this region can vary between 100 and 500 tons per day. Oil patch size, its spreading and evolution depend on meteorological conditions. The region of Oil Rocks can be used as a natural laboratory for studying the effect of wind/wave conditions on oil patches as well as on formation of oil slick signatures in SAR images. The system of surface currents in the area around Oil Rocks is rather complicated and unstable. The highest current velocities in the Caspian Sea are observed in this area [13, 14].

Mud volcanoes and seepages at the Caspian Sea bottom have been known about for a long time. The largest number of mud volcanoes (more than 300) and the biggest ones are concentrated at the north-western edge of the South-Caspian Depression [15]. The majority of South-Caspian Depression mud volcanoes are in the seepage stage of their lifecycle and discharge mud, water, gas and oil. Intensification of activity of the underwater volcanoes and seepages results in contamination of the sea surface by oil and mud patches. Sometimes, mud volcanoes manifestations may serve as an indicator of oil and gas reserves, so these phenomena attract much attention of researchers [16, 17].

Overall, intensive anthropogenic pressures, such as industrial and municipal wastewater discharges and developments of large-scale hydro schemes have detrimental impacts on natural ecosystems of the Caspian Sea. A sharp decrease in the diversity of the benthic fauna of the Caspian Sea has been reported. In the northern part the diversity has decreased from 78 to 46 species, and in the south-

ern and central part the number of species has decreased by one third. In Baku Bay and off Sumgayit crustaceans and some species of mollusks have drastically declined. Bulk stocks of commercial fish species have significantly reduced in last decades. The sturgeon population has suffered especially. Twenty years ago, about 20 -25,000 tons of sturgeons were harvested in the Caspian Sea annually. Over the last 20 years, the total catch has decreased by 90 %.

An accident or oil spill in the Caspian would severely harm an economic resource of the coastal communities and as an inland sea, the Caspian is more vulnerable to oil spills and pollution. There are also many dangers of the Caspian such as its seismicity and extreme variations in water levels that make the chances of accidents more likely. Therefore, command and control techniques, in the guise of technology specifications, are a valid tool in setting environmental policy. An important aspect of these specifications however, is to provide incentives for firms to develop better technologies. This can be done by setting pollution thresholds and allowing firms to devise their own methods for controlling pollution. At present their quantity has been reduced somewhat with the operation of the Great Baku sewer system and amounts to about 800 million m. The bottom sediments impregnated with petroleum hydrocarbons in Baku Bay amounts to 10 - 12 m. They contain hydrocarbons, phenols, heavy metals, acids, alkalis, and other highly toxic and poisonous substances. According to preliminary calculations, about 200 million tons of toxic substances, the concentrations of which exceed the maximum allowable by hundreds of times, have accumulated in the beds. This is particularly true of the Caspian Sea region is a special case of closely integrated natural, political, environmental, social, and economic issues. It is in the interests of all branches of the economy to learn how to move on along the road of sustainable development, given the very large variations in the Sea level. This will be impossible, however, without effective international cooperation. Broadly speaking, effective management of the Caspian Sea and its resources cannot be achieved without concerted action by all five riparian countries. Only a holistic approach at the international level can make economic development of the region truly sustainable. It also, requires good scientific information and vigilant monitoring of conditions so that if the management strategies are not working they can be adjusted. It is apparent therefore, that future resource and environmental management cannot be accomplished effectively without an integrated and intelligent national effort [1, 13].

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THE IMPACT OF ATOMIC BOMBINGS ON THE WILDLIFE OF HIROSHIMA AND NAGASAKI

N.M. Kolokolova, T.V. Terekhova, V.A. Kolesnikova
kolokolovan@rambler.ru, ksenya.mokh.98@mail.ru,
Tanya-eklerovaya@yandex.ru
Astrakhan State University

Abstract*: This article explores considered the harmful effects of radiation in the atomic bombing of Hiroshima and Nagasaki. And also what influence was exerted not only on the atmosphere and terrain, but also on the population and fauna. The article background survey with a detailed cycle of events, as well as statistic on the number of victims affected by the atomic bombing. The result of this study is the forecast of the expected risks of such a situation.*
Keywords: *Atomic bombing, radiation, Hiroshima, Nagasaki, wildlife*

ВЛИЯНИЕ АТОМНОЙ БОМБАРДИРОВКИ НА ЖИВОТНЫЙ МИР ХИРОСИМЫ И НАГАСАКИ

Н.М. Колоколова, Т.В. Терехова, В.А. Колесникова
kolokolovan@rambler.ru, ksenya.mokh.98@mail.ru,
Tanya-eklerovaya@yandex.ru
Астраханский государственный университет

Аннотация: *В данной статье рассматривается пагубное воздействие радиации при атомной бомбардировке Хиросимы и Нагасаки на атмосферу, рельеф, население и животный мир. В статье приведена историческая справка с подробным циклом произошедших событий, а также статистика по количеству жертв, пострадавших от атомной бомбардировки. Результатом данного исследования является прогноз ожидаемых рисков подобной ситуации.*
Ключевые слова: *атомная бомбардировка, радиация, Хиросима, Нагасаки, животный мир*

Hiroshima and Nagasaki in Japan are the only cities in the world that have experienced an atomic bomb attack. The bombings of Hiroshima and Nagasaki are the only cases of nuclear weapons use in war. During the final stage of World War II, the United States detonated two nuclear weapons over the Japanese cities of Hiroshima and Nagasaki on August 6 and 9, 1945, respectively. The United States dropped the bombs after obtaining the consent of the United

Kingdom, as required by the Quebec Agreement. The two bombings killed 129 000 – 226 000 people [1].

The bombs were used to end the Pacific war.

Hiroshima was to all intents destroyed in an instant by a combination of heat, blast and the subsequent fires. Of its 343 000 population, about 78 000 were killed and a further 51 000 injured or missing. About 48 000 of 76 000 buildings in Hiroshima were destroyed and 22 000 severely damaged. Nearly 180 000 people were made homeless.

So severe was the devastation, and so thorough the infrastructure destruction, that it was at least a day before the Government in Tokyo got any clear idea of what had happened in Hiroshima. In the interval, Japan was further shattered by the Soviet declaration of war. 9 august is shortly thereafter it had to assimilate as well the news that a fate like Hiroshima's had also befallen Nagasaki.

The bombs were used to terminate the Pacific War. Nagasaki was attacked with a plutonium bomb called «Fat Man». Due to a navigational error, this weapon was dropped off-target and part of the city, shielded by hills, was spared the worst effects. Nevertheless, 35 000 people were killed and a large part of the city destroyed [2].

Unlike chemical explosives, a thermonuclear weapon has three important effects - blast, thermal and nuclear radiation. These occur almost simultaneously, but, for simplicity's sake, are usually described separately.

Out of the bright fireball, in which the temperature and pressure are the same as those at the center of the sun, a blast front or concussion wave moves out in a widening circle at supersonic speed, followed by high winds.

Mortality within the first two mile radius is essentially one hundred per cent and almost entirely instantaneous. Even out to four miles, it is fifty per cent, another forty per cent being injured seriously. At eight miles, half the population would be dead or injured and at twelve miles, a quarter would be injured, some seriously, by flying glass and debris. People can withstand concussion much better than rigid buildings, but in a city this fact has little relevance [3].

Hiroshima. Those closest to the epicenter of the explosion died instantly, their bodies turned to coal. Birds flying by burned in the air, and dry combustible materials (such as paper) ignited at a distance of up to 2 km from the epicenter. The light burned a dark pattern of clothing into the skin and left silhouettes of human bodies on the walls. Outside the houses, people described a blinding flash of light, which simultaneously came a wave of suffocating heat. The blast wave for everyone near the epicenter followed almost immediately, often knocking them down. The buildings generally avoided exposure to light from the blast, but not to the blast — shards of glass hit most of the rooms, and all of the buildings, except the strongest, collapsed. One teenager was thrown from his house across the street by the blast, while the house collapsed behind him. Within a few minutes, 90 % of people who were at a distance of 800 meters or less from the epicenter died.

The number of deaths from the direct impact of the explosion ranged from 70 to 80 thousand people. By the end of 1945, in connection with the action of radioactive contamination and other delayed effects of the explosion, the total number of deaths ranged from 90 to 166 thousand people. After 5 years, the total number of deaths, taking into account deaths from cancer and other long-term effects of the explosion, could reach or even exceed 200 thousand people [4].

The concept of «radioactive contamination» in those years did not exist, and therefore this issue was not even raised. People continued to live and rebuild the destroyed buildings in the same place where they were before. Even the high mortality rate in subsequent years, as well as diseases and genetic abnormalities in children born after the bombing, were not initially associated with radiation exposure. Evacuation of the population from the infected areas was not carried out, as at that time no one knew about the presence of radioactive contamination.

Nagasaki. The atomic explosion over Nagasaki affected an area of approximately 110 km2, of which 22 km2 is water surface and 84 km2 was only partially populated. According to the report of Nagasaki Prefecture, "people and animals died almost instantly" at a distance of 1 km from the epicenter. Almost all homes within a two-kilometer radius were destroyed, and dry, flammable materials such as paper were ignited up to three kilometers from the epicenter. Of the 52,000 buildings in Nagasaki, 14,000 were destroyed and 5,400 were severely damaged. Only 12 % of the buildings remained intact. Although the city did not have a fire tornado, there were numerous local fires.

The number of deaths by the end of 1945 ranged from 60 to 80 thousand people. After five years, the total number of deaths, taking into account deaths from cancer and other long-term effects of the explosion, could reach or even exceed 140 thousand people [5].

«Hibakusha», so the Japanese called the survivors. There were about 360,000 of them, but most of them are disfigured, with cancer and genetic deterioration. These people were also victims of their own countrymen, who believed that radiation was contagious and avoided them at all costs. Many secretly concealed these consequences even years later. Whereas, if the company where they worked, they learned that they were of hibakusha, they were fired. There were traces of clothing on the skin, even the colors and fabrics people wore during the explosion. The Japanese government supports the victims of the atomic bombing by providing them with a monthly allowance and medical assistance [6].

Likewise, the explosions of the atomic bomb also led to environmental contamination. The contamination of water is one of the most severe. When living organisms happen to drink the water that is exposed to radiation, be it humans or animals, they are very likely to suffer from serious health problems. Worse still, when rivers in the cities were contaminated, the current brought the radioactive water to other parts of Japan and eventually into the ocean, spreading the radiation beyond Japan itself. This implies that even people who don’t stay in or near Hiroshima and Nagasaki will still be affected by the radiation.

The contamination of soil and air is just equally horrible. When the bombs in Hiroshima and Nagasaki exploded in the middle of the air, high degree of radiation was emitted and carried by wind to areas beyond the cities. It then dispersed gradually and led to radioactive air contamination. Similarly, plants and agriculture products further away from the center of explosions were also contaminated along with the soil. The radioactive soil became extremely infertile while the agricultural products that didn't get burned up could no longer be consumed due to the radiation they contain. The contamination gave Japan a hard time recuperating and it took months before the Japanese citizens could put foot in either of these cities again.

In addition, the atomic bombing in Hiroshima and Nagasaki also brought about thermal radiation that burned the surrounding with extreme heat. The explosions generated powerful shockwaves together with enormous fireballs that killed thousands of people within seconds. This ultimately gave rise to a large firestorm as the individual flames combined, and before long, both cities were covered in thick black smoke. Through the process of combustion, the firestorms used up substantial amount of oxygen in the atmosphere to produce flame. The smoke released into the atmosphere by the wild fires also produced soot that causes the global temperature to fall. In a recent study, scientists have found out that, a nuclear war that involves 100 Hiroshima-sized bombs would cause the global temperature to fall to Ice Age levels. This would have an overwhelming impact on all of humanity [7].

The bomb exploded almost 600 meters above the center of Hiroshima, 70,000 people instantly died from 6,000 degrees Celsius, the rest died from the shock wave that left the building standing and destroyed trees within a radius of 120 km.

Accurate statistical data on the number of individuals and composition of habitats in Hiroshima and Nagasaki could not be found. Since in wartime great importance was attached to the calculation of human casualties, and animals were treated less humanely than now. Atomic bombings had a similar effect on both humans and animals – the farther away from the epicenter of the bombing, the higher the chance to survive. The survivors received a massive dose of radiation, in consequence of which remained with genetic and cancer for the rest of your life, as well as animals, but the chance of survival of the latter was negligibly low [8].

Nagasaki was rebuilt after the war, but it was not a smooth process. There were 22 designated relief stations, and 327 persons were organized to service these stations after the bombing. However, most facilities including Nagasaki Medical University were demolished and burned. Workers were either killed or severely injured by the bombing. The number of casualties was so great that they flooded all relief stations. Although there was a lack of medical supplies, the relief work was carried on by the surviving medical staffs as well as the help of medical relief teams from surrounding areas of Nagasaki [9].

In early 1949, Hiroshima officials went to Tokyo for the May 10 National Diet meeting in order to propose the Hiroshima Peace Commemoration City Construction Law to ensure its exclusivity in culture and city reconstruction - leaving out Nagasaki that had also gone through the atomic bombing disaster. Learning about this situation, Nagasaki officials rushed to Tokyo for the National Diet meeting to establish their own reconstruction law.

The passage of the construction law promoted the rebuilding of Nagasaki while providing greater funds for its reconstruction. More importantly, the way people perceived Nagasaki helped its development as a site of atomic-bombing tourism. Nagasaki also built a memorial museum called Nagasaki International Cultural Hall in 1955 under the guidance of the reconstruction law, which then became a very popular tourist site to help boost the economy of Nagasaki. It was replaced by the Nagasaki Atomic Bomb Museum in 1996. By 1969, the average annual number tourists to Nagasaki reached 2 500 000. The blooming economy helped the city population rise to 241 818 by 1950, which was close to the population of 270 000 before the atomic bombing. In 1949, when national politicians, recognizing Hiroshima's special status, passed the Peace Memorial City Construction Law, Article 1 of which states: «Hiroshima is to be a peace memorial city symbolizing the human idea of the sincere pursuit of genuine and lasting peace». Kenji Shiga, director of the Hiroshima Peace Memorial Museum, said some officials favoured removing every last physical remnant of the tragedy, while others insisted on preserving evidence of the atomic bomb's destructive power [10].

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DESERTIFICATION AS THE GLOBAL ENVIRONMENTAL PROBLEM

N.M. Kolokolova, R.D. Tlekova
kolokolovan@rambler.ru, tlekovarenata@gmail.com
Astrakhan State University

Abstract*: This article explores one of the types of soil degradation that is the process of desertification. The history of the problem of desertification is being studied. The factors affecting the development of the process are considered. Various strategies to combat desertification are given. The result of the study of recent data is the conclusion of the necessity to unite the world community in solving the problems of desertification.*

Keywords: *desertification, environmental problem, soil degradation, anthropogenic impact, erosion*

ОПУСТЫНИВАНИЕ КАК МИРОВАЯ ЭКОЛОГИЧЕСКАЯ ПРОБЛЕМА

Н.М. Колоколова, Р.Д. Тлекова
kolokolovan@rambler.ru, tlekovarenata@gmail.com
Астраханский государственный университет

Аннотация: *В статье исследуется один из типов почвенной деградации – процесс опустынивания. Рассматриваются факторы, влияющие на развитие опустынивания, последствия, а также глобальный охват этого процесса. Приводятся различные стратегии по борьбе с опустыниванием. Результатом исследования является вывод о необходимости объединения мирового сообщества для решения проблемы.*

Ключевые слова: *опустынивание, экологическая проблема, почвенная деградация, антропогенное воздействие, эрозия*

Humans dominate the planet and their influence extends directly and indirectly to every part of the world. Exponential increases in human population and changes in patterns of consumption have created unprecedented pressure on the

Earth's natural resource base. Humans and their actions have become the main driver of global environmental change, including desertification [2].

The UNCCD defines desertification as land degradation in dryland areas due to various factors, including climatic variations and/or human activities (Article 1 of the UNCCD) [11]. The term was first popularized by Aubreville in 1948, who used it to describe how tropical forest regions in Africa were being transformed into "desert-like regions". Land degradation refers to reduction or loss, in arid, semi-arid and dry subhumid areas, of the biological or economic productivity and complexity of rainfed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from land uses or from a process or combination of processes, including those arising from human activities and habitation patterns, such as: soil erosion caused by wind and/or water; deterioration of the physical, chemical and biological or economic properties of soil: and long-term loss of natural vegetation [3].

Desertification can only occur on land prone to desertification processes. The vulnerability to desertification of land is determined by current climate, relief, and the state of the soil and natural vegetation. Climate has a major influence through three factors rainfall, solar radiation and wind- which all affect physical and mechanical erosion phenomena and chemical and biological degradation. Relief acts mainly to exacerbate water erosion. The state of the soil, in terms of its texture, structure and chemical and biological status, is a predominant factor in dry subhumid zones, where climate has less impact; it plays a crucial role in vulnerability to desertification through human activities. The same applies to the state of the natural vegetation: the result of past and recent influences; of climatic, pedological and often, human factors. Because of their longevity and powerful root systems, trees are a primary source of protection from soil degradation and their absence, too often caused by human action, is a serious handicap.

Human activities are the main factors triggering desertification processes on vulnerable land. These activities are many and vary by country, society, landuse strategies and the technologies applied.

Human activities that can cause desertification are: cultivation of soils that are fragile, or exposed to erosion by wind or water; reduction in the fallow period of soils, and lack of organic or mineral fertilizers; overgrazing, herbs and grasses; overexploitation of woody resources, in particular for fuelwood; uncontrolled use of fire for regenerating pasture, for hunting, for agricultural clearing, or for settling certain social conflicts; agricultural practices that destroy the soil structure, especially the use of unsuitable agricultural machinery; agricultural practices that result in the net export of soil nutrients, leading to loss of the soil fertility, such as cash-cropping; diversion of rivers to create irrigation schemes; irrigation of soils prone to salinization, alkalinization or even waterlogging [6].

Roughly half of Earth's ice-free land surface - approximately 52 million square kilometers - is drylands, and these drylands cover some of the world's

poorest countries. The United Nations Environmental Programme (UNEP) notes that desertification has affected 36 million square kilometers of land and is a major international concern [8].

The planet's land area is finite. Furthermore, the proportion of the land that is endowed with sufficient water and favourable soil resources to sustain essential ecosystem functions, and meet the demands of agriculture to produce food, animal feed and energy necessary to support human health and enterprise, is narrowly constrained. Finding a balance that accommodates these competing demands for productive land that is equitable across all geographic regions and economic sectors is one of the major challenges of this century [4].

By impoverishing the natural potential of ecosystems, desertification reduces agricultural yields and make them less predictable. It therefore has a bearing on the food security of people living in affected areas. In order to attend to their most urgent needs, the people develop a survival strategy which, in turn, aggravates desertification and impedes development [7].

Desertification also has consequences at the global level, primarily because of the influence on carbon exchange. The large amount of carbon stored in the vegetation in the dry zones, averaging about 30 tonnes per hectare, decreases when the vegetation is depleted or disappears. Carbon-rich soils, frequently found in dry zones, store a substantial amount of this element (nearly half the total quantity of carbon is stored in the organic matter in the soil, much more than is found in the world's vegetation): the destruction of these soils has a very powerful effect on the carbon cycle and boosts the greenhouse effect as a result of the release of carbon [7].

Another consequence of desertification at both local and global levels is the reduction in biodiversity, as it contributes to the destruction of the habitats of animal and vegetal species and micro-organisms. It furthers the genetic erosion of plant varieties and species living in fragile ecosystems. Reducing biodiversity directly affects the food and health of the local people who rely on a large number of animal and plant species. It is also a loss to the whole of mankind. [7].

Sustainable Land Management is defined as the use of land resources, including soils, water, animals and plants, for the production of goods to meet changing human needs, while ensuring the long-term productive potential of the resources and the maintenance of their environmental functions [1]. An SLM technology is a physical practice on the land that controls land degradation, enhances productivity, and/or other ecosystem services. An SLM approach includes the ways and means of support that help introduce, implement, adapt and apply SLM technologies on the ground to foster an enabling environment. Sustainable Land measures:

Agronomic measures: measures that improve soil cover (e.g. green cover, mulch); measures that enhance organic matter/soil fertility (e.g. manuring); soil-surface treatment (e.g. conservation tillage); subsurface treatment (e.g. deep rip-

ping). Vegetative measures: plantation/reseeding of tree and shrub species (e.g. live fences; tree rows), grasses and perennial herbaceous plants (e.g. grass strips).

Structural measures: terraces (bench, forward/ backward sloping); bunds, banks (level, graded); dams, pans; ditches (level, graded); walls, barriers, palisades.

Management measures: change of land use type (e.g. area enclosure); change of management/ intensity level; (e.g. from grazing to cut-and-carry); major change in timing of activities; control/change of species composition [9].

Maintaining or improving the productive capacity of land requires a move towards land degradation neutrality. This is a matter of preserving or enhancing the ability of land resources to support ecosystem functions and services. Sustainable management of soil, water and biodiversity can help close yield gaps, increase the resilience of land, and thus support the people who depend on it for their livelihoods. This will come at a cost, but the cost of action or prevention is always smaller than the cost of inaction [5].

In 1977 the United Nations Conference on Desertification (UNCOD) adopted a Plan of Action to Combat Desertification (PACD). Despite this and other efforts, the United Nations Environment Programme (UNEP) concluded in 1991 that the problem of land degradation in arid, semi-arid and dry sub-humid areas had intensified, although there were "local examples of success". As a result, the question of how to tackle desertification was still a major concern for the United Nations Conference on Environment and Development (UNCED), which was held in Rio de Janeiro in 1992. The Conference supported a new, integrated approach to the problem, emphasizing action to promote sustainable development at the community level.

The 10-year strategic plan and framework to enhance the implementation of the Convention for 2008-2018 outlined a clear vision to forge global partnerships to reverse and prevent desertification and land degradation, coupled with a mission to provide a worldwide framework to support the development and implementation of national and regional policies that contribute to the reduction of poverty.

At UNCCD COP13 that took place in September 2017 in Ordos, China, the countries have agreed on a new global roadmap to address land degradation. The new UNCCD 2018-2030 Strategic Framework is the most comprehensive global commitment to achieve Land Degradation Neutrality (LDN) in order to restore the productivity of vast swathes of degraded land, improve the livelihoods of more than 1.3 billion people, and to reduce the impacts of drought on vulnerable populations [10].

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GENERALIZATION OF CARTOGRAPHY

N.M. Kolokolova, D.F. Tuliakov, A.M. Kuzichkina
kolokolovan@rambler.ru, tulyakov_d@mail.ru
Astrakhan State University

Abstract*: Article discusses cartographic synthesis which is one of important problems of display in a traditional and digital form, affecting completeness happy, the practical cost and scientific advantages of cards of various purposes and scale. The difficult, multiple-valued nature of a problem of generalization on cards defines relevance of a research of this cartographic process.*
Keywords: *generalization, factors of generalization, the card, types*

ГЕНЕРАЛИЗАЦИЯ В КАРТОГРАФИИ

Н.М. Колоколова, Д.Ф. Туляков, А.М. Кузичкина
kolokolovan@rambler.ru, tulyakov_d@mail.ru
Астраханский государственный университет

Аннотация: *В статье рассматривается картографическая генерализация, являющаяся одним из важных вопросов составления карт в традиционной и цифровой формах, влияющая на полноту содержания, практическую ценность и научные достоинства карт разного назначения и масштаба. Комплексный, многозначный характер задачи генерализации на картах обусловливает актуальность исследований этого картосоставительского процесса.*
Ключевые слова: *генерализация, факторы генерализации, карта, масштаб, картографируемый объект*

Generalization in cartography – one of the most difficult processes connected with display. The term «generalization» arrives from the Latin root «generalis» that means widespread, main.

Generalization is shown in generalization of qualitative and quantitative features of objects, replacements of separate concepts with collective and derivations from details for the sake of accurate display of their main features. Generalization promotes formation and representation of new concepts and scientific abstractions in a cartographic form [3].

Process of generalization is more difficult, than other processes of display, formalize and automate. Not all steps and procedures can be algorithmized; Not all criteria can be unambiguously formalized. The quality of generalization generally depends on the understanding by the cartographer of independent essence

represented geographical (geological, social and economic, etc.). Objects and the phenomena, ability to define their main features [2].

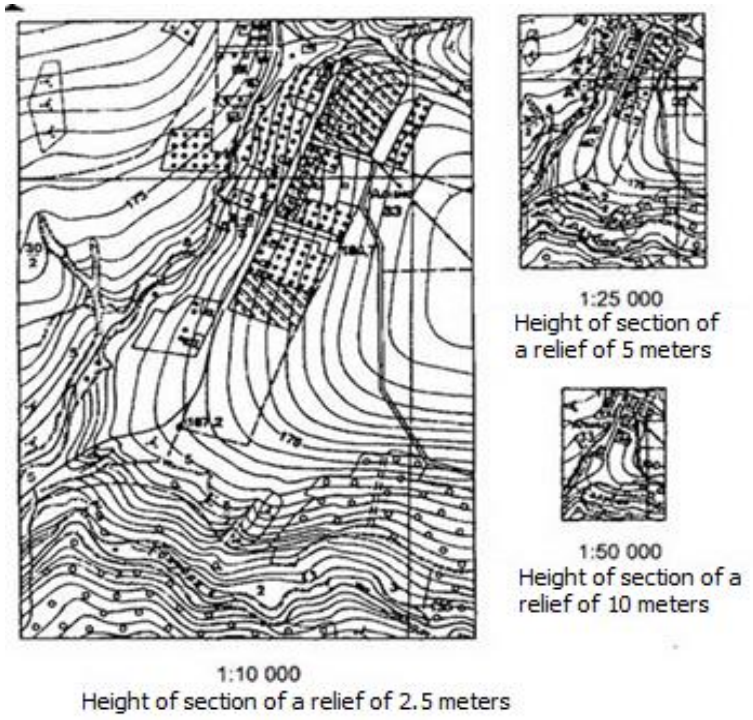

Figure 1. Summing up contents of the topographic map with reduction on the scales from 1:10 000 to 1:50 000

General factors:

– the scale of the card is shown that, moving from the enlarged image to smaller, areas the card becomes smaller. At the same time, as scale decreases, spatial increases in lighting which also affects generalization. Objects which are important for large-scale maps lose the importance on small cards and have to be excluded;

– the destination when the card shows the objects corresponding to its destination. The image of other objects prevents to work with the card [2].

The subject and type of the card define what elements need to be shown on the map in more detail and which can be generalized or completely removed.

Features of the plotted object (or the territory). Influence of this factor under the influence of the need to bring originality, remarkable characteristic elements of objects or territories to the card.

With sufficient knowledge of an object the image can be most detailed (for this scale and the purpose of the card), and for lack of the actual material, it becomes inevitable generalized, schematical. The factor of knowledge is closely connected with quality and completeness of the sources used for display. Therefore the most generalized cards hypothetical and the forecast collected from incomplete data when an object is not rather studied, and there only approximately (or it is not absolutely reliable), information on models of its distribution. However hypothetical cards have to be schematical.

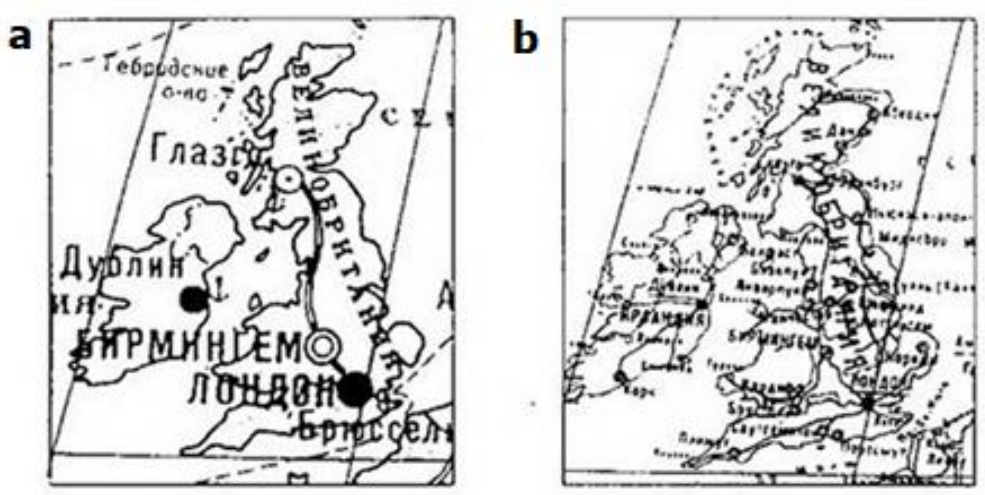

Figure 2. Effect of purpose of the card on generalization.
Fragments of wall school (a) and desktop (b) help map of the same territory

Color maps allow you to display more characters than single-color. With high quality of the press and a right choice of flowers of a background, symbols, and shading on one card, you can unite up to six mutually imposed layers, having imposed each other without big damage of legibility. It is difficult or it is even impossible to make on the only color or limited the color card; therefore, the summary of contents is necessary [1].

The difficult processes of abstraction connected with cartographic synthesis are implemented in various forms. They concern generalization of spatial (geometrical) and significant characteristics, quality and quantitative indices, selection and even an exception of the represented objects. Sometimes generalization is considered as process of abstraction of space and contents.

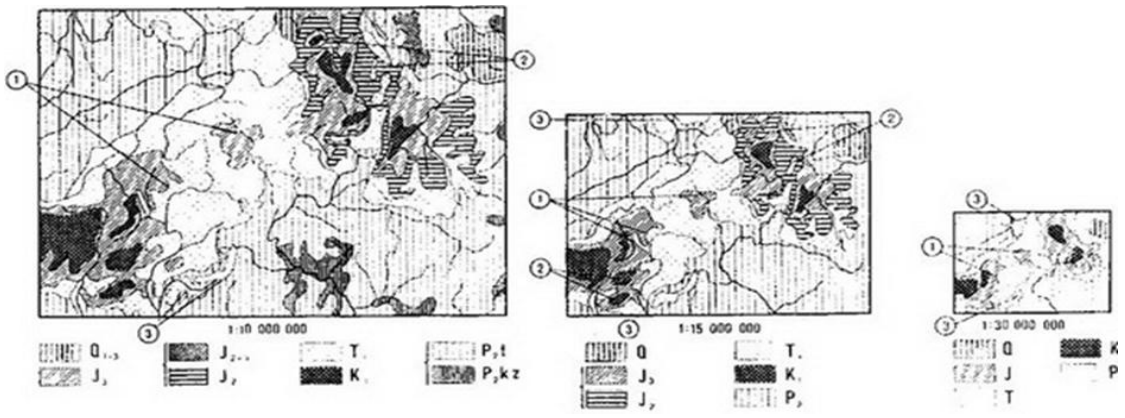

Figure 3. Various manifestations of generalization on the geological map.
The brace denotes the generalization in the legend; 1 – simplification of the planned outlines;
2 – selection of cartographic objects (exception); 3 – merge contours

Usually all manifestations of generalization are present at the card at a combination, they:

– generalization of qualitative characteristics happens due to reduction of differences between objects that is always connected with generalization and integration of criteria of classification, with transition from simple concepts to difficult. For example, on cards of shooting instead of showing the prevailing types of trees, they give the general forest sign instead of dividing the railroads into quantity of ways, there is one railway sign. It is important to note that generalization of qualitative characteristics of the displayed phenomenon is, first of all, a synthesis (generalization) of its classification. Therefore this type of generalization begins with a card legend, with transition from types to childbirth, from the separate phenomena to their groups, from fractional taxonomical units to larger;

– generalization of quantitative characteristics is shown in increase in scales, transition from continuous scales to more widespread graduated scales, from uniform scales to uneven. For example, consolidation of groups of settlements by the number of inhabitants, a combination of gradation of cartograms. On the cards executed in the dotted way, generalization of quantitative characteristic is shown in increase in value of a point, for example, on the card of cattle one point represents 500 heads of cattle, and after summation – 1000 heads of cattle;

– transition from simple to difficult concepts is connected with introduction of integrated concepts and collective designations. For example, upon transition from the large-scale map of the city to the small image of certain buildings it is replaced with the image of the vicinity, then only the general contour of the city is given, and then the point. On the card of small scale the settlement completely loses the individual traits, the point characterizes only population and administrative value of the city.

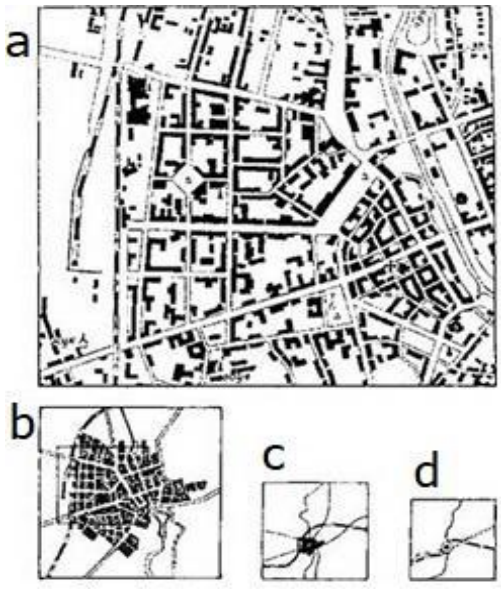

Figure 4. Generalization of the settlement. Sequential replacement of individual objects (buildings – a) by collective signs (blocks, general outline of the city – b, c) and an abstract icon (point – d)

The considered types of generalization are shown on cards not separately, and in common, they are bound and are not separable from each other. Generalization of substantial aspects (qualitative and quantitative) usually involves change of spatial geometrical characteristics and vice versa [1].

Summing up the result, we can come to conclusion that a main goal of generalization - formation of information corresponding to parameters of the card and its object defined in the program. To reach this observance, it is necessary to rely on the principles: knowledge of structure and function of an object and also its relation with other objects; display of the main elements, properties and communications of an object; preservation of structural samples and geographical features of an object.

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ACID RAIN

N.M. Kolokolova, O.S. Filonova
kolokolovan@rambler.ru, Oksana93203@gmail.com
Astrakhan State University

Abstract*: This article deals with the problem of the impact of acid precipitation on the environment. Particular attention is drawn to the negative effects of acid rain. In the course of the exploration analyzed the state laws adopted fight acid precipitation. The study concluded that anthropogenic forcing is the main cause of acid rain, and in order to prevent this phenomenon, humans must control emissions of pollutants.*

Keywords: *acid rain, pollutant, discharge, fossil fuel, toxicity, chemical gas, atmosphere, burning, anthropogenic impact*

КИСЛОТНЫЕ ДОЖДИ

Н.М. Колоколова, О.С. Филонова
kolokolovan@rambler.ru, Oksana93203@gmail.com
Астраханский государственный университет

Аннотация: *В статье рассматривается проблема воздействия кислотных осадков на окружающую среду. Особое внимание уделяется негативным последствиям кислотных дождей. В ходе работы проанализированы законы, принятые для борьбы с кислотными осадками. Антропогенное воздействие является главной причиной появления кислотных дождей, и для предотвращения этого явления человек должен сдерживать выбросы загрязняющих веществ.*

Ключевые слова: *кислотные осадки, загрязняющие вещества, выбросы, ископаемое топливо, токсичность, химические газы, атмосфера, сжигание, антропогенное воздействие*

Acid rain describes any form of precipitation with high levels of nitric and sulfuric acids. It can also occur in the form of snow, fog, and tiny bits of dry material that settle to Earth.

Rotting vegetation and erupting volcanoes release some chemicals that can cause acid rain, but most acid rain falls because of human activities. The biggest culprit is the burning of fossil fuels by coal-burning power plants, factories, and automobiles [4].

When humans burn fossil fuels, sulfur dioxide (SO_2) and nitrogen oxides (NO2) are released into the atmosphere. These chemical gases react with water, oxygen, and other substances to form mild solutions of sulfuric and nitric

acid. Winds may spread these acidic solutions across the atmosphere and over hundreds of miles. When acid rain reaches Earth, it flows across the surface in runoff water, enters water systems, and sinks into the soil [8].

He smelting of sulfide ores can produce atmospheric emissions rich in particulates and heavy metals, resulting in contamination of nearby soils, vegetation, and water bodies. Also, emissions of sulfur dioxide from smelters can promote formation of acid rain, which along with other types of emissions can impact local vegetation health and reduce vegetation cover. Under extreme conditions, acid rain can dissolve siliceous minerals on exposed rock surfaces and thereby promote the formation of thin silica gel layers within which detrital and smelter particulates can become trapped.

Over time, these processes of dissolution and entrapment can result in the formation of brownish-black rock coatings that contain components such as oxides, sulfates, high-temperature silicates, carbon-rich particulates, and rock and soil particulates; and that are characterized by high levels of heavy metals [3].

Acid rain has many ecological effects, but none is greater than its impact on lakes, streams, wetlands, and other aquatic environments. Acid rain makes waters acidic, and causes them to absorb the aluminum that makes its way from soil into lakes and streams. This combination makes waters toxic to crayfish, clams, fish, and other aquatic animals.

The effects of acid rain, combined with other environmental stressors, leave trees and plants less able to withstand cold temperatures, insects, and disease. The pollutants may also inhibit trees' ability to reproduce. Some soils are better able to neutralize acids than others. In areas where the soil's "buffering capacity" is low, the harmful effects of acid rain are much greater [2].

Individuals can also help prevent acid rain by conserving energy. The less electricity people use in their homes, the fewer chemicals power plants will emit. Vehicles are also major fossil fuel users, so drivers can reduce emissions by using public transportation, carpooling, biking, or simply walking wherever possible [5].

Sulphur pollution is already estimated to have cut methane emissions from wetlands from about 175 to 160 million tonnes per year in 2004. By 2030, this is predicted to fall to 155 million tonnes per year with the help of sulphur-eating bacteria [6].

Tough new rules designed to protect Europe’s ecosystems from acid rain will not apply to parts of Norway, Sweden, Germany and the Netherlands, the areas of the continent that have suffered the worst ravages of acid pollution. Negotiators drawing up a treaty on acid rain decided at the end of last month that it would cost too much to include them [6].

Laws aimed at reducing sulfur emissions came on the books in Europe in 1985 and in the United States as a 1990 amendment to the Clean Air Act. To gauge the laws' effectiveness, a team led by John Stoddard of the U.S. Environmental Protection Agency analyzed 15 years' worth of data on surface sulfur

concentrations, soil chemistry, and alkalinity in 205 lakes and streams across North America and Europe. Reductions in sulfur emissions have indeed led to a strong trend of declining sulfur concentrations in waters throughout the Northern Hemisphere, they found [7].

"The good news is, the laws are having their intended effect," says team member Steve Kahl, an environmental chemist at the University of Maine. In Europe, as sulfur concentrations went down, the waters became less acidic.

But the picture is more complicated in North America. At most of the test sites, lower sulfur concentrations did not lead to less acidic waters, particularly in three areas--south-central Ontario, the Adirondack and Catskill mountains, and the Midwest--possibly due to the Midwest's large number of coal-fired utility plants, which produce the lion's share of sulfur emissions.

The problem may lie in the soil near these waters, which has a paucity of minerals, such as sodium and calcium, that act like antacid tablets and buffer the acids. According to Kahl, it's possible that nitrogen emissions--which also contribute to acid rain and are less strictly curtailed under current regulations--may produce enough acid to offset the action of these natural buffers [4].

"It may be decades before some of these waters are suitable for fish again, "notes Alan Jenkins, a chemist at the Institute of Hydrology in Wallingford, United Kingdom. "We need to do more in terms of sulfur and nitrogen reduction, and we still have a lot to understand about the recovery process" [9].

The only way to fight acid rain is by curbing the release of the pollutants that cause it. This means burning fewer fossil fuels. Many governments have tried to curb emissions by cleaning up industry smokestacks and promoting alternative fuel sources. These efforts have met with mixed results. But even if acid rain could be stopped today, it would still take many years for its harmful effects to disappear [1].

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FEATURES OF THE GLONASS SATELLITE NAVIGATION SYSTEM

N.M. Kolokolova, A.A. Tsareva, M.A. Rozyskul
kolokolovan@rambler.ru, stasya876622@gmail.com
Astrakhan State University

Abstract*: This article provides a brief description of the GLONASS satellite navigation system, principles for determining the location of objects, features of the system and the direction of its development.*

Keywords: *satellite, operation, navigation system, GLONASS, navigation accuracy*

ОСОБЕННОСТИ СПУТНИКОВОЙ НАВИГАЦИОННОЙ СИСТЕМЫ ГЛОНАСС

Н.М. Колоколова, А.А. Царева, М.А. Розыскул
kolokolovan@rambler.ru, stasya876622@gmail.com
Астраханский государственный университет

Аннотация: *В статье приводится краткое описание спутниковой навигационной системы ГЛОНАСС, принципы определения местоположения объектов, особенности системы и направления её развития.*

Ключевые слова: *спутник, эксплуатация, навигационная система, ГЛОНАСС, точность навигации*

In the modern world, satellite technology plays a very important role for humanity. Cell phones and satellite television have become widespread in almost all the world, and over the past decade much attention has been paid to the navigation satellite system used for both military and peaceful purposes.

GNSS technologies are innovative in many areas of the national economy. For example, in geodesy can significantly improve the accuracy and reduce the cost of time. In cadastral activities, the process of determining the coordinates of land plots was significantly simplified [1]. In the investment and construction complex innovations are introduced in surveys, geodetic works in the construction and operation of buildings and structures [2]. In the field of forestry, modern navigation equipment allows precise positioning of both deforestation and a specially protected area, as well as determining the size and size of forestry fa-

cilities [3]. In the military sphere, GNSS technology allows us to accurately, quickly and interactively determine the position of a soldier and equipment.

This work is devoted to the problems and prospects of development of the navigation satellite system GLONASS, which is quite relevant in the Russian market, as well as in countries formerly part of the USSR, and allows the most remote eastern and northern regions of Russia and other countries to use it.

The purpose of the study is to get acquainted with the problems and prospects of the development of GLONASS from its inception to the present. The object of study is the navigation satellite system. The subject of the research is the problems and prospects of its development.

Satellite navigation system is a complex electronic technical system consisting of a combination of ground and space equipment, designed to determine the location (geographical coordinates and altitude), as well as motion parameters (speed, direction, etc.) for ground, water and air facilities. The Global Navigation Satellite System (GLONAS) is a Soviet and Russian satellite navigation system, designed for the Ministry of Defense of the USSR.

The principle of operation of satellite navigation systems is based on measuring the distance from the antenna at the facility (the coordinates of which must be obtained) to satellites whose position is known with great accuracy. The position table of all satellites is called an almanac, which any satellite receiver must have before measurements begin. Usually the receiver keeps the almanac in memory since the last shutdown and, if it is not outdated, instantly uses it. Each satellite transmits in its signal the entire almanac.

Knowing the distances to several satellites of the system, the position of an object in space is calculated using standard geometric constructions based on an almanac. At the same time, to realize the possibility of measuring the time of the propagated radio signal, each satellite of the navigation system emits accurate time signals using an atomic clock that is precisely synchronized with the system time. When a satellite receiver is in operation, its clock is synchronized with the system time, and upon further reception of signals, a delay is calculated between the radiation time contained in the signal itself and the reception time of the signal.

With this information, the navigation receiver calculates the coordinates of the antenna. All other motion parameters (speed, course, distance traveled) are calculated based on the measurement of the time that the object spent moving between two or more points with specific coordinates.

At the moment, the Russian GLONASS navigation satellite system is not yet perfect and, by some criteria, is inferior to its counterpart such as the American GPS. Although GLONASS began to be developed during the Soviet Union, only the space segment was fully deployed by 1994, but the user segment was completely undeveloped. Then, due to the crisis situation in the country, work on it was suspended and they began to actively invest in its development only from the mid-2000s, with the dynamic support of the leadership of the Russian

Federation. Relatively in a short time, this system was brought to the level that provides a fairly confident signal reception over almost the entire territory of the Earth. But still the big problems today are the accuracy of data transmission and determination of coordinates, the lack of expensive equipment.

A significant change in the number of working satellites has a negative effect on users' confidence in the system and its level of development. However, GLONASS problems are not limited to “organizational” factors alone. The experience of mass production of user equipment with the support of the GLONASS system indicates that there are technical problems that complicate the use of devices. These shortcomings must be quickly resolved and resolved.

Another problem is the synchronization with each other of different time scales used in the GLONASS and GPS systems. In the Russian navigation system, periodically, a full second is added to the time scale, which greatly complicates the work of user satellite receivers.

Fortunately, the problem of recognition of ephemeris data was partially solved for the updated Glonass-M satellites. However, this approach in some cases may be sub-optimal and require some improvements. This algorithm for determining the coordinates of GLONASS satellites, published in the updated version of the GLONASS interface document, is extremely complex, and therefore difficult to apply in practice. Consequently, the “previous”, more simplified algorithm is still used.

To solve the above problems and further plan the development of the system, it is important to take into account the views of the developers of navigation user equipment. For this information about the plans for the development of groups should be rich, clear and logical. Only after this, GLONASS receivers will be able to compete and strengthen their place in the market.

Currently, there are two priority tasks with which the GLONASS global navigation system will be brought to a high level.

One of them is the creation of local and regional systems of continuous satellite monitoring of the stability of engineering potentially dangerous objects and deformations of the earth's surface in earthquake-prone zones based on GLONASS. In TsNIImash, a project was developed for a system in which its main elements are present - uniform terminals under the name “active rapper” (AR). Such an organization of serial production of the AR terminal would allow developing a single technological basis for the ground part of the GLONASS segment for a large number of users. Significant support would be the decision of the Russian government on the need to strengthen the monitoring of the stability of hazardous engineering structures and the study of seismic activity in Russia using GLONASS technologies.

The second task is the development and serial production of consumer GLONASS receivers for consumers, who would be satisfied with an inexpensive device that ensures positioning accuracy in the SK-95 geodetic coordinate system in the nominal measurement mode at the level of tens of meters, and in

relative mode at the level of decimeters. Users of such receivers should be offered special topographic maps with a plotted grid. Such a single package, which would include: a portable GLONASS receiver, a set of topographic maps and that would cost no more than a regular cell phone, would suit most of the inhabitants of Russia. However, the release of the mass domestic GLONASS equipment will not be implemented until the manufacturers are sure of the payback of the product and the demand for it. The system is quite expensive, but it is fateful for the whole of Russia, and especially for the Armed Forces now and in the future [5].

Thus, in the course of writing the work, it was revealed that the GLONASS system so far has a significant number of flaws that prevent it from keeping the same position with the American and Chinese satellite systems.

Roskosmos will have to solve the problem of financing the project, bring the positioning accuracy to good indicators, establish a sufficient number of ground stations of the GLONASS base.

To meet the challenges of the new conditions, in accordance with the Decree of the Government of the Russian Federation dated March 3, 2012 No. 189, in 2012, the federal target program "Maintenance, development and use of the GLONASS system for 2012–2020" was opened. [6]

Since 2012, the system has been developing in the framework of a new federal program for effectively solving problems in the interests of defense, security and the development of the country's socio-economic sphere in the near and distant future.

The new program provides for:

– maintaining the GLONASS system with guaranteed characteristics of the navigation field at a competitive level;

– development of the GLONASS system in the direction of improving its tactical and technical characteristics in order to achieve its parity with foreign navigation support systems, the leading position of the Russian Federation in the field of satellite navigation;

– ensuring the use of the GLONASS system, both in the Russian Federation and abroad.

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THE USE OF INNOVATIVE TECHNOLOGIES IN PROJECT BASED LEARNING ON BIOLOGY LESSONS

O.S. Krasilnikova, M.Kh. Mukhtarova
o.s.krasilnikova@inbox.ru, m-mukhtarova@bk.ru
Astrakhan State University

Abstract*: New educational standards implementation prioritizes the projective beginning of training in school education. Therefore, understanding of educational activity only as the process of obtaining ready knowledge should be abandoned. This paper considers the necessity of introducing innovative technologies in project based learning, such as e-lab, virtual reality, foldscope and 3D-printing technology. The effectiveness of each technology is conditioned first of all by explosion of motivation, by increased interest in the subject: this is the most important component of the learning process.*

Keywords: *project based learning, learning activity, e-laboratory, foldscope, virtual reality, three-dimensional printing technology*

ИСПОЛЬЗОВАНИЕ ИННОВАЦИОННЫХ ТЕХНОЛОГИЙ В ПРОЕКТНОМ ОБУЧЕНИИ НА УРОКАХ БИОЛОГИИ

О.С. Красильникова, М.Х. Мухтарова
o.s.krasilnikova@inbox.ru, m-mukhtarova@bk.ru
Астраханский государственный университет

Аннотация: *С внедрением новых образовательных стандартов в школьном образовании всё чаще отдаётся предпочтение проектной деятельности. Понимание образовательного процесса только как процесса получения готовых знаний устарело. В данной статье рассматривается необходимость внедрения в проектное обучение инновационных технологий: электронной лаборатории, виртуальной реальности, фолдоскопа и технологии 3D-печати. Эффективность применения каждой технологии обусловлена, прежде всего, повышением мотивации, возрастающим интересом к предмету, что является важнейшей составляющей обучения.*

Ключевые слова: *проектное обучение, учебная деятельность, электронная лаборатория, фолдоскоп, виртуальная реальность, технология трёхмерной печати*

Every time when the person faces this or that problem in life, they should work out the plan of its solution and attract obtained practical experience. The same happens to the modern science: it demands complex, synthetic knowledge from various areas and spheres. Hence the role of inter-subject integration as a means of school students' mental and creative abilities as well as meta-subject skills development increases. It is therefore necessary not only to regard the prospects of school subjects interaction to facilitate the development of knowledge and to make school students aware that different school subjects have common ideas but also to raise the issue of universal educational actions elaboration which will allow the person to realize both as the personality and expert (FSES of basic general education, 2010) [5].

The changing times that require individuals to master 21st century skills have an impact on education. The impact is a change in the learning activities. Learning in the 21st century should ensure students to have 21st century skills including skills, work habits, and characters that are believed to be essential to achieve successful life. Learning activities must ensure that students have (1) learning and innovation skills including critical thinking skills and problem solving, communication and collaboration, creativity and innovation; (2) information, media, and technology skills; and (3) life and career skills. To achieve these skills, students require an educational program that is capable in developing human resources in order to become a competitive personal [3].

The distinctive feature of such project activity is that the teacher takes over the process of project development and participates in its creation more actively. It is connected with the fact that time at a lesson (or several lessons) is strictly limited, and basic material has to be assimilated by each learner [2].

PBL does not only equip the students with knowledge but also improve their problem-solving skill, critical and creative skill, liftime learning, communication skill, team work, adaptation to changes, and self-evaluation. In PBL, the real world problems are used to motivate the students through the problems [1].

The development of science curriculum especially Biology curriculum aims to develop student`s thinking skills, specifically critical thinking. Critical thinking skills is the ability to interpret data, make inferences, explain information clearly, analyse, and evaluate. However, student's critical thinking skill is not yet fully developed. Therefore, based on the demands of the 21st century, especially creativity and critical thinking, it is necessary to develop learning activities in schools that are able to enhance student's skill in order to achieve 21st century skills. Learning activities that are relevant to learning in the 21st century are project-based learning and problembased learning [4].

The method of project or project-based learning is an integrated teaching method that allows to personalize the learning process; it enables students to display autonomy in planning, organizing and controlling their activities. From the view point of a student the project is:

• an opportunity to do something interesting alone, or in a group, making the most of one's capabilities;

• an activity that allows to show oneself, to try one's hand, to apply knowledge, to benefit and to show in public the result achieved;

• an activity aimed at solving an interesting problem, which, in its turn, is formulated by students themselves in the form of goals and objectives.

The result of this activity, i.e. the discovered means of solving this problem, is practical, and it is interesting and meaningful for the discoverers [2].

Science education is closely linked to experimentation and laboratory work. Recent literature confirms the important role of experimentation in increasing students' active and vital participation in the learning process, as well as it helps students to acquire different skills and form positive attitudes towards science learning [1].

Laboratories developers have focused to take advantage of computer applications to create safe/active interactive learning environment that simulates lifelike e-laboratory. This lab is "one where the student interacts with an experiment or activity which is intrinsically remote from the student or which has no immediate physical reality". It can be defined as "a tool consists of interactive computerized software linked with sensitive connector endings called sensors, where the components of practical sciences experiments are integrated with computers as a measurement instrument to collect and analyze data [6].

E-lab is a revolutionary technologic way in the field of science laboratories through which the student is accustomed to computers not only as a means of calculation or information storage but as a laboratory tool used for measurement and control. Moreover, it becomes a tool to study and clarify the experiments and their relation to theory so the student can understand the meaning of conducting practical experiment while doing them. The student can use the e-lab as a means to conclude the laws through real measurements during the experiments. Therefore, e-lab serves as a tool to understand and convince through viewing, experimentation and conclusion [4].

A Foldscope is a microscope that can magnify objects by up to 140% and slip easily into a student's pocket. Even better, it only costs a few dollars and can be put together in 20 minutes. The Foldscope was designed at Stanford University to help students around the globe who might not otherwise have access to scientific equipment see the microscopic world. In the methods class, education majors will develop curricula to help their students understand and appreciate the world they see through a microscope. The curricula will include directions for using the Foldscopes and strategies that encourage children to explore and delight in the natural world. All learning objectives will be aligned with Next Generation Science Standards. The curricula will be flexible enough that it can be used in international settings, where students may have different levels of understanding about how the world works. As seniors, methods students will

take a set of Foldscopes to their student-teaching classrooms and use the curricula they developed [5].

Virtual reality has long held promise as a tool to enhance education with immersive and interactive experiences in disciplines ranging from science and engineering to foreign languages and social sciences. Now that virtual reality devices are more affordable and widely available, the challenge has become finding ways to employ this technology effectively [3].

Early uses of virtual reality in science education focused on visualizing chemical reactions or learning about molecules by assembling them in a virtual environment. More recent uses include marker-based augmented reality to visualize the process of respiration and human meiosis and an astronomy application using a head-mounted display to explore the solar system and give students a grasp for its scale. Virtual reality and augmented reality make it possible to visualize concepts that are abstract or difficult to relate to real-world experiences, such as a marker-based augmented reality application that helps teach electromagnetism and the interaction between different circuit elements [6].

Over the past two decades, numerous studies have shown the strengths of virtual and augmented reality use in the classroom. One of the most significant strengths is that they change the role of the teacher from the deliverer of knowledge into a facilitator who helps the students explore and learn. This strongly complements the constructivist learning theory because the students feel empowered and engaged because they have control over the learning process. Students can learn experientially and proceed at their own pace since they are exploring a virtual environment, preventing situations where students are left behind during the lecture and spend the rest of the class trying to catch up [3].

Rapid prototyping via 3D printing is a rapidly expanding technology that is now a critical part of the iterative design process in engineering, producing physical models quickly, easily and inexpensively from computer-aided design (CAD) and other digital data .It is interesting how additive manufacturing or three dimensional (3D) printing allows the creation of reproductions of prosected human cadaver and other anatomical specimens. This alternative approach to producing anatomically accurate reproductions offers many advantages over plastination as it allows rapid production of multiple copies of any dissected specimen, at any size scale and should be suitable for any teaching facility in any country, thereby avoiding some of the cultural and ethical issues associated with cadaver specimens either in an embalmed or plastinated form [7].

Exposing students to this technology in the education system will help prepare them to use it productively outside the schoolhouse. Like all new tools, it takes time and effort to learn how to use and employ them properly. But once mastered, student and teacher alike can unlock doors to new possibilities and opportunities in the digital age [3].

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УДК 615

COMPLICATIONS OF DIABETES MELLITUS

A.A. Muhanalieva, Sh.M. Magomedova, B.M. Nazimova
muhanalieva65@mail.ru, shanisat9705@gmail.com, baxtli.nazimova@mail.ru
Astrakhan State University

Abstract*: This article examines the complications of diabetes mellitus. Risk factors for them can be modified or not subject to modification. In general, the complications are much less common and less pronounced in people with well-controlled blood sugar levels. However, (non-modifiable) risk factors, such as age of onset of diabetes, type of diabetes, gender and genetics, play a role. Some genes seem to provide protection against diabetic of complications, as can be seen from a subset of long-term survivors with type 1 diabetes without complications.*

Keywords: *Diabetes mellitus. Diabetic ketoacidosis: Insulin, hypoglycemia, hyperglycemia, Diabetic Coma, microangiopathy*

ОСЛОЖНЕНИЯ САХАРНОГО ДИАБЕТА

А.А. Муханалиева, Ш.М. Магомедова, Б.М. Назимова
muhanalieva65@mail.ru, shanisat9705@gmail.com, baxtli.nazimova@mail.ru
Астраханский государственный университет

Аннотация: *В статье исследуются осложнения сахарного диабета. Факторы риска для них могут быть модифицируемыми или не подлежащими модификации. В целом осложнения гораздо менее распространены и менее выражены у людей с хорошо контролируемым уровнем сахара в крови. Тем не менее, (немодифицируемые) факторы риска (возраст начала диабета, тип диабета, пол и генетика) играют определённую роль. Некоторые гены, по-видимому, обеспечивают защиту от диабетических осложнений, как это видно из подмножества долгосрочных выживших лиц с диабетом 1-го типа без осложнений.*

Ключевые слова: *сахарный диабет, диабетический кетоацидоз: инсулин, гипогликемия, гипергликемия, диабетическая кома, микроангиопатия*

The complications of diabetes mellitus are much rarer and less serious in people who has a well-controlled blood sugar level. Acute complications include hypoglycemia and hyperglycemia, diabetic coma and non-ketootic giperosmolyarnui coma. Chronic complications arise from a combination of microangiopathy, macrovascular diseases and immune dysfunction in the form of an autoimmune disease or a bad immune response, most of which are difficult

to cope with. Microangiopathy can affect all vital organs, kidneys, heart and brain, as well as eyes, nerves, lungs and local gums and feet. Macro-vascular problems can lead to cardiovascular diseases, including erectile dysfunction. Female infertility can be caused by endocrine dysfunction with impaired signaling at the molecular level.

Other health problems are related to chronic complications of diabetes such as smoking, obesity, high blood pressure, elevated cholesterol levels and lack of regular exercise that are available for management because they can be changed. Non-modifiable risk factors for diabetic complications are the type of diabetes, the age of onset, and genetic factors, both protective and prepositioned.

Acute complications of diabetes mellitus:

1. Diabetic ketoacidosis: Diabetic ketoacidosis (DKA) is an acute and dangerous complication that is always an emergency medical aid and requires immediate medical attention. The low level of insulin leads to the fact that the liver transforms fatty acid into ketone for fuel (i.e. ketosis); Keton bodies are intermediate substrates in this metabolic sequence.

2. Hypermomolar State of Hyperglycemia: The non-ketotic hyperosmolar coma (HNS) is a severe complication associated with many symptoms with DKA, but a completely different origin and different treatment. A person with very high (usually considered to be above 300 mg/dl (16 mmol/L)) levels of glucose in the blood, the water is osmotic drawn from the cells into the blood, and the kidneys eventually begin to dump glucose in the urine. This leads to the loss of water and increased blood osmolyarnosti. If the liquid is not replaced (inside or intravenously), the osmotic effect of high levels of glucose combined with the loss of water will eventually lead to dehydration, the cells of the body are gradually dehydrated, as the water is extracted from them and excreted from the body.

3. Hypoglycemia: Hypoglycemia or abnormally low blood glucose levels are an acute complication of several diabetic treatments. It is rarely found in patients with diabetes or without it. The patient can become agitated, sweaty, weak and has many symptoms of sympathetic activation of the vegetative nervous system, which leads to feelings close, to fear and immobilized panic. Consciousness can be altered or even lost in extreme cases, leading to coma, convulsions, or even brain damage and death. In patients with diabetes this may be caused by several factors, such as too much or incorrectly installed insulin, too much or incorrectly set exercise.

4. Diabetic Coma: Diabetic Coma-is an emergency medical care, in which a person with diabetes is comatose (unconscious) because of one of the acute complications of diabetes: 1) Diabetic hypoglycemia; 2) Diabetic ketoacidosis develops enough to lead to unconsciousness due to a combination of severe hyperglycemia, dehydration and shock and exhaustion; 3) Giperosmolyarnaya neketotic coma, which is quite extreme hyperglycemia and dehydration to cause an unconscious state. **Chronic complications of**

diabetes mellitus Giopathy damage to small blood vessels leads to microangiopathy, which may cause one or more of the following factors:

Diabetic Nephroapati is kidney damage, which can lead to chronic renal failure, eventually requires kidney dialysis. This is the most common cause of adult renal insufficiency in the developed world.

Diabetic Neuropathy, abnormal and reduced sensation, usually in the spread of "gloves and stockings", starting from the feet, but potentially in other nerves, and later fingers and hands. In combination with damaged blood vessels this can lead to diabetic foot. Other forms of diabetic neuropathy may be manifested as mononeuroritis or autonomic neuropathy. Diabetic Amotrofiia is a muscular weakness due rd new blood vessels in the retina, as well as macular edema (swelling of the macula), which can lead to serious loss of vision or blindness. Retinopathy is the most common cause of blindness among non-elderly people in developed countriesto neuropath [3].

Diabetic retinopathy. Diabetic encephalopathy Is the increase in cognitive decay and the risk of dementia, including (but not limited to) the type of Alzheimer observed in diabetes. Various mechanisms such as changes in vascular nutrition of the brain and interaction of insulin with the brain itself are suggested [1].

Diabetic Cardiomyopathy. It is damaged to the heart muscle, which leads to a disturbance of relaxation and blood filling of the heart (diastolic dysfunction) and, ultimately, to heart failure; This condition can occur regardless of the damage that has been brought to the blood vessels over time from high blood glucose levels.

Erectile Dysfunction: Estimates of the prevalence of erectile dysfunction in men with diabetes range from 20 to 85 per cent if identified as a consistent inability to have sufficient erections for sexual intercourse. Among men with erectile dysfunction in people with diabetes, there is probably a problem for 10-15 years earlier than in men without diabetes.

Periodontal disease (gum disease) is associated with diabetes, which can complicate the treatment of diabetes [4]. A number of studies have found an improvement in blood sugar levels in type 2 diabetics who have undergone peridontaly treatment.

Macrovascular disease- leads to cardiovascular diseases, which is facilitated by accelerated atherosclerosis:

1. Coronary artery disease, resulting in angina or heart attack infarction ("heart attack")

2. Diabetic Myonecroz ("muscular exhaustion")

3. Peripheral vascular disease, which contributes to intermittent lamotte (associated with the load of pain in the legs and feet), as well as the diabetic foot.

4. Stroke (Mostly ischemic type)

5. Carotid stenosis is more common in diabetes, and appears to have a lower incidence of abdominal aortic aneurysm. However, diabetes causes higher rates of morbidity, mortality and operational risks under these conditions.

6. Diabetic foot. Often due to a combination of sensory neuropathy (numbness or insensitivity) and vascular damage, increases the frequency of skin ulcers (diabetic foot ulcers) and infection, and in serious cases, necrosis and gangrene. This is why diabetic patients need more time to treat their feet and legs and why diabetics are prone to foot and foot infections. In the developed world the most common cause of non-traditional amputation of adults is usually the toes and legs.

7. Female Infertility is more common in women with type 1 diabetes, despite the modern treatment, as well as the delay of puberty and Menaré, menstrual disorders (especially oligomenorrhea), moderate gipeandrogenism, polycystic ovary syndrome, less Number of live children and possibly an earlier menopause. Animal models show that at the molecular level diabetes causes a defective transmission of leptin, insulin and cepeptin signals.

Abnormal immune Responses: The immune response is disturbed in people with diabetes. Cell studies have shown that hyperglycemia reduces the function of immune cells and increases inflammation.

Respiratory infectionssuch as pneumonia and influenza are more common among people with diabetes. Lung function changes in vascular diseases and inflammation, which leads to increased susceptibility to respiratory agents. Several studies have also shown diabetes associated with the worst course of the disease and a slower recovery from respiratory infections.

It is known that **Lung respiratory disease** associated with diabetes. The restriction of respiration in diabetes can be a result of chronic inflammation of tissues of low level, microangiopathy and/or accumulation of final end products of Glykiation. In fact, the presence of a restrictive lung defect combined with diabetes has been shown even in the presence of obstructive lung diseases such as asthma and COPD in patients with diabetes [5].

Lipohypertrofy It can be caused by insulin therapy. Repeated injections of insulin in the same place or next to it causes the accumulation of additional subcutaneous fat and can be present as a large piece under the skin. It can be unsightly, slightly painful and can change the timing or completeness of insulin action [2].

Depression was associated with diabetes in 2010 in a study of the duration of 4 263 individuals with type 2 diabetes followed by 2005-2007 Gg. It has been found that they have a statistically significant connection with depression and a high risk of micro-and macrovascular events.

Risk Factors: age of, poor management of glucose, autoimmune processes, genetic factors

Management: 1. blood pressure control 2. Vitamins 3. Vitamin A D: 4. Antioxidants.

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HISTORY OF YOUTH TOURISM IN RUSSIA

N.V. Nesterenko, I.I. Nesterenko
hester.n@inbox.ru
Astrakhan State University

Abstract*: The problem of formation and development of children's tourism in Russia is investigated. The characteristic of the main stages of formation of tourist activity is given. This article will interest specialists in the organization of tourist work in the field of education of the Russian Federation in the content and direction of youth tourism.*

Keywords: *tourism, youth tourism, local history work, Museum activity, Patriotic education, tourist clubs*

ИСТОРИЯ ДЕТСКО-ЮНОШЕСКОГО ТУРИЗМА В РОССИИ

Н.В. Нестеренко, И.И. Нестеренко
hester.n@inbox.ru
Астраханский государственный университет

Аннотация: *Исследуется проблема становления и развития детского туризма в России. Дана характеристика основным этапам формирования туристической деятельности. Данная статья заинтересует специалистов по организации туристической работы в сфере образования Российской Федерации в вопросах содержания и направления детско-юношеского туризма.*

Ключевые слова: *туризм, детско-юношеский туризм, краеведческая работа, музейная деятельность, патриотическое воспитание, туристские клубы*

In 2018, the 100th anniversary of the creation of the state system of additional (out-of-school) education was celebrated in the country, an integral part of which is tourism and local history (TCD), traditionally combining in the education system children and youth tourism (DUT), local history, orientation.

Over the past period, the system, thanks to the activities of educational institutions, hundreds of thousands of organizationally formed, through it passed millions of students, with whom during participation in tourist trips, excursions, tourist and local history activities were solved the most important pedagogical tasks: training, education, rehabilitation, professional orientation, socialization, development.

Analyzing the historical events on the formation of youth tourism, we distinguish four stages of its formation: the first stage - the origin of tourism and excursions in Russia (XIX century - 1917); the second stage - the development of tourism in the first decades of Soviet power (1917-1941); the third stage -the restoration of youth tourism in the postwar period (1945 - 80 years) and the fourth stage – the formation of tourism and local history in the new socio-economic conditions (1990 - 2018).

The idea of development of the tourist direction is connected with introduction at the end of XVIII century in programs of educational institutions, courses in natural science, then there are the first educational walks in nature, the expediency of which was spoken by the advanced Russian teachers. The serious importance of the principle of visibility and objectivity in the system of education is reflected in the "Charter of public schools" (1786), and in the "school Charter" (1804) with instructions for excursions not only to nature, but also to visit manufactories, workshops of artisans.

With the 60-ies of the XIX century, some teachers begin to organize long walks. They were based at the science Park. It is known that one of these trips to the mountainous Crimea was made by a group of students of Odessa University in 1876 under the guidance of Professor Golovinsky I.A. [5].

The analysis of the content of the documents showed that, in addition to natural excursions, walks with a new purpose - humanitarian-are beginning to be carried out. On their own initiative, teachers organized excursions to historical and other attractions. The educational excursion was expanded and enriched with the educational purposes which basis was put the focused method of training.

Thus, at the end of the XIX century formed two types of travel and excursions. The first - to set goals for the study of geography, Geology, botany and other natural Sciences, there are also the first technical and industrial tours. Another type is long-distance educational trips to get acquainted with cultural and historical sights.

State regulation of this area was taken under the control of the Ministry of education, which contributed to the development of school educational tours, issued special provisions.

The legal and regulatory activities of the Ministry of education are systematic and, in particular, a circular was issued in 1889 indicating that particular attention should be paid to walking. Schools were instructed that "walks should be used for geography, natural history and other educational purposes" [1].

Due to the increase in the number of trips and excursions, there was a need for their coordination. This led to the creation in 1896 in Moscow of the Central excursion Commission under the Ministry of education (with a branch in St. Petersburg), which had a Museum and a library where information on tourist and excursion issues was collected. The Commission developed tourist and excursion programs for educational institutions, rules of conduct for tourists, sur-

vey sheets, kept records of travel of groups of students, which was the beginning of the creation of a user account, tourist documentation.

In 1900, the next circular of the Ministry of education abolished work during the summer holidays and recommended study tours and trips in return. These instructions marked the beginning of summer health work with students. At the same time, "it was considered appropriate to introduce local excursions into the practice of educational institutions and for this purpose, in the form of experience, it is allowed to devote excursions and museums during the school year up to seven days".

In 1890 in Odessa the Crimean mountain club along with the organization of expeditions on studying and protection, was engaged in development of informative routes and the device of excursions for pupils. Reports on work and educational excursions for schoolchildren were published in the journal "Notes of the Crimean Mountain Club" [8].

Official date of birth of the Russian tourism on April 15, 1895: in St. Petersburg by the decision of the Minister of internal Affairs the constituent meeting of Society of cyclists tourists and its official opening took place.

Various societies and clubs contributed to the formation and development of children's (student) tourism in Russia. Thus, the process of formation of children's tourism completed the creation of the Russian society of tourists (Roth), which took place in the period from 1895 to 1916.

In addition, in 1900, the Russian Mining Society was established in St. Petersburg, which in addition to research work also organized educational trips of students to the Caucasus, as evidenced by the journal "Yearbook of the Russian mining society".

About the same period in the depths of the Caucasian mountain society, organized in 1899 in Pyatigorsk, which had a tourist, scientific and educational orientation, allocated youth, school movement. Credit for the formation of a scientific approach to the development of school tourism belongs to Leitinger R. - Chairman of the Caucasian mining society.

In the mid 80-ies of the XIX century, Rudolf Rudolfovich settled in Pyatigorsk and launched an active innovative activity. In 1902 he founded the Caucasian mountain society, which played a significant role in the development of tourism in the North Caucasus. In his estate, which was the headquarters of the society, Leicinger opens Russia's first student camp called: "the student shelter of the Caucasian mining society in Pyatigorsk-hotel Switzerland", designed for 250 people. Moreover, money from young tourists didn't take. In the shelter they were provided with beds with mattresses, washbasins, boiling water for tea, a special dining room; they were given a free head, items of the mountain house of KGO in Pyatigorsk [5].

In November 1907, R. Leitinger published the location "on student tours". This extremely interesting document of great historical value was recently

discovered in the archives. The measures specified in this document for the development of children's tourism remain relevant today [5].

The Ministry of public education supported Leuzinger's proposals and initiatives for the development of student tourism. All-Russian programs were adopted and implemented. For example, by the end of high school, all high school students had to visit three great Russian cities: Kiev, St. Petersburg and Moscow, i.e. there was the creation of a national-cultural, Patriotic, local history program.

The analysis of archival documents of public authorities, establishes the official date of birth of Russian tourism-April 15, 1895 in St. Petersburg, as by the decision of the Minister of internal Affairs held the constituent Assembly of the "Society of cyclists-tourists" and its official opening. Now this date is accepted as a source of Russian tourism [8].

Since January, 1899 in St. Petersburg the monthly magazine "Russian tourist", body of society of cyclists-tourists begins to leave. In the same issue, the concept of tourism was defined: "Tourism is also a sport, and sport is the cleanest, the most free from any material calculations. A tourist can only be an Amateur, a person who has not lost the ability to love nature in all its manifestations, who has preserved in his soul the spark of poetry inherent in it at the birth of man" [8].

Much attention in the activity was paid to the organization and carrying out school excursions. Back in 1899, a special section "on school excursions and educational walks" was created on the pages of the magazine "Russian tourist". Here was given the experience of excursions in Russian schools. In these publications, it summarizes the experience of conducting excursions and organised trips to the Russian school for study of large cities and the nature of the Caucasus, the Crimea, the Urals and Central Asia. The society itself at its own expense organized such a tour in 1902 for the public schools of the city of Blagoveshchensk [8].

In the summer of 1911 a group of students of this Yaroslavl school went from Yaroslavl to Kiev. The students covered more than 1100 miles in 87 days.

Taking into account the complex activities of the company in all areas of tourism in Russia, in 1901 it was decided to rename the "society of cyclists-tourists" in the "Russian tourist club" and adopt a new Charter. The name in the European manner did not take root and almost immediately strengthened the name "Russian society of tourists". The date of Foundation, which is considered to be 1895.

Moscow representative A. P. Ditmar proposed to change the sign of the society, consisting of three letters – R. T. K., surrounded by a three-color ribbon of state flowers. At the bottom of the bow placed the year of Foundation -1895. Today "tourist and sports Union of Russia", many years later returned to this sign of the Russian tourist club.

By 1914, the Russian society of tourists became one of the most popular societies of that time and numbered about 5,000 people [2].

The Russian society of tourists was closed in 1916, in connection with the beginning of the First world war. Attempts to revive in the 1920s were unsuccessful. In 1928 the company was reorganized into the society of proletarian tourism and excursions of the RSFSR (RSFSR opt). The ideological successor of the company in modern Russia is the "tourist and sports Union of Russia" (CSR) [9].

Thus, at the turn of the century tourism and excursions become one of the methods of education. Enriched the theme of the city, and to correlate with school subjects. Travel already vary in duration (local one-two-day and long-distance), stand out in the summer as a factor of seasonality, expanding the geography of travel - from the Northern regions to the Crimea and the Caucasus and from the Urals to Europe.

In the first decades of Soviet power, many pre-revolutionary ideas and plans received theoretical and organizational development. After the revolution of 1917 the excursion method, as more creative, understandable and accessible, is introduced into the practice of schools. Tours purchase political and propaganda-oriented. By order of the people's Commissar of education of the RSFSR for the development of tourism and local history in 1918 in Moscow was created the Central Bureau of school excursions, which in 1921 was transformed into a children's excursion and tourist education station [1].

The first organizational and methodological recommendations of the people's Commissariat of tourism for children appeared in 1919. Attention is paid to sightseeing trips and mass work with children in the summer. For the purpose of health work with students begins the organization of summer camps in nature.

In 1919 in Petrograd in Anichkov Palace the Central station of humanitarian excursions which for 1920 carried out excursions for 138 thousand workers and school students opens. Slowly began to develop the six branches of the station in Pavlovsk, Peterhof, Pushkin, Sestroretsk and Lakhta, Kamennoostrovsky school.

In 1920, the school curriculum included local history. Of special interest to two of the proletarian capitals is growing. The children's desire to see Petrograd and Moscow was exceptionally great. Overcoming devastation and hunger, teachers with children went on excursions [9].

They were provided with products provided with a place at tourist bases. The students visited the monuments, museums, visited the factories. During this period, to help work the tour in Petrograd, published the magazine "tourist business" under the editorship of I. I. Polyansky, published a collection of articles Raikov, B. E. "School trips, their meaning and organization." A significant contribution to the development and improvement of the theory of excursion method of knowledge is made by Gerd A. Ya., Natalie V. F., Korf I. M., Heineke I. A. In 1922 the first large children's health camp "Artek"is based in the Crimea.

And in 1929 in the country the printed edition on tourism-the magazine "Tourist" was created. In 1929–1930 a number of resolutions of the Government of the Russian Federation promoted further development of production of the city. Visiting plants, factories, large buildings is included in the school local history programs as a mandatory Polytechnic education.

In 1930, the all-Union conference on tourist and excursion work was held in Moscow and the all-Union volunteer society of proletarian tourism and excursions was created, which was the beginning of mass tourist work in the country. Therefore, an important task of the organization is to put tourism at the service of the entire population of the country, given its cognitive and educational value [8].

The formation of children's tourism management bodies is beginning. In 1932, it merges with the Central Bureau of regional studies and the organization creates a children's sector, which through a network of pioneer groups across the country involves students in the active work of tourism as "young friends of tourism". For joint practice the society "friend of children" and the children's Commission of VTSIK was involved. Courses are organized to train managers of children's tourism [5].

Analysis of archival documents showed that after the adoption in 1927 of the decree of the people's Commissars "On strengthening the excursion work among children and adolescents" in tourism, a new direction of work, great importance is attached to Amateur tourism as the main and most valuable type of educational work and children's local history education. Is organizing trips, using navigation skills and elements of topography, camp life, ability to provide first aid and raised endurance.

Thus, at this stage of development of tourism in the Soviet Union in the development of children's tourism dominated educational and educational goals, laid the Foundation for summer recreational activities, but the priority areas were some local Amateur Hiking and sightseeing trips. In addition, during this period, the tourist and excursion business gradually merges with the elements of sports and recreation work.

In the mid-30s there was a rapid expansion of the tourist and excursion base, and the CEC of the USSR decides on the inexpediency of further development of tourism in the framework of Amateur societies. In 1936, all the tourist and excursion work in the USSR came under the jurisdiction of trade unions with the creation of the Central tourist and excursion management (CTEU). The ordering of the structure of tourist organizations begins. The governing body is KTEU with units in the Republican, regional and regional councils. When the Soviets organized the sections and clubs, tourism, tour Desk, a children's station. A system of organizations coordinating and controlling tourism in the USSR, including children's tourism, has been created [8].

In 1937, CTEU recognized inappropriate work of individual local history organizations, and by mid-1938, all children's local history stations at the local level in the country were eliminated.

At the same time, Amateur tourism is developing, but only as the main type of military-Patriotic education of pioneers and schoolchildren. In 1939, Amateur Hiking was recognized as a form of tourism. The emblem "Tourist of the USSR"was approved. In 1940 instructor ranks on types of Amateur tourism-pedestrian, ski, water, Bicycle, auto- and motor-tourism are entered.At this time, the people's Commissariat of education considered tourism as one of the types of educational work. "Tourism and excursions, pursuing primarily educational tasks, carry elements of the organization of physical training and training of the future fighter." Therefore, before the great Patriotic war continued to organize Hiking, field military sports games.

Thus, the first decades of the Soviet power for tourism and excursions were years of accumulation of experience, search of organizational forms of functioning of tourist communities and optimum methods of management of processes of development of youth tourism in the country. The Central tourist and excursion station ceased its activities during the war. Further development of children's tourism gets only in the postwar years.

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DEVELOPMENT AND FORMATION OF PERSONALITY STUDENTS

A.T. Nurgalieva, M.Zh. Shambaeva
albinka.nurgalieva@inbox.ru, madinka_musagalieva@mail.ru
Astrakhan State University

Abstract*: The article deals with the criteria and indicators of the study of personal qualities in younger students, allowing to explore the personal results of the development of the basic educational program of primary education. It also provides a comparison of criteria and indicators of personality. Also consider childhood as a stage of development of school education.*

Keywords: *criteria, indicators of the qualities of childhood, a child's trust, teacher*

РАЗВИТИЕ И ФОРМИРОВАНИЕ ЛИЧНОСТИ ШКОЛЬНИКА

А.Т. Нургалиева, М.Ж. Шамбаева
albinka.nurgalieva@inbox.ru; madinka_musagalieva@mail.ru
Астраханский государственный университет

Аннотация: *В статье рассмотрены критерии и показатели изучения личностных качеств младших школьников, позволяющие исследовать личностные результаты освоения основной образовательной программы начального общего образования. Приводится сравнение критериев и показателей личности. Детство рассматривается как стадия развития школьного образования.*

Ключевые слова: *критерии, показатели качеств, детство, доверие ребенка, педагог*

In this work, the childhood of a person is relevant for us, since it is during this age period that he goes through a developmental stage associated with schooling.

Theoretically, the question of the historical origin of childhood periods was developed in the works of P.P. Blonsky, L.S. Vygotsky, D.B. Elkonin. The course of the child's mental development, according to LS. Vygotsky does not obey the eternal laws of nature, the laws of maturation of the organism. The course of child development in class society, he believed, "has a very definite class meaning." That is why, he stressed that there is no forever childish, and there is only a historically childish. Thus, in the literature of the 19th century, there are numerous evidences of the absence of childhood among proletarian children [https://otherreferats.allbest.ru/psychology/00127029_0.html].

Historically, the concept of childhood is associated not with the biological state of immaturity, but with a certain social status, with the range of rights and obligations inherent in this period of life, with the set of types and forms of activity available to it. Many interesting facts were collected to confirm this idea by a French demographer and historian Philippe Aries. Thanks to his work, interest in the history of childhood in foreign psychology has increased significantly, and the studies of F. Aries himself have been recognized as classic.

Differentiation of the ages of human life, including childhood, according to F. Aries, is formed under the influence of social institutions, that is, new forms of social life generated by the development of society [https://www.bestreferat.ru/referat-112047.html].

The younger school age is called the top of childhood. The child retains many children's qualities - levity, naivety, a look at an adult from the bottom up. But he is already starting childish spontaneity in behavior, he has a different logic of thinking. Teaching for him is a significant activity. At school, he acquires not only new knowledge and skills, but also a certain social status. The interests,

values of the child, the whole way of his life are changing [https://studbooks.net/1642147/psihologiya/formirovanie_lichnosti_shkolnika].

In the period of primary school age, personality formation occurs quite noticeably. Personality is a lifetime systemic education, reflecting the social essence of a real person as a conscious subject of knowledge and an active transformer of the world [10].

The most important condition for the formation of personality is its participation in activities. Entering the school is a turning point in the life of a child. New relationships with adults and peers are developing, the child is included in the whole system of groups (school-wide, class). Inclusion in a new type of activity is a teaching that imposes a number of serious requirements on the student, forcing him to subordinate his life to strict organization in order to form socially valuable personality traits [http://jurnal.org].

At this age, the foundation is laid for moral behavior, the formation of the social orientation of the individual begins. The moral consciousness of younger students undergoes significant changes by the end of primary school. As the child's social circle expands, as a peer group forms in the classroom, the child's moral experience accumulates. Public assessments of the actions, knowledge, and personal qualities of the younger pupil already have great significance for him. But at the same time, the gullibility and openness of younger students in relation to adults (first of all - to the teacher) is still very great. One of the contradictions in the formation of the child's personality at this stage is precisely that, on the one hand, his ability to control his own behavior grows, and on the other hand, he unconditionally seeks to follow the moral patterns that adults give. Therefore, the role of adults (especially teachers) with whom the child is in constant communication is very important [https://nsportal.ru/user/335637/page/formirovanie-lichnosti-v-mladshem-shkolnom-vozraste].

The main pedagogical means of developing the personality of schoolchildren are understanding, empathy on the part of the teacher, stress relief, rationalization of the educational process, leveling the cultural and educational opportunities of children. And at the same time, an important role is played by the method of personal perspective, which creates in the child faith in their abilities. Trust in the child, the formation of real-perceived and real-life motives for his behavior, the analysis of conflict situations in which he often finds himself, a personal example of a teacher, the further positive impact of a teacher with his authority on the child's relationship with peers helps the full development of the child's personality. In the teacher's arsenal, there must be such methods as visual support in training, commented management, step-by-step formation of mental actions, advancing counseling on difficult topics. We also need learning situations with elements of novelty, entertaining, relying on the children's life experience, as well as a gentle study load [http://vozrastinfo.ru/adolescence/shkolnyi_vozrast.htm].

Criteria of personal qualities. Personality is the psychological characteristics, personality characteristics, capable of enrichment, manifested through a certain relationship to someone's behaviour and activities. For their research, teachers, in addition to diagnostic tools, need a system of criteria and indicators for the study of personal qualities of students [https://moluch.ru/archive/158/44694//htm].

According to scientists, the process of education of personal qualities involves: the formation of a person's need to develop quality; the inclusion of a person in an active cognitive activity to acquire knowledge about the essence of the quality being formed (in the form of ideas, concepts) and the development of appropriate feelings, views and beliefs (internal emotional and sensory aspirations in the need to develop this quality); practical formation of skills and habits of behavior associated with the produced qualities; development of the ability to exert strong-willed efforts to overcome the difficulties and obstacles associated with the observance of standards of conduct.

Let us consider a comparative scheme of criteria and indicators of personality (moral position by A.V. Ivashchenko; value orientations by L. V. Zubova).

I. Cognitive criterion involves obtaining information about the familiar rules and norms of behavior in the systems of relations "child-adult", "child - peers" on the basis of emerging moral ideas and feelings of the younger student and is manifested in:

II. information about the rules and norms of behavior chosen by the person in the systems of relations "child-adult", "child - peers";- ideas about themselves and their peers as a friend; ideas about the role of an adult in their lives; directions and content of the desired changes in existing relationships and positions.

II. The worldview criterion involves obtaining information about the peculiarities of the child's awareness of the changing relations with adults and changing its place in the system of social relations; the allocation of leadership and training as special functions of the adult. Manifested in:- the identity to problems; views on the possibility of their resolution; their own positions in a situation of the need to solve; needs assistance in case of difficulty;- the position in communication with adults (the prevalence of functional or personal component in communication).

III. Selection of motivational-behavioral criterion allows to see the manifestations of the above-mentioned features, variable characteristics of the person in her real behavior:

– representation of moral motives of behavior; appearance and manifestation of responsibility, initiative, independence;

– features of the relationship of the individual to peers and adults: stable, situational, indifferent, hostile;

– orientation and content of the activity of the individual in a situation of conflict with adults and peers.

IV. Emotional-evaluative criterion allows the researcher to differentially understand the features of awareness and understanding of the personality

of their own experiences and relationships and personal satisfaction with these relationships:

– well-being of the person in the main spheres of life: at home, at school, in the yard;

– satisfaction with the person's position;

– the presence of the individual needs to change the position; direction of the desired change [http://cyberleninka.ru/article//htm].

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ORGANIC METAPHORIC MODEL IN ARCHITECTURAL DISCOURSE

M.A. Simonenko
MASimonenko@yandex.ru
Astrakhan State University

Abstract*: The article dwells on the metaphoric models within the architectural discourse. The focus is on the organic metaphoric model that makes up significant fragment of the world picture in the professional discourse of the architect. In the research the metaphor is considered as the major means of conceptualization. Metaphors enable us to comprehend complicated professional target domains in terms of commonly shared and more familiar source domains.*

Keywords: *metaphor, metaphoric model, organic metaphor, frame, professional discourse*

ОРГАНИЧЕСКАЯ МЕТАФОРИЧЕСКАЯ МОДЕЛЬ В АРХИТЕКТУРНОМ ДИСКУРСЕ

М.А. Симоненко
MASimonenko@yandex.ru
Астраханский государственный университет

Аннотация: *В статье рассматриваются метафорические модели в архитектурном дискурсе. Особое внимание уделяется органической метафорической модели, которая составляет значимый фрагмент картины мира в профессиональном дискурсе архитектора. В исследовании метафора рассматривается как основное средство концептуализации. Метафоры позволяют постигать сложные профессиональные феномены из области цели посредством общеизвестных категорий из области источника.*

Ключевые слова: *метафора, метафорическая модель, органическая метафора, фрейм, профессиональный дискурс*

Metaphorization mechanism can be considered in terms of source domain concepts expansion into the target domain, which results in capturing and adopting these concepts by the target domain. Thus, metaphorization provides heuristic comprehension of new facts and deconstruction of stereotypes rooted in mind. In architectural discourse the metaphor is a means of comprehension of various professional phenomena; the source domain is the everyday world picture made up of everyday concepts about the world order. There is a viewpoint that any single metaphor is part of a more complicated and generalized structure of extralinguistic nature (metaphoric model) and therefore it should be researched alongside other metaphors with similar semantics [16; 17]. Only within

a metaphoric model a metaphor enters into relations with other metaphors of the same text or even the entire narrative. Consequently, such metaphoric clusters fix some common laws, reflecting this way peculiar features of national sense of identity at a certain stage of social development.

Metaphoric models are based on typical schemas and frames, i.e. knowledge structures stored in memory, these structures enable adequate cognitive processing of stereotype situations [18, p. 71]. Metaphoric models reflect everyday concepts both about the source domain and the target domain.

Metaphoric models in architectural discourse are cognitive units of the professional world picture. Architectural metaphoric models reveal the tendency to comprehend architectural phenomena through everyday concepts. Such models arrange and integrate heterogeneous fragments of knowledge and therefore contribute to the coherent linguistic world picture within the architectural discourse. Architectural metaphoric models include a number of single metaphors, each consists of a lexeme (or several lexemes) from the literary language and a lexeme from the professional language of architects. The word from the literary language serves as the focus of the metaphor, i.e. it predetermines coherent attitude to perception of the professional component of the metaphor. The professional word, in turn, makes the meaning of the entire metaphoric message more precise.

According to a widely recognized view on the metaphor, it always goes beyond personal and social spheres no matter how unique or creative it could be, since any metaphor aims at looking into the essence of things [1, p. 19, 26]. Thus, the article investigates individual creative metaphors alongside dead or conventional ones. The total number of metaphors analyzed is 305, the metaphors were taken from textbooks on the theory of architecture, professional internet sites, research papers from architectural journals.

The selected metaphors were distributed within metaphoric models according to the source domain. As the research shows, one of the most productive models is "Architecture is a biological organism".

It is remarkable to note that architectural theorists point to the value of this cognitive model for the contemporary architectural practice (discourse of architecture): "the fundamental concept «mechanism» has been reconsidered … in favor of the new concept «organism», that is the living evolutionary system…" [8, p. 385].

If we take architecture not only as a science of design and construction, but also as an art giving a clue to comprehension of "the universe creation and the world order" [11, p. 12], we will take it for granted that architectural objects and processes can be identified as natural phenomena.

Frame "Architecture as natural world"

The floors are being sprung up onto the ***"trunk" of a building*** [7]; ***a structure*** *must be …* ***living pulsing space*** [9]; ***the samples of architectural structures are born****… according to the laws governing organic nature* [14, p. 119]; *the entire* ***building is breathing and moving***… [12, p. 26].

The given metaphors explicate meanings of growth and development; an architectural object is viewed as a living system apt to grow and change through time and space, which quite correlates with the definition of architecture given by V. G. Vlasov: "It is in time and in space that an architectural composition unfolds… and its original sense, idea and its artistic image are revealed" [5, p. 39]. Obviously, architecture has a dynamic nature.

Frame "Architecture as living organism"

*A **city has a body** made up of buildings and **municipal networks, its vessels*** [6]; *the stairs and the lift shaft form the space that is an additional **rib stiffener of the building*** [12, p. 30]; *the original **architecture is a womb*** [13]; ***a house** is naturally **the second skin*** [15]; ***the heart of the complex** is the polyfunctional hall that enables not only to rehearse or play basketball, but also to make performances…* [2]; *Superb! Brilliant idea! **Architecture is moving… generating energy… will soon learn how to feed oneself**…* [7]; *and in a remote Russian province they **gave birth to the architecture** of the purest tint* [10].

There are several terms that cover the given metaphors: some researchers discuss such metaphors in terms of the physiological or organic metaphor [16; 17; 4]. Such metaphors are rather frequent in different discourses, particularly, in the political and economic discourses [16; 17; 3].

The source domain of the organic metaphoric model is well-structured; its "rootedness" in the human mind and its apprehensibility predetermine high heuristic and emotive potential of the organic metaphoric model in architectural discourse. Well-known fragments of the world picture are transferred into new realms under exploration and this transfer occurs on the basis of oneness and likeness of various things. Personification of architectural objects results in a new image, that is the image of a building as a single biological organism. Thus, an architectural object stops being just an artefact, it turns into comfortable and adaptable environment.

It is remarkable to note that the concept of organism if frequently manifested in the art of architecture: "the new theory of organism… appeals to the architectural mind", "«form being generated», «form as a movement» – all these …are concepts developed by contemporary architects P. Eisenman, R. Linn, J. Kipnis" [8, p. 155, 164].

The organic metaphor exemplifies one fascinating fact about metaphoric models, namely, their ability to interact and intersect: one and the same frame can relate to several domains [16, p. 180]. Frame "Architecture as living organism" proves the idea: obviously, it can be part of both organic and anthropomorphic metaphors. However, cognitive semantics explains such frame mobility: "unlike structural linguistics cognitive semantics never sets a target to develop rigid methodology for detection and differentiation of frames and slots within a metaphoric model. Ultimately, it is far more important to find general patterns rather than focus on separate details" [16, p. 182].

Thus, organic metaphoric model builds up an essential fragment within a professional world picture of an architect. The major sources for modelling complicated architectural concepts become domains with high apprehensibility, e.g. natural world and human body. This trend correlates with the main purpose of the metaphor in a professional discourse: professional metaphors facilitate articulation of professional ideas in a more precise and clear way. The system of basic metaphors highlights anthropocentrism as the major feature of architectural discourse.

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CITY SPACE AS TEXT: VISUAL DOMINANTS AND THEIR MEANING (TO THE 250TH ANNIVERSARY OF THE FIRST GENERAL PLAN OF ASTRAKHAN)

R.A. Tarkova
89275662348@mail.ru
Astrakhan State United Historical, Architectural Museum-Reserve

Abstract*: The article is devoted to dominants of the urbanized landscape on the example of Astrakhan. These are bridges, towers and gate. All of them are treated as components of the historical and cultural and landscape and ecological text which it is possible to read and gain, thus, broader impression about the City as the historical, philosophical and ecological phenomenon.*

Keywords: *bridge, urban ecology, tower, urban development, gate, space, dominant, landscape, architecture*

ПРОСТРАНСТВО ГОРОДА КАК ТЕКСТ: ВИЗУАЛЬНЫЕ ДОМИНАНТЫ И ИХ ЗНАЧЕНИЕ (К 250-ЛЕТИЮ ПЕРВОГО ГЕНПЛАНА АСТРАХАНИ)

Р.А. Таркова
89275662348@mail.ru
Астраханский государственный объединенный историко-архитектурный музей-заповедник

Аннотация: *В статье рассматриваются доминанты урбанизированного ландшафта на примере г. Астрахани. Ими выступают мосты, башни и ворота. Все они трактуются как компоненты историко-*

культурного и ландшафтно-экологического текста, который можно прочитать, и таким образом получить более широкое представление о Городе как историческом, философском и экологическом явлении.

Ключевые слова: *мост, урбоэкология, башня, застройка городская, ворота, пространство, доминанта, ландшафт, архитектура*

Any urban environment is a set of architectural components, landscapes and communication networks, permeated with lines of traffic and pedestrians. It can be perceived as «text», with the possibility of «reading» and «decoding» where the explicit values are hidden. For Astrakhan in the year when the anniversary of its first master plan is celebrated, the identification of such semantic accents of such «text» seems timely and promising.

Without a doubt, one of the symbols of this city is a door or a gate. For example, the city of Astrakhan is gate to Asia, and so it is opposed to a northern «Window to Europe». According to the journalist Larisa Reysner, Astrakhan is «the rusty and spoiled East door» [7]. At last, our city is also the portal between the safe territory and dangerous, others earth. In the architectural sense, the gate is a portal between the space, which is organized in a certain way, and the space with another organization and meaning (for example, street-yard, private-public, external-internal).

According to the dictionary by Ojegov, gate is journey in the building or for a fencing, closed by wide alignments, as well as these alignments [4, p. 84]. And the word it acquired many figurative senses. For example, «to let go whistle», «it's really too much». Gate had an important shortcoming as through them something dangerous can get and unexpected, and not just necessary. They weakened the line of defense, broke through protective perimeter (a fortification or a fencing of a household). Gate has to solve a dilemma how to pass something inside, or, on the contrary, to do not pass. It has to be spacious, conveniently located, to be closed and open without hindrances to perform the main «throughput» function. For realization of protective purpose it has to have strong shutters and locks, protection or guards, and even magic protection in the form of symbols and figures.

Gate is entered as separate architectural «phenomenon» in the list of historical and cultural monuments of Russia. So, an independent monument is gate of the estate of Churbakov which was built in the second half of the 19th century. It is located on the street of Kuibyshev, 36. Also gate of houses on the street of Kuibyshev, 37 and on Anatoly Sergeyev Street, 17 are separate architectural monuments [6]. There are a lot of similar examples. We can see a sheaf here «fencings-with-gate» in which the fencing protects and isolates, and gate provide communication. Gate played a role of characters of a celebration, triumph, a meeting. So, specially built wooden arch in Porto became a triumphal arch for entry of the tsar Alexander II into the city in 1871 from Volga. Gate played a key role in life of Astrakhan, both practical, and sacral. Several towers of military fortress, the Kremlin, were the real gate in last times. These are Red gate,

Prechistensky (bell tower), Nikolsky gate, Water gate. The second ring of city strengthenings, the White City which protected the trade and craft posad had several gate too. In the White city of a collar were called on the location, depending on where exactly conducted, and on the external features. George Gmelin at the beginning of 1770-x in detail described 8 of these gates [3].

Towers are one more significant manifestation of city «originality». These dominants of the urbanized landscape express aspiration of the city up, an earth unification with the sky, kind of their sewing together. It is considered that the term «tower» for the first time occurs in texts of the prince Andrey Kurbsky of the 16th century. The tower is a high and narrow architectural construction, at first time military appointment because on it there were soldiers shooters and tools were installed also. The Astrakhan towers are objects of different architecture, eras and appointment. They express architectural and temporary eclecticism of the city of Astrakhan as much as possible.

The main towers in Astrakhan are «deaf», not travel towers of the Kremlin (Crimean, Hierarchal, Artillery, Zhitnaya). Their value and symbolism are military and touristic, cultural now. One more tower is the Tower of Holy Transfiguration Monastery of the 17th century. The monastery and all surrounding building did not remain, and the tower looks as the island of old architecture. The tower serves as a reference point for transport in a city landscape, the bus stop, here make appointment.

The TV tower is the highest construction in the city (height of nearly 200 meters), and it kind of disappears in air, in the sky. At the same time it is the major reference point for all who are on distant approaches to the city. It is visible from everywhere, but at the same time she is able to disappear in fog and among urban development. It seems thin and weightless published, and incredibly suppresses close. It is a sample of an engineering design, especially utilitarian, and still an architectural monument. Two towers in the downtown are perceived together as couple. It is the memorial beacon in the Sea garden and the recreated bell tower of Annunciation Monastery. Fans of the writer J.R. Tolkien call them «Two Towers». These objects are symbols. The memorial beacon is a symbol of revolution, victory of the Soviet power. The bell tower is a symbol of revival of Orthodoxy in the region. The gravestone monument in the form of the sea beacon was built over a mass grave of the seamen of the Caspian flotilla who died during the White Guard mutiny of 1919 in Astrakhan. And the bell tower recreated with some derogations from the original form was open in 2014.

Within the main city communication and tape landscape of the city there is also a reference point tower. This landscape is the railroad tracks lifted on the embankment lasting through all city, dismembering it on two conditional parts. Construction of the railroad in Astrakhan began in 1903, in 1909 to the station there arrived the first train. A monument of those times is a tower pumping station at an embankment near Bering Street. In pre-revolutionary Russia they served for refueling engines with water. Such water towers were one of the main

elements of infrastructure of any station. On appearance this tower put from a brick with an iron spiral staircase in its round volume, is similar to a medieval donzhon. But its windows are similar to ship windows and remind of its «water» purpose. The relative of this building is the pumping station on the right coast of Volga. It is «ensemble of a water tower and the pump station adjoining it» on Olenegorskaya St., 16,18. It is constructed on Nikolay Milovidov's project in 1910-1911. Today it is used by Right-bank treatment facilities of a water supply system-1. Tower height is 32 meters [2].

One more tower is located on the square near Tatar market (Volzhskaya Street). The building of the Fourth fire brigade with a tower (kalancha) is similar to a tower hybrid with a house. It is connected also with protection against floods, and with protection against the fires. The modern address of this tower is Zoya Kosmodemyanskaya St., 2. Such constructions were standard in the second half of the 19th century, but they remained a little. The similar construction is on Krasnaya Embankment, 67. This building of the Christmas fire brigade is a cultural monument, but remained badly. Once this kalancha dominated in the surrounding building consisting of 1-2-storey brick houses of the end of the 19th century and together with the Roman Catholic church and cathedral of St. John the Baptist Monastery created a silhouette of east part of the city. The fire tower (kalancha) was wooden, had the observation deck above [5]. In 1954 in Astrakhan construction of an elevator began. With construction of this 14-storey construction there begins the history the plant of bakery products on Rybinskaya St., 15. Citizens perceive an elevator as a tower, its peaked silhouette reminds of the medieval towns of Europe. It serves as a reference point for movements of people and transport in this part of the city where economic and shopping facilities are concentrated.

So, all Astrakhan towers symbolize some elements or the industry of human activity. The bell tower of Annunciation Monastery, a tower of the Spassky monastery and the bell tower of the Kremlin represent religion. The memorial beacon in the Sea garden and towers of the Kremlin symbolize the military sphere. The pumping station on the Trusovsky side is a symbol of elements of water, a fire kalancha at the Tatar market is a symbol of fire. A tower on Bering Street is a railroad symbol, and a television tower is the embodiment of elements of air. The elevator is sated with meanings: bread, wealth, harvest.

One more visual dominant, sign for Astrakhan, of the urbanized landscape are city bridges. The bridge, according to Ojegov, is a construction for transition, moving through the river, a ravine, a railway track [4, p. 311]. Within the city of bridges total 45 [1]. How these constructions perform the function of a dominant in a city landscape? First, they visually structure a city landscape on virtual «blocks». Secondly, serve as bindings at creation of routes of movement around the city – both for transport, and for pedestrians. Thirdly, create the centers of gravity of social activity as everyone received characteristic «face» in life

of the city and citizens [8, p. 177–193]. So, Novy Bridge through Volga and Vlyublennykh Bridge through Kutum are associated with a wedding route. The Red Bridge and Yamgurcheevsky Bridge in the market Big Isada are places of active trade. The Friendship of Russia and Azerbaijan Bridge is the place of family walks, etc. At last, bridges thanks to the location create opportunities for the panoramic review, allowing to see the city from the foreshortening inaccessible to motorists and pedestrians in other locations. Thus, bridges create also the potential photozones so popular with tourists and photographers of the whole world now. Thereby, bridges can be considered as well as a resource for development of city tourism, including ecological.

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Издательский дом «Астраханский университет»
414056, г. Астрахань, ул. Татищева, 20а
Тел. (8512) 24-64-95 (отдел планирования и реализации),
тел./факс (8512) 24-68-37
E-mail: asupress@yandex.ru