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К ВОПРОСУ ОБ ОБОГАЩЕНИИ СЛОВАРНОГО СОСТАВА АНГЛИЙСКОГО ЯЗЫКА НА БАЗЕ АРАБСКИХ ЗАИМСТВОВАНИЙ

V. E . Pronyaeva

Длительное господство арабов в Испании, их влияние на материальную культуру, науку и хозяйство европейцев в эпоху средневековья, торговые связи Англии с Востоком и многие другие исторические факторы оставили свой след в словарном составе английского языка в виде целого ряда арабских заимствований, относящихся к различным областям науки, к торговле, к укладу жизни восточных народов, к фауне и флоре Востока.

Слова арабского происхождения проникли в английский язык как непосредственно из арабского языка, так и косвенно, т.е. через французский, испанский, итальянский, латинский и другие языки.

Например следующие слова попали в английский язык из арабского непосредственно: ihram, imam, simoon, henna, Islam, afreet, shadoof и т.п.

Через французский язык были заимствованы слова: syrap – фр. sirop, sumach - фр. sumac, algorism - фр. algorisme, amber - фр. ambre и т.п. Через испанский: alfalfa - исп. alfalfa, masquerade - исп. mascarad и т.п.

Следует отметить, что не все арабские заимствования в английском языке равноценны по своему удельному весу. Некоторые слова арабского происхождения выражают понятия, характерные для жизни на Востоке и поэтому они сохранились лишь в узкой сфере употребления. К их числу относятся: emir, beduin, fakir, imam, sheikh, и т.д.

А такие слова арабского происхождения как cotton, coffee, azimuth, calibre, tariff, almanac многие другие получили широкую известность в английском языке и нередко служат базой для образования новых производных слов.

Просмотр английских словарей позволил выявить большое количество производных и сложных слов, образованных от арабских заимствований
при помощи определенных словообразовательных способов.

1. Суффиксация

В образовании производных слов от арабских заимствований наиболее продуктивным способом является суффиксация.

Обратимся к примерам.

Admiral n (араб.) - admiralty (n) (англ.)

Cotton (n) (араб.) - cottonization (n) (англ.), cottony(adj.), cottonize(v)

2. Конверсия.

Основными случаями конверсии арабских заимствований является вербализация существительных. Например:

Cipher(n) – cipher (v)- 'высчитывать'

Mash(n)- mash(v) –'маскировать'

3.Словосложение.

Сущность которого заключается в образовании нового слова путем объединения в одну «цельнооформленное» сложное целое двух или более полнозначных слов. Например:

Cotton grass – пушица

Coffee-mill – кофейница

Sandalwood – сандаловое дерево.

3. Сокращение.

Количество слов, образованных путем сокращения арабских заимствований незначительно. Например:

Altazimuth –прибор для измерения высоты и азимута небесных тел.

И наконец, относительно многозначности арабских заимствований. Многие слова в английском языке приобрели целый ряд новых значений.

Так, заимствованное в XIV веке слово cipher("пустой") сперва значило нуль, а в современном английском языке оно значит: "цифра", "число", "монограмма".

Все изложенные здесь наблюдения позволяют сделать следующие выводы:

Многие слова арабского происхождения, вошедшие в английский язык, в силу конкретных исторических условий развития английского общества, под воздействием законов словообразования приобрели определенную словообразовательную потенцию и служат базой для образования новых слов.

Основными случаями образования новых слов на базе арабских заимствований является суффиксация, конверсия, словосложение и сокращение.

HACKER WRITING STYLE

Bashlak I.A.

Hackers often coin jargon by generalizing grammatical rules. This is one aspect of a more general fondness for form-versus-content language jokes that shows up particularly in hackish writing. Hackers claim that many people have been known to criticize hacker jargon by observing: «This sentence no verb», or «Too repetetetive», or «Bad speling», or «Incorrectspa cing,»

Similarly, intentional spoonerisms are often made of phrases relating to confusion or things that are confusing; 'dain bramage' for 'brain damage' is perhaps the most common (similarly, a hacker would be likely to write «Excuse me, I'm cixelsyd today», rather than «I'm dyslexic today»). This sort of thing is quite common and is enjoyed by all concerned.

Hackers tend to use quotes as balanced delimiters like parentheses, much to the dismay of American editors. Thus, if «Jim is going» is a phrase, and so are «Bill runs» and «Spock groks», then hackers generally prefer to write: «Jim is going», «Bill runs», and «Spock groks». This is incorrect according to Standard American usage (which would put the continuation commas and the final period inside the string quotes).

Hackers tend to distinguish between 'scare' quotes and 'speech' quotes; that is, to use British-style single quotes for marking and reserve American-style

double quotes for actual reports of speech or text included from elsewhere. Interestingly, some authorities describe this as correct general usage.

One further not standard permutation is a hackish tendency to do marking quotes by using apostrophes (single quotes) in pairs; that is, 'like this'.

In the E-mail style of UNIX hackers in particular there is a tendency for usernames and the names of commands and C routines to remain uncapitalized even when they occur at the beginning of sentences. For many hackers, the case of such identifiers becomes a part of their internal representation (the 'spelling').

Behind these nonstandard hackerisms there is a rule that precision of expression is more important than conformance to traditional rules; where the latter create ambiguity or lossage of information. It is notable in this respect that other hackish inventions in vocabulary tend to carry very precise shades of meaning even when constructed to appear slangy and loose.

Hackers have also developed a number of punctuation and emphasis conventions.
One of these is that TEXT IN ALL CAPS IS INTERPRETED AS LOUD', a person that writes in this way may be asked to «stop shouting, please, you're hurting my ears!»
Also, it is common to use bracketing with unusual characters to signify emphasis. The asterisk is the most common, even though this interferes with the common use of the asterisk as a footnote mark.
E.g.:«What the heII?»
The underscore is also common, suggesting underlining. This is particularly common with book titles.
E.g.: «It is often alleged that Joe Haldeman wrote TheForeverWar as a rebuttal to Robert Heinlein's earlier novel of the future military, StarshipTroopers.».
Other forms exemplified by «=hell=», «\hell/», or «/hell/» are occasionally seen.Some hackers claim that «in the last example the first slash pushes the letters over to the right to make them italic, and the second keeps them from falling over>.
Finally, words may also be emphasized L I K E T H I S, or by a series of carets (^) under them on the next line of the text.
There is a semantic difference between emphasis LIKE THIS(which emphasizes the phrase as a whole), and emphasis LIKETHIS (which suggests the writer speaking very slowly and distinctly, as if to a very young child or a mentally impaired person). Bracketing a word with the " character may also indicate that the writer wishes readers to consider that an action is taking place or that a sound is being made.
E.g.: 'bang', 'ring', "mumble'.
There is also an accepted convention for 'writing under erasure'; the text «Be nice to this fool^H^H^H^Hgentleman, he's visiting from corporate HQ.» may be interpreted as «Be nice to this fool, er, gentleman...»
Crackers, phone phreaks, and warez dOOdz (mostly teenagers running PC-clones from their bedrooms) have developed their own characteristic jargon, heavily influenced by skateboard lingo and underground-rock slang.
Here is a brief guide to cracker and warez dOOdz usage:
Misspell frequently. The substitutions phone => fone freak => phreak are obligatory.
Always substitute 'z's for 's's. (i.e. "codes" -> "codez").
Type random emphasis characters after a post line (i.e. "Hey Dudes!#!$#$!#!$").

Use the emphatic 'k' prefix ("k-kool", "k-rad", "k-awesome") frequently. Abbreviate compulsively ("I got lotsa warez w/ docs"). ! Substitute '0' for 'o' ("rOdent", "lOzer").

A distinctive style of shared intellectual humor found among hackers has the following marked characteristics:

1. Fascination with form-vs.-content jokes, paradoxes, and humor having to do with confusion of. A metasyntactic variable is a variable in notation used to describe syntax, and meta-language is language used to describe language.

Metasyntactic variable is a name used in examples and understood to stand for whatever thing is under discussion, or any random member of a class of tilings under discussion. The word foo is the canonical example. To avoid contusion, hackers never use 'foo' or other words like it as permanent names for anything.

2. Elaborate deadpan parodies of large intellectual constructs, such as standards documents, language descriptions and even entire scientific theories, for instance.

3. Fascination with puns and wordplay.

ЕТИКО-ПСИХОЛОГІЧНЕ ПІДГРУНТЯ ВИБАЧЕННЯ В АНГЛОМОВНОМУ ДИСКУРСІ

Буренко Т.М.

В основі вибачення лежить взаємодія низки психологічних факторів, що тісно переплітаються між собою і які важко відокремити один від іншого.

Мислення як реальний психічний процес є єдністю інтелектуального й емоційного, а емоція – єдністю емоційного й інтелектуального. Більшість людських емоцій інтелектуально обумовлені. Думку й емоцію навряд чи можна розмежувати і виділити в чистому вигляді.

Загалом емоції розділяють на «позитивні» й «негативні». Негативна емоція – це сигнал неспокою, небезпеки для організму. Позитивна емоція – сигнал поновленого благополуччя.

Мовленнєвій дії вибачення передує негативна емоція провини, яка продовжується до моменту вибачення – до появи позитивної емоції поновленого благополуччя, радості від поновлення колишніх добрих стосунків з адресатом. Вибачення також тісно пов'язане з

двома емоціями – емоцією сорому та емоцією провини, які є базовими складовими людської натури.

Сором – це сильна зніяковілість від усвідомлення здійснення малефактивного вчинку або потрапляння у принизливу ситуацію, в результаті чого людина відчуває себе зганьбленою, збезчещеною. Сором – це принизливе переживання або внутрішня гризота, хвороба душі.

На відміну від сорому, **провина** не залежить від реального або уявного ставлення оточуючих до проступку. Переживання провини викликається самозасудженням, супроводжується каяттям і зниженням самооцінки.

Провина є складним психологічним феноменом, тісно пов'язаним із такою моральною якістю як совість. В етиці **совість** характеризується як здатність особи здійснювати моральний самоконтроль, формулювати для себе моральні обов'язки, вимагати від себе їх виконання і робити оцінку зроблених вчинків.

Совість розглядається як емоційно-оцінне ставлення особи до власних вчинків. Докори сумління спочатку пов'язані з конкретною ситуацією провини, вони асоціюються з уявленням про покарання; таким чином, совість виступає у формі страху й сорому перед близькими.

Під впливом почуття провини або відчуваючи, що їх поведінка не відповідає засвоєним ними нормам, вибачення використовується мовцями з метою мінімізувати або нейтралізувати нанесену чи ймовірну образу адресатові, відносний розмір якої залежить від соціальних стосунків учасників інтеракції: від того, кому була заподіяна шкода – друзям, начальнику або незнайомій людині.

Отже, складові частини етико-психологічного підґрунтя вибачення, що відображають його суб'єктивний фактор – це почуття провини й сорому, совість та норми ввічливості, властиві певній епосі, причому інтенсивність зазначених емоцій залежить від типу малоефективного вчинку і коливається від незначного почуття провини за порушення норм етикету до болісного переживання за нанесену адресатові шкоду.

НОВА ЕКОНОМІЧНА ЛЕКСИКА І ТЕРМІНОЛОГІЯ АНГЛІЙСЬКОЇ МОВИ

Гаврилова В.В., *викладач кафедри іноземних мов*

Із зростанням людських знань і розвитком ідей, а також їх зміною, зростає і кількість слів у мові. Кожне нове наукове відкриття потребує найменування як засобу вираження логічної уяви про поняття. Даний процес викликає також численні зміни значень існуючих слів.

Англійська мова, як і будь-яка інша мова, пристосовується до найрізноманітніших потреб означення. У мовній лексиці розрізняються два її найтиповіші варіанти: розмовно-літературна і науково-технічна. Розмовна лексика вживається у повсякденному спілкуванні усіх мовців. Технічна лексика вживається у галузях науки, хоча при цьому залучається значна частина загальновживаних слів. Науково-технічний вокабуляр - це засіб спілкування учених і фахівців, які намагаються користуватися ним точно і постійно. Технічна лексика має дещо інтернаціональний характер. Багато технічних слів ідентичні за формою і значенням у кількох мовах.

Проблемами термінології глибоко займались такі лінгвісти , як Г.О.Винокур, А.А.Реформатський, О.С.Ахманова, В.П.Даниленко, Н.З.Котелова , С. В. Гринєв та інші. О.С.Ахманова визначає термін як "слово чи словосполучення спеціальної (наукової, технічної і т.п.) мови, яке створене, отримане чи запозичене для точного вираження спеціальних понять і позначення спеціальних предметів ".

Приблизно такі ж визначення термінології знаходимо і в зарубіжних словниках лінгвістичних термінів. Так, у словнику Ж.Марузо термінологія визначається як система термінів, які використовуються для вираження понять, притаманних даній науці.

В основі кожного терміна обов'язково лежить визначення (дефініція) реалії, яку він позначає, завдяки чому терміни представляють собою точну і в той же час стислу характеристику предмета чи явища. Кожна галузь знання оперує власними термінами, які й складають суть термінологічної системи даної науки.

Багато авторів, які досліджували терміни, робили спробу класифікувати ці одиниці. Так, можна виділити такі різновиди фахової лексики як професіоналізми та номенклатуру. Нерідко ми ототожнюємо професійну лексику і термінологію, вважаючи, що професіоналізми виражають спеціальні поняття, знаряддя або

продукти праці, виробничі процеси. Але досліджуючи це питання потрібно відзначити, що термін є цілком офіційним, прийнятим та узаконеним в певній науці поняттям. Професіоналізм це напівофіційне слово, що властиве мовленню людей певної професії , але по суті не є точним науковим поняттям. Наприклад, професіоналізми працівників банківсько-фінансової, торгівельної сфер: the removed cash desk - знята каса, to line profit - підбити прибуток, to estimate balance - прикинути баланс.

Розглядаючи питання термінології, слід звернути увагу на проблему відмежування термінів від номенклатурних одиниць, які позначають окремі поняття і також включаються до лексичного складу мови. Номенклатура (від латинського перелік, список імен) це сукупність назв (номенів) конкретних об'єктів певної галузі науки, техніки, мистецтва тощо. Це розмежування на терміни і номени закріпилося в лінгвістиці і використовується сучасними дослідниками О.О. Реформатський, услід за Г.О. Винокуром, диференціює терміни і номени, вказуючи, що номенклатурні найменування пов'язані з поняттями, але є незчисленними і більш номінативними, а терміни пов'язані з поняттями науки (в якомусь єдиному її напрямку), можуть бути перелічені, і вони примусово пов'язані з поняттями відповідної науки, тому що словесно відображають систему понять відповідної науки.

Значення номенклатурних слів конкретніше і точніше значення термінів, номени можуть позначати предмети одиничні, і тому можуть бути і власними іменами. Наприклад, нові номени, які позначають бізнес-заклади, фірми, товари, фінансові інструменти тощо – World Trade Organization, Investor in Industry, World Equity Benchmark Shares, Emerging Market Traders Association. При цьому номенклатурні одиниці можуть розглядатися як особливий тип термінів, які співвідносяться з одиничними поняттями і актуалізують предметні зв'язки.

Таким чином ми розглянули тільки де які аспекти термінології. Необхідно наголосити, що збагачення словникового складу англійської мови у зв'язку з інформаційною революцією, а також посиленими процесами глобалізації економічного життя потребує глибокого лінгвістичного та соціо-лінгвіністичного дослідження. Одним із практичних результатів такого дослідження, на мою думку, є укладання англо-українського словника термінів, який надасть значну допомогу викладачам і перекладачам у їх практичній діяльності.

A NEW MODEL OF TEAM BUILDING

I.A. Morozova, *Senior Teacher*

In this age of rapidly changing technology, market-driven decision making, customer sophistication, and employee restlessness, leaders and managers are faced with new challenges. For corporations, small companies, educational institutions, and service organizations to become competative and to survive, new structures must be built and new skills must be mastered.

As our work settings become more complex and involve increased numbers of interpersonal interactions, individual effort has less and less impact. In order to gain control over change by increasing efficiency and effectiveness, a group effort is required. The creation of teams to accomplish tasks and effect desired change has become necessary as a process to control organizational change by a group whose members are joined together in pursuit of a common purpose.

Team building is used to improve the effectiveness of work groups by focusing on any of the following four purposes: setting goals and priorities, deciding on means and methods, examining the way in which the group works, and exploring the quality of working relationships. A cycle then develops; it begins with the awareness or perception of a problem and is followed sequentially by data collection, data sharing, diagnosis, action planning, action implementation, and behavioral evaluation. This cycle is repeated as new problems are identified.

Some work groups technically are not teams. Reilly and Jones note four essential elements of team behavior: the team members must have mutual goals or a working relationship; individuals must be committed to the group effort; and the group must be accountable to a higher level within the organization. Karp cites the example of an athletic team. A reason to work together is defined by team goals and overall purpose. Individual players have specific assignments for which each is independently responsible, but each player also must depend on other team members to complete their assignments.

Teams are differentiated from groups in that they possess the four essential elements of goals, interdependence, commitment, and accountability. From a structural perspective, new work groups may be created that will differ in terms of composition, time span, and assigned tasks. A primary objective will be to increase awareness of group process. In essence, the group members will learn how to control change externally

by experimenting internally. The team-building effort will concentrate on barriers to effective functioning and the selection of strategies to overcome these barriers.

A team member is one of a group of mutual followers. Observation of individuals functioning within teams leads to the following list of characteristics of an effective team member. Such a person:

- Understands and is committed to group goals;
- Is friendly, concerned, and interested in others;
- Acknowledges and confronts conflict openly;
- Listens to others with understanding;
- Includes others in the descision-making process;
- Recognizes and respects individual differences;
- Conributes ideas and solutions;
- Values the ideas and contributions of others;
- Recognizes and rewards team efforts;
- Encourages and appreciates comments about team performance.

These characteristics are in a sequential pattern, alternating task and relationship behaviors. This pattern of behaviors is the starting point for the development of a model of team building.

A Model of Team Building

Stage	Theme	Task Outcome	Relationship Outcome
One	Awareness	Commitment	Acceptence
Two	Conflict	Clarification	Beloning
Three	Cooperation	Involvement	Support
Four	Productivity	Achievement	Pride
Five	Separation	Recognition	Satisfaction

To summarize the model, the five themes and their respective task and relationship outcomes are as follows: awareness (commitment and acceptance); conflict (clarification and belonging); cooperation (involvement and support); productivity (achievement and pride); and separation (recognition and satisfaction). Using specific elements, objectives, and values as a starting point, the presented model of team building identifies a group of observable behaviors that characterize effective teamwork. Although team development is presented as a process in which the members are mutual followers, the context in which team building occurs requires the facilitator or team leader to have a thorough understanding of the process of leadership. The two are mutually reciprocal. Effectiveness in one improves performance outcomes as well as working relationships; effectiveness in both creates a synergistic effect.

ФОРМУВАННЯ НЕОЛОГІЗМІВ ПІД ВПЛИВОМ ЕКОНОМІЧНОЇ КРИЗИ

Нефедченко О.І., *викладач кафедри іноземних мов*

Сучасна англійська мова розвивається безупинно, але нерівномірно завдяки змінам які постійно трапляються у суспільному житті. За останні роки в англійській мові відбувається справжній неологічний вибух. Створюються нові слова і словосполучення, які призначені для номінації і характеристики економіки в умовах економічної кризи. Так, наприклад, на початку поточної кризи з'явився неологізм credit crunch, який означає «обмежування кредиту» (державно-монополістичні дії у боротьбі з інфляцією).

Виникнення економічної кризи примушує нас вивчати терміни, які раніше були відомі лише невеликій кількості спеціалістів даної галузі. У сучасному світі кожен з нас вже знайомий зі словами: sub-prime mortgages (іпотека, для позичальників з небездоганною репутацією, яка на декілька пунктів перевищує основну) toxic debt (невиплачений борг), foreclosures (заборона права викупу закладеного майна) та deleveraging (зменшення кількості заборгованих грошей) але вони не є новими. Хоча економічна криза торкнулася кожного з нас, деякі споживачі спочатку сподівалися, що їх ця проблема обмине. Такий економічний феномен отримав назву narcicession. Після періоду narcicession з'явився неологізм denialation, коли споживач не розумів, чому його рівень життя постійно падає.

Скандали навколо фінансових махінацій викликали потребу створення неологізму dirty-white-collar, що є загальною назвою корумпованого підприємця, діяльність якого виходить за рамки закону.

Збагачення словникового складу мови новими словами відбувається шляхом запозичення, словотворення та зміни значення слів. Серед неологізмів можна виділити власне-неологізми, неологізми-новоутворення та неологізми значення.

Власне-неологізми – це нові слова, які раніше в мові не вживалися. Так неологізм funemployed зображує людину, яка втратила роботу, але використовує новий статус для досягнення будь-якої мети. Zombie Bank – так називається фінансова установа, чиї обов'язки перевищують активи, але вона продовжує працювати, використовуючи державну підтримку. Econnoisseur – це людина, яка пишається, що знайшла якісну річ за низькою ціною

До неологізмів-новоутворень належать складні слова, які складаються з двох компонентів, що співвідносяться з основами слів. Так, наприклад, неологізм bankster поєднує в собі слова banker та gangster. Bankster – це видатний професіонал банківської справи, працює найчастіше з групою однодумців, має справу з сумнівною або ризикованою операцією, щоб захистити свої власні інтереси.

Завдяки поєднанню слів affluence та influenza виник неологізм affluenza – надмірна матеріальна зацікавленість, яка вимагає виснажливої праці і неодмінно веде до перевтоми, стресів. Поняття staycation складається із дієслова to stay (залишатися) та іменника vacation (канікули, відпустка). Так називають святкові дні або відпустка, проведені вдома через відсутність грошей на подорож.

Внаслідок скорочення штатів і масових звільнень робітники, які залишилися у фірмі, змушені виконувати і роботу своїх звільнених колег. Така робота позначається неологізмом-словосполученням ghost work. У 80ті-роки минулого сторіччя це словосполучення вживалося у значенні «робота, виконана реальним автором». У 2002 році цей неологізм набув іншого значення – «робота, яку раніше виконували інші, звільнені працівники, а тепер – ті, хто залишився у фірмі після скорочення штатів». Ghost work належить до неологізмів-значення. Вони з'являються як результат семантичної деривації на основі метафори та інших переносів найменування. До неологізмів-значення належить і слово toxic. Раніше слово toxic вживалося, щоб описати токсичну отруйну рідину. У 2008 році цей прикметник почав вживатися, щоб описати позику, яка спричиняє серйозні проблеми бізнесу для банку або фінансової організації (unpaid loan).

Таким чином можна зазначити, що неологізми – це дуже актуальна, інноваційна частина словникового складу англійської мови. Вони відображають економічні, політичні та соціальні зміни в суспільстві. Аналізуючи наведені приклади нових слів, можна зробити висновки: по-перше, утворення більшості неологізмів відбувається завдяки словотворенню; по-друге, неологізми – це не обов'язково зовсім нові слова. Вони могли вживатися раніше , але з іншим значенням.

ОРГАНІЗАЦІЯ САМОСТІЙНОЇ РОБОТИ В ЕВРИСТИЧНОМУ НАВЧАННІ ІНОЗЕМНОЇ МОВИ

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Основним завданням сучасної освіти є формування творчої особистості, здатної до саморозвитку, самоосвіти , самореалізації. Студент має перейти від пасивного слухача до активного творця знань, уміти сформулювати проблему, визначити мету власної діяльності, проаналізувати шляхи її розв'язання, отримати власний освітній продукт і довести його правильність шляхом презентації і захисту.

Будь-яка навчальна діяльність, особливо самостійна, планується і організовується в контексті пізнавальної і творчої самореалізації студента. Самостійна робота являє собою певний етап творчої самореалізації особистості в рамках навчання, яке на сьогодні об'єктивно перетворюється в евристичний процес, тобто процес пошуку і конструювання власних особистісно значимих освітніх продуктів. Останні і становлять предметний результат самореалізації.

Організація самостійної роботи в евристичному навчанні, як з'ясувало наше дослідження, включає такі етапи.

Мотиваційно-ціннісний. Саме мотивація має привести до значимої діяльності цілепокладання, тобто до власної мети навчальної діяльності та визначення значимих для студента її продуктів.

Процесуальний. Це реалізація створеної автором моделі самостійної діяльності як способу самореалізації особистості. Виконання студентом означеного завдання проходить у постійній взаємодії з різними джерелами знань і різними суб'єктами діяльності.

Діагностично-корекційний. На основі вироблених разом зі студентами критеріїв здійснюється діагностика та корекція отриманого освітнього продукту.

Презентація та захист освітнього продукту (проекту, твору, розповіді, моделі мовлення тощо).

Тільки забезпечивши евристичний характер самостійної праці, можна досягти повноцінного процесу самореалізації творчого потенціалу особистості, як основної мети сучасного освітнього процесу.

АНГЛІЙСЬКІ ЗАПОЗИЧЕННЯ В УКРАЇНСЬКІЙ МОВІ

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Процес запозичення з однієї мови до іншої є природним, а іноді й необхідним явищем, що впливає на розвиток мови в цілому. Запозичення безпосередньо пов'язане з виникненням нового терміну, який позначає певне явище або називає певний предмет. Проникнення запозиченого терміну до іншої мови є результатом потужного розвитку зв'язків між країнами, впровадження новітніх технологій на іноземному ринку, що і позначається водночас і перетинанням через кордони термінів, за допомогою яких з'являється можливість охарактеризувати новітнє, ще не вивчене, іноземне, те, чого не було, не називалося раніше.

Зміна історичних умов, розширення міжнародних контактів та інтенсивність інформаційних процесів зумовлюють появу великої кількості нових слів у лексиці української мови. Це відбувається, як правило, за рахунок запозичення із інших мов, а особливо з англійської. Запозичення з'являються як у загальнонародній, так і в термінологічній лексиці української мови.

Найбільш продуктивною з погляду запозичень є група лексики, що обслуговує сфери економічної діяльності (зокрема, бухгалтерський облік, банківська справа, маркетингова діяльність та ін.), а також найбільш некерованою, оскільки мовознавча наука не встигає дати аналіз новим термінам-словам, що потрапили до мови, що призводить до калькування та варваризації мови, до запозичення термінів, які вже мають свою історію в українській мові (*бренд-менеджер* – спеціаліст певної торгової марки; *топ-менеджер* – головний менеджер, *екаунт-менеджер* – бухгалтер-менеджер тощо). Тенденція до утворення таких „штучних" термінів-назв пов'язана з модою та естетичними смаками людей, що користуються даною групою лексики, бо засоби масової інформації, комп'ютерні технології користуються цими термінами, не розраховуючи на високу мовну культуру споживачів (більшість бізнесменів та бізнес-леді – це люди віком від 25 до 40). Більш престижно (незнайомо) звучить *мерчандайзер,* ніж спеціаліст з продажу; *екаунтент*, ніж бухгалтер; *хед-хантер*, ніж кадровик тощо. До цієї ж категорії слів належать такі: *супервайзер, франчайзер, ритейлор, ріелтор, рекрутер(*дуже цікаве слово, яке отримало друге життя у мовному просторі України: від Шевченкового рекрута до рекрутера приватної фірми*), креативний*

директор, андеррайтер, коучер, ПР-менеджер (Public Relation manager), конвент-менеджер, лід-менеджер, солід-менеджер, копірайтер. З іншого боку залучення цих слів до словникового складу забезпечує „мінімізацію" мовного потоку, що спричинено збільшенням вартості кожного слова у засобах масової інформації. До цієї ж семантичної групи можна віднести і таке слово як gate keeper, що в газеті „Бізнес" вживається замість слова „сторож, охоронець, вартовий", графічно передається англійською мовою, оскільки автори публікації впевнені, що навіть учні середніх класів здатні зрозуміти його зміст без перекладу. Судячи з першого слова gate (*з англ.* ворота), йдеться не про велику фірму, а про мега-фірму, що зачиняється не дверима, а щонайменше воротами, отже через деякий час це слово може отримати українську оболонку і зайняти належне місце в нашій мові. (До речі, така доля спіткала слово *хейдж (hedge)*, яке й досі зустрічається у пресі як в англійському, так і в українському написанні).

Спостерігається явище переходу слова із пасивного до активного словника. Так лексема рекрутуватися (СУМ фіксує її як застарілу), що відома із значенням „залучатися до якої-небудь справи; вербуватися", в мові нашого часу набула ще й додаткової семантики - „поповнюватися, набиратися". Відомо, що рекрутські кампанії проводяться на території України досить часто; виникла також нова лексема – рекрутер (людина, яка проводить набір на роботу, агент з найму кадрів).

У різних числах газети „Бізнес" зустрічаються англійські слова, вжиті без перекладу, що, перш за все, пояснюється зростаючою кількістю людей в Україні, які володіють англійською мовою (в першу чергу бізнесові люди): cost-killing, gate keeper, executive search and head hunting, hi-tech, smart-технології, smart- картка, road show, big board, cash.

У процесі появи нових термінів-слів виникає потреба пристосувати їх до мовного оточення, в яке вони потрапили, або знайти у своїй мові такі терміни-слова, які б змогли замінити у повній мірі (у першу чергу за семантикою) іноземні. І тут найголовнішим завданням є не схибити, витримати „золоту середину" між доречністю використання та пошуком штучних мовних еквівалентів.

ВИКОРИСТАННЯ ІНТЕРНЕТ ПРИ НАВЧАННІ ІНОЗЕМНИХ МОВ

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Сучасний спеціаліст з вищою освітою повинен активно володіти хоча б однією іноземною мовою як засобом спілкування в соціально-обумовлених сферах повсякденного життя та в своїй професійній діяльності. Навчання у вузі повинно забезпечити для цього міцний фундамент з основних знань, умінь та навичок з іншомовної комунікативної діяльності та навчити засобам самостійної роботи з іноземної мови після закінчення ВНЗ.

Мотивацією з вивчення іноземної мови, перш за все, є професійна потреба студента, який готується стати висококваліфікованим спеціалістом зі знаннями іноземної мови. Тому однією з головних особливостей іноземної мови для немовної спеціальності повинен бути її професійно - орієнтований характер.

Мета навчання іноземної мови–це комунікативна діяльність студентів, тобто практичне володіння іноземною мовою. Задача викладача–активізувати діяльність кожного студента в процесі навчання, створити ситуації для їх творчої активності. Використання сучасних засобів таких, як комп'ютерні програми та Інтернет - технології, мультимедійні засоби, проектна методика дозволяють досягнути поставленої мети.

Найповніше розкриваються можливості Інтернету при безпосередньому використанні його на занятті у студентській аудиторії. Окрему увагу слід приділити такому виду роботи, як Інтернет - проект. Студенти одержують певні завдання, для використання яких необхідно знайти інформацію в Інтернеті, опрацювати її та представити результати цієї роботи. Темою таких проектів може бути:

–вивчення інформації про якусь країну;

–скласти план подорожі літаком/поїздом/автомобілем по Німеччині;

–пошук інформації про потенційних партнерів по бізнесу;

–пошук інформації про можливості навчання або роботу в Німеччині тощо.

Для реалізації проекту викладач ділить студентів на групи; надає їм необхідні адреси; визначає термін та оптимальну форму презентації результатів роботи. Наприклад, при опрацюванні теми

"Подорож" студенти одержують завдання визначити маршрут подорожі, " забронювати місця в готелі ", " зробити замовлення екскурсій в туристичному бюро" і скласти кошторис подорожі. Обираючи готель, студенти повинні обґрунтувати свій вибір, відповівши на такі запитання: де знаходиться готель, які там умови, з'ясувати наявність одно -, дво - та тримісних номерів, чи входить харчування в ціну проживання в готелі. Вони цікавляться , які визначні місця можна відвідати, знайомляться з особливостями місцевої культури та кухні.

Кожна група розповідає про обраний ними маршрут подорожі, визначні місця і музеї, які заплановано відвідати та звітує про " видатки " на подорож. На сайтах подаються, як правило, фотографії готелів, їх номерів та ресторанів і схематична карта, що допомагає добратися до даного закладу.

У процесі роботи у студентів з'являються позитивні емоції – вони недаремно займаються вивченням мови, а це стає потужним стимулом для подальшого навчання. У результаті збагачується їх словниковий запас.

Нові можливості відкриває Інтернет перед студентами дистанційної форми навчання. На сучасному етапі Інтернет є корисним і необхідним засобом навчання іноземної мови.

Таким чином, Інтернет володіє значними інформаційними ресурсами, які дозволяють більш ефективно вирішувати практичні цілі під час навчання читання, аудіювання, письма, лексики, елементам країнознавства, а саме:

–формувати та вдосконалювати навички читання, використовуючи з Інтернету матеріали різного ступеня складності;

–удосконалювати навички аудіювання на основі звукових текстів з Інтернету;

–використовувати монологічні та діалогічні варіанти навчання на основі матеріалів Інтернету;

–удосконалювати навички писемної мови у формі двостороннього обміну інформацією, беручи участь у підготовці рефератів, проектів, виконуючи різні вправи;

–поповнювати свій словниковий запас лексикою з іноземної мови, вивчаючи відповідну тематику;

–розширювати свої знання з країнознавства, пізнаючи особливості політичного та економічного життя, культури та традицій країни;

–активно брати участь в інформаційному обміні міжнародними новинами.

ЕВРИСТИЧНЕ НАВЧАННЯ ЯК ТЕХНОЛОГІЯ ОСОБИСТІСНО ОРІЄНТОВАНОГО ПІДХОДУ У КОНТЕКСТІ СУЧАСНИХ ВИМОГ ДО ПІДГОТОВКИ ФАХІВЦІВ

Міхно С.В., *викладач каф. іноз. мов*

Зміни змісту освіти, підходу до педагогічного процесу в навчанні і вихованні ведуть за собою зміни педагогічних технологій. Педагогічні технології визначаються як сукупність психолого-педагогічних установок, які характеризують форми, методи, засоби, прийоми навчання, виховання; змістова техніка реалізації навчального процесу; модель сучасної педагогічної діяльності з проектування, організації та проведення навчального процесу.

Мета інноваційного освітнього закладу полягає в забезпеченні його функціонування на основі найефективнішої організації навчально-виховного та управлінського процесів і конкурентоспроможності нових освітніх послуг. Так, І.Підласий підкреслював, що саме розвиток особистості, а не засвоєння предметно-дисциплінарних знань є метою діяльності інноваційного навчального закладу.

Модель особистісно-орієнтованого закладу освіти суттєво відрізняється від інших існуючих моделей і педагогічних систем. В першу чергу, тим, що вона надає велику свободу вибору студентові у процесі навчання. В її рамках не студент підлаштовується під стиль викладача, а викладач, володіючи більш різноманітним технологічним інструментарієм, підлаштовує і узгоджує своє навчання студента. Технології особистісно орієнтованого навчання можуть створити максимально сприятливі умови для розвитку і саморозвитку особистості студента, виявлення та активного використання його індивідуальних особливостей. Їх основні елементи: виявлення суб'єктного досвіду студента, формування наукових знань із опорою на досвід студента, узгодження нових понять із суб'єктним досвідом студента. Базовою орієнтацією педагога у контексті даної технології є його послідовне ставлення до вихованця як до особистості, самосвідомого і відповідального суб'єкта власного розвитку.

У своєму дослідженні ми розглядаємо особистісно-орієнтоване навчання, головним завданням якого є побудова студентом власного продукту, цілей і змісту навчання, а також процесу його формування, яке називаємо евристичним навчанням. Воно передбачає передачу змісту навчання студентові з метою створення власного змісту отримання знань у вигляді власних продуктів творчості. Крім

особистого змісту, студент за допомогою педагога створює і реалізує програму свого навчання. Завдання викладача – допомогти кожному студенту в побудові такої індивідуальної програми навчальної діяльності, яка співвідноситься із загальноприйнятими досягненнями людства і спрямовується на їх збільшення.

Д.Брунер стверджував, що в результаті самостійного пошуку у студентів формуються внутрішні мотиви учіння, а зовнішні стимули („стимулюючий контроль") втрачають своє значення. П.Юркевич підкреслював, що не кількість знань, а їх якість, спосіб або порядок повідомлення мають особливе значення у навчанні. Академік С.Гончаренко зазначав, що в системі освіти особистість розвивається за умов насичення процесу навчання продуктивними, творчими елементами. Основні показники творчого мислення: оригінальність думки; швидкість і плавність виникнення незвичних асоціативних зв'язків; сприйнятливість до проблеми і її незвичайне вирішення; швидкість думки як кількість асоціацій, ідей, які виникають за одиницю часу відповідно до деяких вимог; здатність знайти нові неперервні функції об'єкта або його частини.

В умовах вищих навчальних закладів, де обсяг інформації постійно зростає, наявні недоліки в самостійній роботі студентів досить швидко дають про себе знати в кінцевому результаті професійної підготовки. Така пильна увага до самостійної роботи обумовлена тим, що фахівець після закінчення вузу важко входить в трудовий ритм, що на перших порах позначається не на роботі, але і на правильності вибору своєї професії. Тому майбутній фахівець повинен вже із студентської лави мати самостійної роботи.

На нашу думку, важливим для розвитку творчої самостійності студентів є дотримання системи основних принципів евристичного навчання введених А.Хуторським: особистісного цілепокладання студента; вибору індивідуальної освітньої траєкторії; метапредметних основ змісту навчання; продуктивності; первинності освітньої продукції студента; ситуативності навчання; освітньої рефлексії.

Отже, евристичне навчання надає широкі можливості для розвитку творчої самостійності студентів. Проведене теоретичне дослідження евристичного навчання як особистісно-орієнтованої педагогічної технології дає підстави висунути припущення, що ця концепція навчання студентів є достатньо актуальною та перспективною і може бути з успіхом використаною на сучасному етапі реформування системи вищої освіти в Україні.

RENAMING SUMY STREETS UNDER GERMAN OCCUPATION (1941-1943)

V.M.Korol,, *post graduate student*

Changes of place-names can often be regarded as a component of ideological struggle. It is interesting to observe such changes in Sumy in the period of World War II.

After Sumy was occupied by German troops in October 1941, the occupational administration made a decision to rename a huge part of Sumy streets. It was quite logical, because a great number of them were named after Communist leaders or events and symbols of the October revolution and the Civil war.

So the order of Sumy commandant as for renaming the streets was published in the newspaper *Sums'kyi visnyk* (The Sumy bulletin) on October, 26th. All Soviet names of the streets became invalid, and the pre-Soviet ones were returned. But three of them obtained new names: Red square got the name of Adolf Hitler, Lenin's street got the name of fon Reihenau and Frunze's street the name of fon Obstfelder.

Sumy received toponyms devoted to the Nazi leader and two prominent *Wehrmacht* generals. The city was a part of the Military zone of Ukraine, and it is not strange for German military administration to do it.

Adolf Hitler was the *Fuhrer*, the first man in Germany, who controlled all spheres of life in the Third *Reich.*

Generals fon Reihenau and fon Obstfelder had a great authority in the German army. They took part in the World War I and in military companies in Poland and France. In 1941 their troops were successfully fighting at the Soviet-German front in Ukraine.

General-*feldmarshal* Valter fon Reihenau headed the 6th army. In December 1941 he was appointed to a post of the commander of the army group "The South". He was famous for his ruthless relation to prisoners-of-war and soviet citizens.

As for infantry general Hans fon Obstfelder, he led the 29th army corps. In late July 1941 he was awarded by the Knight cross of Iron cross, which was one of the highest German rewards.

No doubt both of them were active adherents of National-Socialism. They were really respected among the top brass of the state.

But using the names of those figures for renaming the streets was politically inexpedient.

Some people close to Adolf Hitler attributed Ukrainians to the Baltic (or East Baltic) race type, which was considered to be quite full-grade.

According to the memorandum of April, 11th 1941of the *Reihsleiter* Alfred Rosenberg, who was the head of Foreign policy department of NSDAP (in July 1941 he also became the *Reihsminister* of Eastern territories), Ukraine was an European country with the national life based on strong Norman tradition, and the statement of own Ukrainian national activity should become the main German goal in this area, because Ukrainian political formation was expected to be as resistant to Moscow.

That is why the Nazi propaganda positioned Germans as liberators of the Ukrainian people from the Bolshevik yoke and their rough violence. The occupational administration involved into collaboration different Ukrainian nationalists political groups to establish authorities which would be supported by local population.

But at the same time the city dwellers could perceive giving names of German men to the streets as an attribute of the new occupation. It is worth to say, that foreign words were cutting the hearing of Ukrainians. Moreover, the fact, that the streets were named in honour of persons, who were alive, might be annoying even for some of the Germans.

So after almost two months it had been recognized more useful to give the above-stated three objects their original names. Probably, it has been made under the influence of the Ukrainian nationalists, who cooperated with the occupational administration.

Thus on the 11th of December 1941 everyone could read in *Sums'kyi visnyk* that Adolf Hitler's square received the name of *Ukrains'ka* (Ukrainian) to underline the national characteristic of the city. Fon Reihenau's street became *Mykolayivs'ka* (Nicolas') because of the St. Nicolas church, which was situated there until the destruction by Communists some years before. Fon Obstfelder's street got the name of *Tsercovnaya* (Church) as the church (the Revivals church) was in it.

All these toponyms had native Ukrainian roots and were easy and clear for Sumy's inhabitants. They remained invariable until the Red Army's coming on the 2nd of September 1943. After that all Soviet place-names were immediately returned.

Actually this factor was not able to compete with the terrible deprivation,the *Ostarbeiter* program and the permanent fear of German or Soviet punishment in people's minds, but nevertheless it was indicative in cultural and ideological city activities of that time.

A.M.Dyadechko, *ELA*

INTEGRATED MARKETING COMMUNICATIONS: THEORETICAL BASES

L. Yu. Sager, *postgraduate student*

Integrated marketing communications (IMC) is integration of all marketing tools, approaches, and resources within a company which maximizes impact on consumer mind and which results into maximum profit at minimum cost. IMC focuses on consistency within the communication strategy of an organization. Its ultimate aim is to achieve synergy between its component parts in order to generate a more effective approach to communications.

Accordingly IMC involve:

1. The strategic choice of elements of marketing communications (advertising (by using different medium), sales promotion (sales and trades promotion), personal selling activities, internet marketing, sponsorship marketing, direct marketing, database marketing, public relations & etc.) which effectively and economically influence transactions between an organization and its existing and potential customers, clients and consumers.
2. The management and control of all marketing communication elements.
3. Ensuring that the brand positioning, proposition, personality and messages are delivered synergistically across every element of communication and are derived from a single consistent strategy.

Several shifts in the advertising and media industry have caused IMC to develop into a primary strategy for marketers: 1.From media advertising to multiple forms of communication. 2. From mass media to more specialized (niche) media, which are centered around specific target audiences. 3. From a manufacturer-dominated market to a retailer-dominated, consumer-controlled market. 4. From general-focus advertising and marketing to data-based marketing. 5.From low agency accountability to greater agency accountability, particularly in advertising. 6. From traditional compensation to performance-based compensation (increased sales or benefits to the company). 7. From limited Internet access to 24/7 Internet availability and access to goods and services.

The major advantages from the integration process and possible barriers or restraining forces of a move toward greater integration in marketing communication are given in a table 1.

Table 1 – The major advantages and possible barriers (restraining forces) of application of IMC

Advantages	Barriers/restraining forces
strategies should reinforce each other	resistance to change
messages are given which are consistent	old planning system downgrade promotional decisions to tactical level
integrated strategies may be synergic	traditional (functional) organization structures with responsibility for only one element of communications
intention procedures cost savings	centralized control
above all integration achieves business results	external agencies organized in limited specialist areas
consistent creative approach	
better use of all media	
greater marketing precision	
easier working relationship	
sustainable competitive advantage.	

There are a lot of methods of overcoming the barriers and methods of integration, such as: top management commitment and top management policy decision; marketing organization development; training and development; communications as a competitive advantage; achieving the results; hierarchy of objectives and control; unctional integration and other.

In conclusion we must say that integration allows to obtain the increase of efficiency of communications, strengthening of adherence of clients to the trade mark of firm, strengthening of influence on the marketing of communication program and providing of compatibility with the global marketing programs.

A. M. Dyadechko, *ELA*

QUANTUM COMPUTING

Artyom Dmitriyev, *post-graduate student*

Changing the model underlying information and computation from a classical mechanical to a quantum mechanical one yields faster algorithms, novel cryptographic mechanisms, and alternative methods of communication. Quantum algorithms can perform a select set of tasks vastly more efficiently than any classical algorithm, but for many tasks it has been proven that quantum algorithms provide no advantage.

Problems generally get harder as the size of the input increases. The efficiency of an algorithm is quantified in terms of an asymptotic quantity that looks at how the resources used by the algorithm grow with the input. Time and space, generally measured in terms of number of operations and number of bits or qubits, are the resources most often considered. Constant factors are usually ignored, since they depend on fine details of an implementation that often are not known, but can be bounded.

For some problems quantum computation gives efficient results in polynomial time, but for their implementation one needs a quantum computer. Once a quantum computer will be developed a lot of problems such as discrete log or factoring will be sold and this will lead to profoundly understanding of our quantum world.

DiVincenzo developed widely used requirements for a quantum computer. It is relatively easy to obtain N qubits, but it is hard to get them to interact with each other and with control devices, but nothing else. DiVincenzo's criteria are, roughly:

- Scalable physical system with well-characterized qubits
- Ability to initialize the qubits in a simple state
- Robustness to environmental noise
- A set of "universal" gates that approximate all quantum operations
- High efficiency, qubit-specific measurements

There were a lot of efforts but no one could ever build such machine yet. But researches keep trying more progressive techniques.

The breadth of quantum computing applications is still being explored. Major application areas include security and the many fields that would benefit from efficient quantum simulation. The quantum information processing viewpoint provides insight into classical algorithmic issues as well as a deeper understanding of entanglement and other non-classical aspects of quantum physics.

A.M.Dyadechko, *ELA*

WHAT THE 2008/2009 WORLD ECONOMIC CRISIS MEANS FOR GLOBAL AGRICULTURAL TRADE

Oksana Galakhova, *post-graduate student*

The global economic crisis that started in late 2008 has led to a sharp curtailment of international trade, including a short-term decline in the value of global agricultural trade of around 20 percent. After slowing, global agricultural trade will continue to grow in the future. The crisis is leading to a realignment of exchange rates, and the ultimate resolution of the crisis will depend on adjustments in the exchange value of the dollar. The U.S. agricultural sector would benefit from a depreciating dollar, which results in high export earnings, high agricultural commodity prices, increased production, and increased farm income.

The world financial crisis of 2008-09 is the most serious world recession since the 1930s. While the impact on the United States is not as serious as in the Great Depression, the extent of the global recession and the number of countries involved is unique. The short-term impact is a major decline in the value of both merchandise and agricultural commodity trade. Much of the decline in the value of trade has come from declining prices, but there are also declines in the volume of trade. The longer term impacts of the crisis will depend on the adjustment path to resolve the imbalances that have emerged in global trade and savings.

In the short term, the slowing of income growth in developing countries will likely lead to increases in food insecurity and poverty around the world. Income growth, however, is expected to rebound in most countries by the end of 2010 and continue to grow for several years through 2012 before stabilizing around its new long run trend growth rates. As a result, agricultural imports, after declining in 2009, are likely to continue to grow into the future.

The continued strength of global agricultural imports is primarily a result of the growth of consumption in emerging and developing countries and the increase in meat consumption among those countries' consumers. Even during the initial period of the economic crisis and its recovery, economic growth in those countries remains positive and relatively strong. As a result, their consumption of food is likely to increase and trade in meat and feed grains will likely grow faster than trade in food grains. Over the longer term, the most likely path of recovery for the global economy indicates that the growth in consumption and imports of agricultural products by emerging and developing countries will remain strong.

A. M. Dyadechko, *ELA*

DNA's PROSPECT IN NANOTECHNOLOGY

Velytchenko A., *FE-51*

Today, we can chemically synthesize complex molecules such as palytoxin, vitamin or Taxol with remarkable angstrom scale precision and fabricate intricately designed micron-scale electronic components at the rate of billions per second.

Our ability to precisely position components on the nanometer scale the way nature does, and to do so in a parallel rather than a serial manner, is still limited and is a key goal in nanotechnology and materials science.

The importance of weak non-covalent interactions in biology is widely accepted. One may think, for example, of the human gene pool, made up of deoxyribose nucleic acids (DNA). These exist in our cells in the form of adouble helix that is stabilised by non-covalent interactions called hydrogen bonds.

Two strands of DNA join together in an antiparallel manner to form a double helix with the help of weak bonds which can be broken temporarily to allow transcription of the DNA into an RNA messenger, thereby allowing the synthesis of specific proteins.

We may thus conclude that the perpetuation of our gene pool rests upon the possibility of breaking and rebuilding a whole series of weak non-covalent bonds. Supramolecular chemistry is concerned with assemblies of several molecules into non-covalent constructions, in the way illustrated by biological systems. The problem here is one of molecular recognition, a complementarity of shape, size and chemical functions that may exist over short distances between several molecules. In decreasing order of interaction energy, the non-covalent forces are: complexation forces due to metal cations, hydrogen bonds, hydrophobic interactions, π interactions, and charge transfer interactions.

Self-assembly, the spontaneous association of components into organized structures using noncovalent interactions, is the chief method that nature uses to achieve complexity. Of the natural self-assembling molecules, DNA is arguably the most remarkable. DNA is emerging as an attractive tool for nanoscience as well; it is a highly promising template for organizing nanomaterials in a programmable way. Research in this area promises to allow us to use DNA to dictate the precise positioning of materials and molecules into any deliberately designed structure, thus approaching the effortless manner in which nature gen-crates complexity and function.

DNA's simple code forms our genetic blueprint for life. But the field of DNA nanotechnology has invited us to look at the code in a whole new way: as a means to precisely position materials. This code can now help dictate the specific location of materials and the structure of assemblies, creating linear, 2D and 3D assemblies. The next step will be to investigate the possibilities for making practical materials with DNA nanotechnology.

DNA's ability to guide patterning of transition metals, nanoparticles, and proteins into deliberate designs gives it tremendous potential for answering many important challenges in science.

One of the potential applications of the present study would be identification of specific genes based on the hybridization-induced change in electrical signal. Concerned as always with the nanoscale, one of the major alternatives today which will certainly continue to develop over the next few years is exogenous photonic marking, as opposed to the endogenous response of biological media. In the first case, nanoparticles of all types, endowed with diverse and identifiable physical properties, are adopted as accessories, provided that they insinuate themselves into the medium as discretely as possible, whilst providing the microscopic device with the required luminosity and spatial resolution associated with the properties of nanostructures that have been optimised with this in mind.

Since each approach has its advantages and disadvantages, they will doubtless be called upon to complement and emulate one another, rather than just to compete, over the coming years

Finally, emulating the revolution in optoelectronics over the last two decades, where fundamental and applied research have moved forward hand in hand, fundamental repercussions are expected in biophotonics from research in biotechnology, especially from the spectacular development of DNA biochips over the last ten years.

Capitalising on progress in the technology of silicon components, these DNA chips are beginning to provide fundamental research of the post-genome era with tailor-made multiple receptacles of a combinatorial nature which can be interrogated and analysed in real time by ultrahigh resolution read techniques associated with ever more powerful image analysis methods.

With little risk of error, one may predict that new types of optoelectronic component, similar to those currently being developed for information technology, will emulate the development of new generations of DNA chips provided with internal photonic functionalities, and this all the more easily in that some are already based on the implementation of polymers and functionalised molecules, thereby well-placed to cooperate with biological systems.

Dunaeva M.N., *EL A*

AUTOMATION IN BRIEF

Berest Oleg, *SU – 51*

Automation - is the use of control systems such as computers to control industrial machinery and processes, replacing human operators. In the scope of industrialization, it is a step beyond mechanization. Whereas mechanization provided human operators with machinery to assist them with the physical requirements of work, automation greatly reduces the need for human sensory and mental requirements as well.

It is easier to understand the essence of automation when it is divided it into four stages: ancient times, middle ages, the end of 18th - the beginning of 20th, from 1960 till our days. Here you can find short description of this periods:

1) there were first attempts to create something new and useful to make the life of people more easier. Famous inventers of this period: Geron Alexandriyskiy, Akrit and many others.

2) a critical mass of needs, talents, materials, workmen, and markets developed in the 18th century that brought about the industrial revolution and the beginning of practical automation.

3) practical industrial automation really began in the late 18th century. It developed rapidly thereafter. The two world wars spurred advances in science and technology that were quickly adapted to industrial needs.

4) photo eyes, Hall effect sensors, servomotors, engineered materials, pneumatic components, hydraulic components, bearings, and a host of well engineered components, prime movers, and sub systems too numerous to mention are now readily available.

Automation consists of four main parts:

1) Control system. It is a device or set of devices to manage, command, direct or regulate the behavior of other devices or systems.

There are two common classes of control systems, with many variations and combinations: logic or sequential controls, and feedback or linear controls. There is also fuzzy logic, which attempts to combine some of the design simplicity of logic with the utility of linear control. Some devices or systems are inherently not controllable.

2) Industrialization. It is the process of social and economic change whereby a human group is transformed from a pre-industrial society into an industrial one. It is a part of a wider modernization process, where social change and economic development are closely related with technological

innovation, particularly with the development of large-scale energy and metallurgy production. It is the extensive organization of an economy for the purpose of manufacturing.

3)Numerical control (NC). It refers to the automation of machine tools that are operated by abstractly programmed commands encoded on a storage medium, as opposed to manually controlled via handwheels or levers, or mechanically automated via cams alone.

4)Robotics. It is the engineering science and technology of robots, and their design, manufacture, application, and structural disposition. Robotics is related to electronics, mechanics, and software.

Now automation is developing in next ways: autonomous automation, home and office automation

Autonomous automation refers to 'the use of autonomous software agents to adapt the controllers of computer controlled industrial machinery and processes'

The term autonomous automation has in the past, on a limited number of web-sites, been used mainly to refer to 'the use of autonomous computer controlled industrial machinery and processes'. Since automation implies autonomy to a great extent this usage can be considered as somewhat redundant.

Home automation (also called domotics) may designate an emerging practice of increased automation of household appliances and features in residential dwellings, particularly through electronic means that allow for things impracticable, overly expensive or simply not possible in recent past decades. The term may be used in contrast to the more mainstream "building automation," which refers to industrial settings and the automatic or semi-automatic control of lighting, climate doors and windows, and security and surveillance systems.

Office automation refers to the varied computer machinery and software used to digitally create, collect, store, manipulate, and relay office information needed for accomplishing basic tasks and goals. Raw data storage, electronic transfer, and the management of electronic business information comprise the basic activities of an office automation system.Office automation helps in optimizing or automating existing office procedures.

As a conclusion I want to say that automation is just at the first stage of development. And may be in five or ten years it will change our world into place without any problems, that human can not to decide. It is really very perspective science and I think a lot of ordinary things will be modified with it in future.

Dyadechko A.M., *ELA*

HISTORY OF MONEY

Chepik A., *group E - 53*

What is Money?

At first sight the answer to this question seems obvious; the man or woman in the street would agree on coins and banknotes, but would they accept them from any country? What about cheques? They would probably be less willing to accept them than their own country's coins. What about credit cards and gold? The gold standard belongs to history but even today in many rich people in different parts of the world would rather keep some of their wealth in the form of gold than in official, inflation-prone currencies. The attractiveness of gold, from an aesthetic point of view, this is its resistance to corrosion - the property which led to its use for monetary transactions for thousands of years.

All sorts of things have been used as money at different times in different places. The list below includes the enormous variety of primitive moneys, and none of the modern forms.

Amber, beads, drums, eggs, feathers, gongs, hoes, kettles, leather, mats, nails, oxen, pigs, quartz, rice, salt, thimbles, wampum, yarns, and decorated axes.

It is almost impossible to define money in terms of its physical form or properties since these are so diverse. Therefore any definition must be based on its functions:

Specific functions (mostly micro-economic)

-Unit of account (abstract)
-Common measure of value (abstract)
-Medium of exchange (concrete)
-Means of payment (concrete)

General functions (mostly macro-economic)

-Liquid asset
-A causative factor in the economy
-Controller of the economy

Although paper money obviously had no intrinsic value its acceptability originally depended on its being backed by some commodity, normally precious metals. During the Napoleonic Wars convertibility of Bank of England notes was suspended and there was some inflation which, although quite mild compared to that which has occurred in other wars, was worrying to contemporary observers who were used to stable prices and, in

accordance with the recommendations of an official enquiry Britain adopted the gold standard for the pound in 1816. For centuries earlier silver had been the standard of value. France and the United States were in favour of a bimetallic standard and in 1867 an international conference was held in Paris to try and widen the area of common currencies based on coins with standard weights of gold and silver. However when the various German states merged into a single country in 1871 they chose the gold standard. The Scandinavian countries adopted the gold standard shortly afterwards. France made the switch from bimetallism to gold in 1878 and Japan, which had been on a silver standard, changed in 1897. Finally, in 1900, the United States officially adopted the gold standard.

With the outbreak of the First World War in 1914 Britain decided to withdraw gold from internal circulation and other countries also broke the link with gold. Germany returned to the gold standard in 1924 when it introduced a new currency, the Reich mark and Britain did the following year, and France in 1928. However the British government had fixed the value of sterling and in the worldwide economic crisis in 1931 Britain, followed by most of the Commonwealth, Ireland, Scandinavia, Iraq, Portugal, Thailand, and some South American countries abandoned gold. The United States kept the link to gold and after the Second World War the US dollar replaced the pound sterling as the key global currency. Other countries fixed their exchange rates against the dollar, the value of which remained defined in terms of gold. In the early 1970s the system of fixed exchange rates started to break down as a result of growing international inflation and the United States abandoned the link with gold in 1973.

Gladchenko O.R., *EL advisor*

ELECTRONIK MONEY

Yulia Denisenko, *student, gr. E-53*

Electronic money (also known as e-money, electronic cash, electronic currency, digital money, digital cash or digital currency) refers to money or scrip which is exchanged only electronically. Typically, this involves use of computer networks, the internet and digital stored value systems. Electronic Funds Transfer (EFT) and direct deposit are examples of electronic money. Also, it is a collective term for financial cryptography and technologies enabling it.

While electronic money has been an interesting problem for cryptography, to date, use of digital cash has been relatively low-scale. One rare success has been Hong Kong's Octopus card system, which started as a transit payment system and has grown into a widely used electronic cash system. Singapore also has an electronic money implementation for its public transportation system (commuter trains, bus, etc), which is very similar to Hong Kong's Octopus card and based on the same type of card (FeliCa). A very successful implementation is in the Netherlands, known as Chipknip.

Technically electronic or digital money is a representation, or a system of debits and credits, used (but not limited to this) to exchange value, within another system, or itself as a stand alone system, online or offline. Also sometimes the term electronic money is used to refer to the provider itself. A private currency may use gold to provide extra security, such as digital gold currency. An e-currency system may be fully backed by gold (like e-gold and c-gold), non-gold backed, or both gold and non-gold backed (like e-Bullion and Liberty Reserve). Also, some private organizations, such as the US military use private currencies such as Eagle Cash.

Many systems will sell their electronic currency directly to the end user, such as Paypal and WebMoney, but other systems, such as e-gold, sell only through third party digital currency exchangers.

Some community currencies, like some LETS systems, work with electronic transactions. Cyclos Software allows creation of electronic community currencies.

Ripple monetary system is a project to develop a distributed system of electronic money independent of local currency.

Using cryptography, anonymous e-cash was introduced by David Chaum. He used blind signatures to achieve unlinkability between withdrawal and spend transactions.

In cryptography, e-cash usually refers to anonymous e-cash. Depending on the properties of the payment transactions, one distinguishes between on-line and off-line e-cash. The first off-line e-cash system was proposed by Chaum and Naor. Like the first on-line scheme, it is based on RSA blind signatures.

The main focuses of digital cash development are 1) being able to use it through a wider range of hardware such as secured credit cards; and 2) linked bank accounts that would generally be used over an internet means, for exchange with a secure micropayment system such as in large corporations (PayPal).

Theoretical developments in the area of decentralized money are underway that may rival traditional, centralized money. Systems of accounting such as Altruistic Economics are emerging that are entirely electronic, and can be more efficient and more realistic because they do not assume a zero-sum transaction model.

Although digital cash can provide many benefits such as convenience and privacy, increased efficiency of transactions, lower transaction fees, new business opportunities with the expansion of economic activities on the Internet, there are many potential issues with the use of digital cash. The transfer of digital currencies raises local issues such as how to levy taxes or the possible ease of money laundering. There are also potential macroeconomic effects such as exchange rate instabilities and shortage of money supplies (total amount of digital cash versus total amount of real cash available, basically the possibility that digital cash could exceed the real cash available). These issues may only be addressable by some type of cyberspace regulations or laws that regulate the transactions and watch for signs of trouble.

So, modern, quickly developing world impossible to present without electronic money. Quite soon they will become integral part of our life. Electronic money is really incredible invention of humanity.

Gladchenko O.R., *adviser*

A REVIEW OF GREEN LOGISTICS SCHEMES USED IN CITIES AROUND THE WORLD

Phesenko A., *student ED – 51*

Freight carriers strive to provide levels of transportation service with lower costs. However, the economic and environmental viability of cities are negatively affected by the present organization of urban goods distribution. Can these two competitive goals be harmonized to create efficient and environmental friendly urban logistics systems?

Most large cities are confronted with problems regarding air and noise pollution and congestion caused by motorized road traffic. The evolution of urban logistics in the past decades even worsened that situation, due to an increasing use of heavier goods vehicles in city centres. Concurrently, the economic and environmental viability of cities are being negatively affected by the present organization of urban goods distribution. The substantial contribution of large trucks to air pollution by emitting NO_x, Particulate Matter (PM) and other gaseous or airborne pollutants has become an important issue.

Furthermore, non harmonious growth in all modes of transport is one of the main reasons for the existing situation (congestion, environmental impacts, accidents etc).

One of the big challenges facing us at present is creating a long-term sustainable society with the least possible negative environmental impact. In response to this pressure, a new approach to logistics arranged in the early 1990s, which went beyond the standard logistical imperatives for efficient, effective, and fast handling and involvement of goods, and took into account measures for protecting the earth's environment: the "green logistics" approach.

The growing importance of environmentalism is suggested to have two major impacts on logistics management: a broadening of the scope of logistics and an influence on the way logistics managers до their jobs. The logistics discipline has generally focused on producer-to-consumer movement of products, considering transportation, warehousing and inventory management (forward distribution). But the desire for "greenness", led in the early 1990s to the concept of "reverse" distribution.

Painting logistics "green" is not easy, however. Rodrigue et al. (2001) state that there are basic inconsistencies between "greenness" and "logistics". The cost-saving strategies followed by logistic operators are often at variance with the environment, since they usually externalize the

environmental costs. Furthermore, logistical activities do not usually pay the full costs of using the infrastructures. As a result, logistical operators use the most polluting, least energy efficient and most infrastructure-intensive transportation modes to increase the speed of distribution. Globalization and global logistics are harming the environment unevenly because firms are required to maintain high environmental standards in developed countries but can lower these in less developed.

Environmental impacts of logistical activities are most severe where population densities are highest; i.e. in cities. Therefore, city logistics deserve special attention. Taniguchi et al (2003) set three basic pillars as the guiding principles for green city logistics: mobility, sustainability and livability.

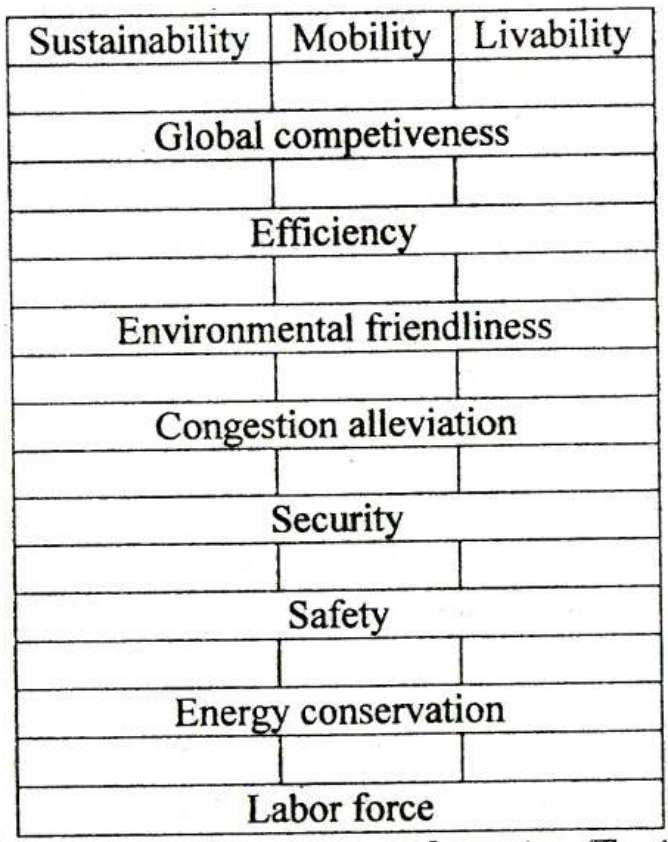

Figure 1- Structure of visions for city logistics (Taniguchi et al, 2003)

These pillars should support and enhance the goals and objectives of logistics, such as efficiency, congestion alleviation, energy conservation etc. The harmonization of efficiency, environmental friendliness and energy conservation is vital for ensuring sustainable development of freight transport in urban areas.

Consequently, the goal of city logistics should be to deliver and collect the goods for activities produced in a city in an efficient way, without disrupting the sustainable, mobile, livable and environmental friendly character of the city.

Gavrilova V. V., *ELA*

UNTERNEHMENSKULTUR

S.Korch, *M-53*

Kultur bezeichnet in der Anthropologie die besonderen, historisch gewachsenen und zu einer komplexen Einheit geformten Merkmale einer Volksgruppe. Diese Merkmale sind vor allem bestimmte Wert- und Denkmuster sowie Symbole. Gleiches gilt für Unternehmen, wenn sie eigene, unverwechselbare Vorstellungs-und Orientierungsmuster schaffen, die das Verhalten der Mitglieder und der betrieblichen Funktionen prägen.

Im Begriff der Unternehmenskultur kommt zum Ausdruck, daß Unternehmen eigenständige Normen und Werte entwickeln können, durch welche sie sich voneinander, aber auch von der Kultur der Gesamtgesellschaft abheben.

Die Bildung einer Unternehmenskultur beginnt mit dem Tag seiner Gründung. Der oder die Gründer bringen ihre kulturellen Vorstellungen, verbunden mit einer unternehmerischen Vision, in das Unternehmen ein.

Die Kultur ist somit ein unmittelbares Produkt des bei der Gründung vorherrschenden Zeitgeistes und einer Persönlichkeit, die als Leitbild für das Verhalten der Mitarbeiter dient. Doch das Charisma eines Gründers hält nicht über mehrere Generationen vor. Auch Legenden und Symbole verlieren einmal ihre zündende Kraft. Folglich entsteht das Problem, das Charisma des Gründers und die Kultur zu institutionalisieren, eine entpersonalisierte Unternehmenskultur zu schaffen. Ausgangspunkt dafür sind Regeln, die die Unternehmenskultur definieren und fortschreiben.

Die Unternehmenskultur wird weiterentwickelt aus der gemeinsamen Bewältigung von Problemen auf der Basis von Wertsystemen.

Die Pflege der Unternehmenskultur besteht darin, die Annahmen, Interpretationsmuster und Wertvorstellungen lebendig zu halten, auszubauen und an neue Mitarbeiter weiterzugeben. Dies geschieht in hohem Umfang in Form von Symbolen und Zeichen. Als Überbringer von Wertvorstellungen dienen z. B. Geschichten und Legenden über das Unternehmen oder bekannte Firmenleiter. In diesen Legenden stecken oft Hinweise auf traditionelle Handlungsmuster des Unternehmens.

Das Management muß beim Aufbau und bei der Veränderung der Unternehmenskultur verschiedene Vor- und Nachteile bedenken. Unternehmenskultur umfaßt dabei drei ursprüngliche Funktionen: die Koordinations-, die Integrations- und die Motivationsfunktion.

I.Saizewa, *der Berater deutschen Sprache*

YOU AND YOUR CV

Koval N., *group. E - 53*

Information is everything in today's internet world. Job-seekers are advised not only to google the names of the people or companies they want to work for, but also to look for themselves on the internet (also known as "egosurfing") because employers are likely to do so.

It's not a bad idea to find out about this in advance to save yourself from embarrassing questions later in a job interview.

The internet has changed a great many things for job-seekers — and employers. Many companies now routinely use online application forms. Online CVs, posted on career websites such as Monster.com, are also now common.

As a result, the etiquette of the job interview is changing. However, there's nothing new about candidates sending letters or e-mails to thank their interviewers after a job interview. What's new is e-mail thank-you notes containing emoticons or with informal words like "hiya" and spellings like "thanx".

More and more employers now require online job applications, which normally go into the company's database .Employers then search their databases for keywords that fit the skills and experience needed for the job. This method is attractive to employers because it reduces the time spent reading applications from candidates who do not meet the company's requirements.

The online application is also changing the way people look for jobs. Julian Sear of Reed Personnel Services in Australia advises candidates to be selective. "Many online job-seekers try their luck by applying for dozens of jobs that don't match their skills or career goals. Recruitment agents receive as many as 400 applications from all over the world on any given day, so the most discerning job-seekers are always the most successful."

For multinational companies like Procter & Gamble, online job applications are the norm. These are often followed by online questionnaires. As Procter & Gamble says on its website, this helps the company "make an informed decision on whether your skills meet the requirements of the position you have applied for and whether P&G is the best environment to utilize your talents and achieve your goals". The candidate who successfully completes the online application and questionnaire may then have to do problem-solving tests. It is only after

completing these steps that the job-hunter is invited for a telephone or face-to-face interview.

Video CVs (or video resumes, as they are called in the US) are another innovation. After gaining a foothold in the US job market, they are now beginning to enter the British scene.

As more and more young people grow up with computer skills and familiarity with YouTube and other internet video sites, video CVs are likely to become more common. Websites such as Careerbuilder.com and CVOne (www.gocvone.com) help people to make their own job-application videos for downloading or placing on the online companies' servers.

British employers are not yet convinced that video CVs are the way of the future. Although German job-seekers normally send photos with their CVs, this practice is discouraged in Britain and is practically unknown in the US, where employers fear they will be accused of discrimination if they do not hire or give interviews to people from ethnic minorities.

Another possible drawback is of a technical nature. If potential employers do not have compatible browsers and high-speed internet connections, they may not be able to view the videos. Time is also a factor, as videos normally run from one to three minutes. There are a number of factors to consider before posting or blasting a resume. For example, does the time you save justify the expense? And do you really need to have thousands of recruiters receiving your CV?

An unusual CV is likely to catch a potential employer's eye. But in fact, the opposite could be the case, as non-standard items such as photos or special formatting are likely to be lost in recruiters' databases. Instead it is more important for candidates to tell potential employers what they've actually done.

Employers have in mind a very specific type of person who will fit their culture and also fit the needs of the job they're looking to fill. They want well-rounded people. So you have to be creative, original and immodest when you are looking for a job and mention all your abilities!

Gladchenko O.R., *EL advisor*

HUMAN RESOURCE MANAGEMENT

Anton Kuzmenko, *group E-53*

Human resource management (HRM) is the strategic and coherent approach to the management of an organization's most valued assets - the people working there, who individually and collectively contributes to the achievement of the objectives of the business. The terms "human resource management" and "human resources" (HR) have largely replaced the term "personnel management" as a description of the processes involved in managing people in organizations. In simple sense, HRM means employing people, developing their resources, utilizing, maintaining and compensating their services in tune with the job and organizational requirement.

Its features include:

- Organizational management
- Personnel administration
- Manpower management
- Industrial management

But these traditional expressions are becoming less common for the theoretical discipline. Sometimes even employee and industrial relations are confusingly listed as synonyms, although these normally refer to the relationship between management and workers and the behavior of workers in companies.

The theoretical discipline is based primarily on the assumption that employees are individuals with varying goals and needs, and as such should not be thought of as basic business resources, such as trucks and filing cabinets. The field takes a positive view of workers, assuming that virtually all wish to contribute to the enterprise productively, and that the main obstacles to their endeavors are lack of knowledge, insufficient training, and failures of process.

HRM is seen by practitioners in the field as a more innovative view of workplace management than the traditional approach. Its techniques force the managers of an enterprise to express their goals with specificity so that they can be understood and undertaken by the workforce, and to provide the resources needed for them to successfully accomplish their assignments. As such, HRM techniques, when properly practiced, are expressive of the goals and operating practices of the enterprise overall. HRM is also seen by many to have a key role in risk reduction within organizations.

Synonyms such as personnel management are often used in a more restricted sense to describe activities that are necessary in the recruiting of a workforce, providing its members with payroll and benefits, and

administrating their work-life needs. So if we move to actual definitions, Torrington and Hall (1987) define personnel management as being:

"a series of activities which: first enable working people and their employing organisations to agree about the objectives and nature of their working relationship and, secondly, ensures that the agreement is fulfilled".

While Miller (1987) suggests that HRM relates to:

".....those decisions and actions which concern the management of employees at all levels in the business and which are related to the implementation of strategies directed towards creating and sustaining competitive advantage"

The Human Resources Management (HRM) function includes a variety of activities, and key among them is deciding what staffing needs you have and whether to use independent contractors or hire employees to fill these needs, recruiting and training the best employees, ensuring they are high performers, dealing with performance issues, and ensuring your personnel and management practices conform to various regulations. Activities also include managing your approach to employee benefits and compensation, employee records and personnel policies. Usually small businesses (for-profit or nonprofit) have to carry out these activities themselves because they can't yet afford part- or full-time help. However, they should always ensure that employees have—and are aware of—personnel policies which conform to current regulations. These policies are often in the form of employee manuals, which all employees have.

Note that some people distinguish a difference between HRM (a major management activity) and HRD (Human Resource Development, a profession). Those people might include HRM in HRD, explaining that HRD includes the broader range of activities to develop personnel inside of organizations, including career development, training, organization development, etc.

There is a long-standing argument about where HR-related functions should be organized into large organizations, "should HR be in the Organization Development department or the other way around?"

The HRM function and HRD profession have undergone tremendous change over the past 20–30 years. Many years ago, large organizations looked to the "Personnel Department," mostly to manage the paperwork around hiring and paying people. More recently, organizations consider the "HR Department" as playing a major role in staffing, training and helping to manage people so that people and the organization are performing at maximum capability in a highly fulfilling manner.

O.R. Gladchenko, *EL advisor*

THE UNDERGROUND ECONOMY

Pedchenko. A., *group E - 53*

The main purpose of this work is to study the basic aspects of the underground economy, its reasons and results, problems and the ways of solution.

The underground economy or black market is a market where all commerce is conducted without regard to taxation, law or regulations of trade. The term is also often known as the underdog, shadow economy, black economy or phantom trades.

In modern societies the underground economy covers a vast array of activities. It is smaller in countries where economic freedom is greater, and becomes larger in those areas where corruption, regulation, or legal monopolies restrict legitimate economic activity.

Goods acquired illegally take one of two price levels:

- They may be cheaper than legal market prices. This is usually the case in the underground market for stolen goods.

- They may be more expensive than legal market prices. If goods are illegal, such as some drugs, their prices can be vastly inflated over the costs of production.

Black markets can form part of border trade near the borders of neighboring jurisdictions with little or no border control if there are different tax rates, or where goods are legal on one side of the border but not on the other. This products include alcohol and tobacco. However, not all border trade is illegal.

Even when the underground market offers lower prices, most consumers still buy on the legal market when possible, because:

- They may prefer legal suppliers, as they are easier to contact and can be held accountable for faults;

- In some jurisdictions, customers may be charged with a criminal if they knowingly participate in the black economy, even as a consumer;

- They may feel in danger of being hurt while making the deal;

- They may have a moral dislike of black marketing;

But some actively prefer the underground market. For example:

- Unlicensed taxicabs. In Baltimore, it has been reported that many consumers actively prefer illegal taxis, citing that they are more available, convenient, and priced fairly.

In developed countries, some examples of underground economic activities include:

Transportation providers. Where taxicabs, buses, and other transportation providers are strictly regulated or monopolized by government, a black market typically flourishes to provide transportation to poorly served or overpriced communities.

Illegal drugs. From the late 19th and early 20th centuries, many countries began to ban the keeping or using of some recreational drugs. But many people continue to use illegal drugs, and a black market exists to supply them.

Prostitution. Prostitution is illegal or highly regulated in the most countries across the world. While prostitution exists in almost every country, studies show that it tends to flourish more in poorer countries and in areas with large numbers of unattached men, such as around military bases. In countries such as the Netherlands, where prostitution is legal but regulated, illegal prostitutes exist whose services are offered cheaper without regard for the legal requirements, for example health checks.

Weaponry. The legislatures of many countries forbid or restrict the personal ownership of weapons. The black market supplies the demands for weaponry that can not be obtained legally.

Alcohol and tobacco. It has been reported that smuggling one truckload of cigarettes from a low-tax US state to a high-tax state can lead to a profit of up to $2 million. The low-tax states are generally the major tobacco producers, and have come under criticism for their low taxes.

There are also such examples of underground economic activities as copyrighted media, currency, fuel and others.

If an economic good is illegal but not seen by many in society as particularly harmful, such as alcohol under prohibition in the United States, the black market prospers.

Gladchenko O.R., *EL advisor*

GENERAL DEFINITION OF ACCOUNTING

N.Novak, *student F-54*

Today, it is impossible to manage a business operation without accurate and timely accounting information. Managers and employees, lenders, suppliers, stockholders, and government agencies all rely on the information contained in two financial statements. These two reports — the balance sheet and the income statement — are summaries of a firm's activities during a specific time period. They represent the results of

perhaps tens of thousands of transactions that have occurred during the accounting period.

Accounting is the process of systematically collecting, analyzing, and reporting financial information. The basic product that an accounting firm sells is information needed for the clients.

Many people confuse accounting with bookkeeping. Bookkeeping is a necessary part of accounting. Bookkeepers are responsible for recording (or keeping) the financial data that the accounting system processes.

The primary users of accounting information are managers. The firm's accounting system provides the information dealing with revenues, costs, accounts receivables, amounts borrowed and owed, profits, return on investment, and the like.

This information can be compiled for the entire firm; for each product; for each sales territory, store, or individual salesperson; for each division or department; and generally in any way that will help those who manage the organization.

Accounting information helps managers plan and set goals, organize, motivate, and control. Lenders and suppliers need this accounting information to evaluate credit risks. Stockholders and potential investors need the information to evaluate soundness of investments, and government agencies need it to confirm tax liabilities, confirm payroll deductions, and approve new issues of stocks and bonds. The firm's accounting system must be able to provide all this information, in the required form.

The basis for the accounting process is the accounting equation. It shows the relationship among the firm's assets, liabilities, and owner's equity.

Assets are the items of value that a firm owns —'cash, inventories, land, equipment, buildings, patents, and the like.

Liabilities are the firm's debts and obligations — what it owes to others.

Owner's equity is the difference between a firm's assets and its liabilities — what would be left over for the firm's owners if its assets were used to pay off its liabilities.

For a sole proprietorship or partnership, the owners' equity is shown as the difference between assets and liabilities. In a partnership, each partner's share of the ownership is reported separately by each owner's name.

For a corporation, the owner's equity is usually referred to as stockholders equity or shareholders equity. It is shown as the total value of its stock, plus retained earnings that have accumulated to date.

I.A. Morozova, *EL adviser*

METHOD FOR SOLVING GLOBAL ECOLOGICAL PROBLEMS

Romanchuk S., *ED - 51*

Population growth and prodigal usage of resources is causing a gradual build-up of waste, decreasing biodiversity and accelerating depletion of natural resources which are not being replenished. Such problems which are ecological in essence but which reflect on economy, healthcare, society and politics alike, may in due time threaten living conditions for humans on earth and even life itself.

This paper discusses a novel enabling method which, when expertly applied, could lift humanity to a higher level from where it would be able to grapple and solve such global problems.

Overpopulation and intensive agriculture have caused over cropping: oceans are emptied of fish, arable lands are forced to overproduce, causing desertification and soil degradation due to high salinity, woodlands are being deforested at alarming pace.

The human footprint has surpassed what the earth can sustain and renew. It greatly varies geographically: industrialized countries are consuming much more than their equal share.

The main cause of death is circulatory failure, linked to pollution (fine particle dust) as well as to overconsumption.

Global phenomena such as climate change, population growth, over cropping, depletion of resources and waste build-up will in the nearby future create severe tensions between winners and losers.

World government does not seem adequately equipped to manage the inevitable transition period lying ahead of us.

The World Wide Watch Organization aims to make use of the Internet to build an alternative, global network for mutual support around each and every human being on Earth.

A simple subscription with a one-time, cheap subscription fee would ensure life-long membership of a "global family", with members distributed equally over the earth.

The World Wide Watch Organization will launch global families by bringing members in contact with each other and by providing logistical facilities and advice.

Once the idea of global families takes hold, it is hoped that the World Wide Watch Organization will exponentially grow until the global population is covered. Information exchange between global family members should greatly speed up global acceptance of universally applied containment measures against the future global challenges.

Gavrilova V. V., *ELA*

USING WIRELESS TECHNOLOGY: SEQURITY MEASURES

R.S. Volkov, *student, group IN-53*

In recent years, wireless networking has become more available, affordable, and easy to use. Home users are adopting wireless technology in great numbers. On-the-go laptop users often find free wireless connection in places like coffee shops and airports. However, there are security threats people may encounter using such type of connection.

When someone uses a wireless router or access point to create a home network, he trades wired connectivity for connectivity delivered via a radio signal. Unless you secure this signal, strangers can access your internet connection or, even worse, monitor your online activity or modify files on your hard drive. By taking the following actions people can help secure their wireless home network against these threats:

- change the default system ID of wireless access point or router;
- change the default password for a system;
- turn off identifier broadcasting;
- encrypt wireless communications (WPA-based encryption offers better protection than WEP-based encryption.);
- use router built-in firewall to restrict access to a network;
- keep your wireless system patched and up to date.

Accessing a wireless connection from a coffee shop or airport terminal may be convenient and even fun, but people should note that public access points (frequently called hot spots) are often insecure. The following are some steps anyone should consider taking before connecting to a public access point:

- use a virtual private network (VPN) if possible;
- avoid using passwords and providing personal information to web sites;
- encrypt your files;
- be aware of your surroundings.

G.I. Lytvynenko, *EL Advisor*

THE HISTORY OF ELECTRONICS

I.Yeskov, *student ES-52*

Theoretical and experimental studies of electricity during the 18th and 19th centuries led to the development of the first electrical machines and the beginning of the widespread use of electricity.

At the time of Thomson's work, the American inventor Thomas A. Edison had observed a bluish glow in some of his early lightbulbs under certain conditions and found that a current would flow from one electrode in the lamp to another if the second one (anode) were made positively charged with respect to the first (cathode).

In 1906 Lee De Forest, an American engineer, developed a type of vacuum tube that was capable of amplifying radio signals.

The vacuum tube permitted the development of radio broadcasting, long-distance telephony, television, and the first electronic digital computers.

The invention of the transistor in 1947 by John Bardeen, Walter H. Brattain, and William B. Shockley of the Bell research staff provided the first of a series of new devices with remarkable potential for expanding the utility of electronic equipment.

During the late 1950s, research on the purification of silicon succeeded in producing material suitable for semiconductor devices, and new devices made of silicon were manufactured from about 1960.

By 1960 vacuum tubes were rapidly being supplanted by transistors, because the latter had become less expensive, did not burn out in service, and were much smaller and more reliable. This fact, together with the need for compact, lightweight electronic missile-guidance systems, led to the invention of the integrated circuit (IC) in by Jean Hoerni and Robert Noyce of Fairchild Semiconductor Corporation in 1959.

By the mid-1980s microprocessor-based equipment proliferated, ranging from automatic teller machines (ATMs) and point-of-sale terminals in retail stores to automated factory assembly systems and office workstations.

T.V.Pochatko, *E L Adviser*

QUALIMETRIC EFFECTIVENESS EVALUATION OF LARGE-SIZE CRANKSHAFT NECK SUPERFINISHING

Gonshchik A., *student, group IV-51*
Laguta G.G., *Scientific Supervisor*

It is known that grinding is mostly used in finishing processing. However the grinding process is accompanied by high temperature in the cutting area. This temperature causes the structural changes of superficial layer, reduces its endurance. Besides grinding polishing is also widespread as finishing processing. This type of finishing processing is universal enough and does not require difficult equipment. But polishing does not provide the quality indicators of the geometrical shape of the machined surface. It is also characterized by a substantial complexity.

Superfinishing is a final treatment with the use of grinding stones. In particular it is applied for the removal of the noted lacks of grinding and polishing processes. But the practical usage of large-size detail superfinishing involves certain difficulties. These difficulties increase if the surfaces are hidden, for example necks of crankshafts.

In some practical cases we succeeded to overcome the characteristic phenomenon of traditional superfinishing, namely the instability of working conditions of grinding stones. The schemes of superfinishing, in which the removal of the material is carried out keeping the cutting properties of grinding stone, are divided into the following kinds: percussive-cyclic; cyclic; of double oscillation; cyclic with oscillation.

There is no comparative analysis of superfinishing processing schemes. This doesn't assume the selection of the primary processing scheme. Therefore the problem of the selection of the superfinishing scheme aimed at putting the large-size crankshaft neck processing into practice is essential.

On this stage of research we've expressed a hypothesis that one of the superfinishing schemes can possibly take an advantage in comparison to other ones, which are examined in this work. This advantage must be confirmed by the numeral value of some criterion.

It is suggested to take into account the indicators that can help us to perform the evaluation of superfinishing schemes. They are: the correcting capability of superfinishing, the coefficient of the intensity of shape rejection correction, the linear wear of grinding stones, the basic time of processing.

We've applied the idea of the mathematical method for the complex evaluation of superfinishing schemes. This method is used for the economic analysis of the production activity of enterprises and their subdivisions. This is the method of reverse determinate factor analysis. Thus any list of indicators which are used for complex evaluation is possible. The significance of every indicator and the differences in conditions for each of them are also taken into account.

This method involves the use of linear algebra. It is intended for the comparison of all indicators and the measure of their deviations from the best results for each indicator. The indicators characterize the agreed object of analysis – etalon. The best result for each indicator is not optimum. It does not characterize the efficiency of compared superfinishing schemes.

Let's consider the mathematical analogue of the method. Each superfinishing scheme corresponds to a point in n-dimensional space, where n – the number of indicators that the comparison is occurred on. Coordinates of the point are the superfinishing estimate indicators. They are expressed in the shares of the same indicators of the etalon scheme. Thus the superfinishing scheme subordination will be determined as a distance from the etalon scheme points to the points that correspond to each superfinishing scheme.

The linear models of superfinishing indicator have been got by the simulation modelling of superfinishing. The models of superfinishing indicators provided the receipt of statistical material. This material is necessary for putting the estimate determination method of superfinishing scheme effectiveness into practice.

The analysis of the superfinishing scheme estimations we've got allows us to make a conclusion: if using the accepted evaluation method, the grinding stone wear U_s affects the choice of superfinishing scheme more than the coefficient of the intensity of shape rejection correction K_i does.

From this, it can be inferred that our hypothesis should be rejected. It means that no superfinishing scheme takes the advantage in comparison to others. In such a situation the roughness characteristic of machined surface will have the determined meaning. Using this characteristic we should prefer the cyclic superfinishing scheme or the cyclic scheme with oscillation.

Mikhno S.V., *E L Advisor*

ECONOMY AND ECOLOGY (FROM GREENPEACE)

Zholud D., *student ED – 51*

Global economic systems crash not only because greed fraud and toxic assets, but because those systems rest on fallacies about the natural world. In this article we learn some economic theories, which were proclaimed earlier. So, there are no more giant resource pools to plunder. The affluence relies not on fashioning loans with fantasy money and trading bets on the changing value of paper promises, but on the real wealth: nature.

We must recognize, that land is a community to which we belong. The ecologists warn, it becomes a shortage of fertile soil, the result of erosion, salivation, contamination and a swelling population. Iran comes begging to the US, its avowed enemy, to buy over 1 million tons of wheat. It's the ecological crisis. Ukrainian shipments are being closed.

Our age is called "the Big Bonfire". World oil production has stopped growing and will begin its inevitable decline during the next decade. Oil depletion is seen. However, the number of vehicle and fleet will increase and there will be new roads building. Wind and solar energy is interesting to modern economists, but will not replace cheap oil.

The best and cheapest energy source is conservation. The only environmentally feasible solution to the end of cheap liquid fuels is to burn less. We burn a million tons of fossil fuel every hour, releasing 80-million tons of CO2 each day.

Scientists on board Russian research ship recorded methane bubbling to the sea surface, causing air-borne concentrations 100-times background levels. Similar releases have been recorded in the East Siberian and Laptev Seas, amounting to millions of tons of methane from melting sub-sea permafrost. The methane represents an unaccounted cost of doing business in the era of the "big bonfire".

Regardless of stopgap bailouts and more paper promises, economic collapse will continue until humanity finally understands that ecology is the foundation of human enterprise.

Gavrilova V.V., *ELA*

DECISION SUPPORT SYSTEM FOR CONTROLING CARBON FIBER CAPACITY WHILE MANUFACTURING OF COMPOSITE MATERIALS

Andriienko Nataliia, *In-53*

Manufacturing fluoroplastic composites based on polytetrafluoroethylene [1] with given characteristics requires the development and application of automated systems that implement methods of machine learning and pattern recognition. Consider the problem of quality control of mills operating through recognition of medium length carbon fibers capable of learning through decision support system (DSS).

Input mathematical description of the classifier has the form of a training matrix of the whole numbers representing image brightness of chopped carbon fibers. At the stage of training it is necessary to find the informationally best partitioning of feature space into classes and to make a reliable decision as to whether the tested image belongs to a certain class of the class recognition alphabet formed at the stage of learning.

One way of solving this problem is to create a DSS using extreme intellectual information technology (IEIT), based on the maximization of system information capacity by applying more information restrictions [2].

The multidimensional training matrix was formed by the discrete values of the colour components of each pixel of carbon fiber images, which are divided into three classes "Norm", "Smaller than normal" and "Bigger than normal". Information extreme learning algorithms DSS lie in the iterative procedure of finding the global maximum information Kulbaks criterion in the working (allowable) area of determining its role in the restoration of optimal container three recognition classes. To improve the accuracy of the images in the learning process there was carried out optimization of both geometrical parameters of DSS functioning and the system of control tolerances for signs of recognition.

Optimization of control tolerances was made by the parallel and serial algorithms. After optimization values of information functional efficiency criterion increased on each step and for all recognition classes.

According to the results of physical modeling using the full exam DSS probability of correct decision making while recognizing the images of the given above three classes of fibres is equal to 0.9.

Further development of the system is the optimization the functioning of other parameters, such as optimizing the dictionary of recognition features.

Litvinenko G.I., *ELA*

ECOLOOY AND BUSINESS

Belopolskaya A A., *gr. F-51*

Human life and industrial activity entail great amounts of organic wastes which can be found in dumps around big cities taking up huge areas. All these wastes are greatly responsible for contamination of natural environment (land, water and air). Nevertheless technologies that allow turning ordinary garbage into source of energy, make useful secondary materials from it such as glass, metals etc are already developed. So it is possible to apply these technologies and make money from waste utilization.

Due to different governmental programs aimed at gradual reduction of garbage dumps and increased investments in recycling of waste materials have created the situation where business is getting more and more interested in waste utilization.

Nowadays there are two main generally accepted business schemes to dispose and recycle waste materials in the world: American and European. In the USA "waste producers" have to make a separate payment for waste collecting themselves, while in Europe this sum is already included in the product's price. These two schemes have a different impact on companies which produce packages. The American system has a mere influence, because those are consumers who are to pay this tax. The European system especially German "Green Dot" acts differently. It prompts companies reduce their package volumes, because money allocations (licenses), which are included in the product's prime cost are to be paid by companies. Consequently they are interested to reduce volume of packaging materials.

Owing to governmental support, activities with solid wastes in EU is rather profitable. For example, 2/3 of the price for waste disposal in landfills is covered by the local waste disposal tax and 1/3 is paid by goods producers. Waste recycling is a less profitable business. Its costs are covered by producers and consumers.

Garbage incineration in Europe is extremely expensive and not profitable business because of strict limitation rules set by governments. Especially they concern emission of carbon dioxide and heavy metals which are emitted in the course of incineration.

I.A. Morozova, *EL adviser*

SELF-ORGANIZATION

M.Chernyakova, *PM-51*

Self-organization is the spontaneous often seemingly purposeful formation of spatial, temporal, spatio-temporal structures or functions in systems composed of few or many components.In physics, chemistry and biology self-organization occurs in open systems driven away from thermal equilibrium. The process of self-organization can be found in many other fields also, such as economy, sociology, medicine, technology.

Many objects in our surrounding and daily life such as furniture, houses, cars, TV-sets, computers are man made. On the other hand, especially in the animate world, objects grow, acquire their form, and function without being created by humans. The animal kingdom abounds of examples.It is increasingly recognized that even the human brain may be considered as a self-organizing system as well as quite a number of manifestations of human activity, such as in economy and sociology. But processes of self-organization can be found also in the inanimate world: formation of cloud streets, planetary systems, galaxies etc.

A fundamental question is: Are there general principles for self-organization? In the inanimate world a positive answer could be found for large classes of phenomena. In the animate world so far at least some insights could be gained. In biology there is a controversy: are there general principles or do we need special rules and mechanisms in each individual case?

History. The concept of self-organization was discussed in ancient Greek philosophy. In more modern times, self-organization was discussed by the German philosopher Immanuel Kant, as well as by the German philosopher Schelling. In more modern times, self-organization was discussed by W. Ross Ashby and by Heinz von Förster within his "Cybernetics of second order". It was also discussed in thermodynamics.

A systematic study of self-organization phenomena is performed in the interdisciplinary field of synergetics that is concerned with a profound mathematical basis of self-organization as well as with experimental studies of these phenomena.

Theoretical Treatments: microscopic, macroscopic phenomenological. The theoretical treatment of self-organization is based both on microscopic, as well as macroscopic phenomenological approaches.

Of particular interest is the question, whether there are general principles of self-organization, irrespective of the nature of the individual parts of the system. In synergetics such principles could be found, at least for self-organization of the first kind, as outlined above. They are based on general concepts, such as order parameters and the slaving principle. The main issue is

the reduction of complexity. In large classes of systems their dynamics can be described by few order parameters. This serves also as a basis for the application of catastrophe theory as well as of chaos theory because both theories are based on the use of few variables.

The mathematical theory of synergetics provides an algorithm by which the order parameters and their equations can be derived, provided the basic microscopic equations are known, and it allows one to formulate model equations in terms of order parameters if the basic equations are unknown.

Applications. Self-organizing systems are adaptive and robust. They can reconfigure themselves to changing demands and thus keep on functioning in spite of perturbations. Because of this, self-organization has been used as a paradigm to design adaptive and robust artificial systems. The main idea is to engineer elements of a system so that they find a solution or perform a desired function.This approach is useful in non-stationary or very large problem domains, where the solution is not fixed or is unknown. Thus, the engineer does not need to reach a solution, as this is sought for constantly by the self-organizing elements.

Outlook. In the science community there is an increasing awareness of the importance of the concept of self-organization and quite a number of phenomena are now seen under this aspect.

A.M. Dyadechko, *ELA*

A BRAND-NEW YOU

Kholodion I., *group E-53*

Companies invest an enormous amount of time and money to develop, promote and sustain their corporate brands. Think of Coca-Cola, Apple, BMW or McDonalds. Branding is a powerful way to shape customer perceptions of products or services and to influence their buying behaviour. So, if branding works for companies, why can't it work for you as an individual? Take a few minutes to think about the following questions.

1. Why you need a personal brand. Tom Peters defined brand primarily as what other people think about us - the ideas and associations we stimulate in their minds by the way we look, sound and behave. He said that everyone has a personal brand, whether they like it or not. Some aspects of our brand will be positive, others negative.

Some benefits of personal branding: 1) greater visibility and opportunities for promotion; 2) better working partnerships inside your company; 3) higher salary; 4) the ability to attract and retain more customers; 5) greater self-confidence; 6) clearer focus on what really matters for you at work.

2. Creating a personal brand. It will be easier to create an effective personal brand if you follow these three key steps:

a) Define your personal brand vision. What do I want to become? How much do I want to earn? What kind of leader do I want to be? What kind of team do I want to work in?

b) Define your personal brand. The second step is to define a unique and impressive professional brand. Start by creating a short statement of who you are: the values you represent, your key qualities, and what makes you unique.

c) Promote your personal brand. No matter how good a brand is, it will be of little value if it isn't promoted well. It is essential to move on from creating the brand to making sure.

3. Communicating your brand. Here are various channels you can use to promote your unique personal brand in the workplace.

a) The work channel. The best way to show your talent to others is to find opportunities to work with them.

b) The people channel. One of the best forms of marketing is personal recommendation or "word of mouth". It is essential to cultivate a strong network of carefully selected people who like and respect you.

c) The emotional channel. Corporate brands use emotions to connect strongly to customer desires, such as the wish to be successful or attractive. To gain their customers' trust and loyalty, companies try to make the experience of their brand an enjoyable one

d) The visual channel. When people see you, they should experience credibility, authority and openness.

e) The auditory channel. What do people think when they hear you? Are they inspired, or do they have mixed feelings towards you and your approach to business?

4. The culture question. Culture can play a key role in brand communication. Whatever values or information we try to transmit, the receivers of our message will see or hear us and interpret the message according to their own mental model and filters. You are likely to have a number of diverse audiences for your brand campaign at work. These may include different national cultures, departmental cultures, age and gender cultures, different business relationships. Effective personal branding requires a clear vision and message but, above all, intelligent promotion to diverse audiences.

5. Always be selling. Developing and communicating your personal brand is not enough. You also have to "walk the talk".

Remember that every encounter represents an opportunity to sell "Brand You", from first impressions in casual social encounters to taking part in international meetings or presentations.

Effective brands are consistent brands. So make sure that how you look, sound and act at all times sends a consistent message about who you are and what your unique value is.

Gladchenko O.R., *EL advisor*

EMPLOYEE MOTIVATION

Nataliya Voropa, *group E-53*

The job of a manager in the workplace is to get things done through employees. To do this the manager should be able to motivate employees. But that's easier said than done! Motivation practice and theory are difficult subjects, touching on several disciplines.

In spite of enormous research, basic as well as applied, the subject of motivation is not clearly understood and more often than not poorly practiced. To understand motivation one must understand human nature itself. And there lies the problem!

Human nature can be very simple, yet very complex too. An understanding and appreciation of this is a prerequisite to effective employee motivation in the workplace and therefore effective management and leadership.

These articles on motivation theory and practice concentrate on various theories regarding human nature in general and motivation in particular. Included are articles on the practical aspects of motivation in the workplace and the research that has been undertaken in this field, notably by Douglas McGregor (theory y), Frederick Herzberg (two factor motivation hygiene theory,) Abraham Maslow (theory z, hierarchy of needs), Elton Mayo (Hawthorne Experiments) Chris Argyris Rensis Likert and David McClelland (achievement motivation.)

Quite apart from the benefit and moral value of an altruistic approach to treating colleagues as human beings and respecting human dignity in all its forms, research and observations show that well motivated employees are more productive and creative. The inverse also holds true.

Motivation is the key to performance improvement.

There is an old saying you can take a horse to the water but you cannot force it to drink; it will drink only if it's thirsty - so with people. They will do what they want to do or otherwise motivated to do. Whether it is to excel on the workshop floor or in the 'ivory tower' they must be motivated or driven to it, either by themselves or through external stimulus.

Are they born with the self-motivation or drive? Yes and no. If no, they can be motivated, for motivation is a skill which can and must be learnt. This is essential for any business to survive and succeed.

Performance is considered to be a function of ability and motivation, thus:

Job performance =f(ability)(motivation)

Ability in turn depends on education, experience and training and its improvement is a slow and long process. On the other hand motivation can

be improved quickly. There are many options and an uninitiated manager may not even know where to start. As a guideline, there are broadly seven strategies for motivation.

- Positive reinforcement / high expectations
- Effective discipline and punishment
- Treating people fairly
- Satisfying employees needs
- Setting work related goals
- Restructuring jobs
- Base rewards on job performance

These are the basic strategies, though the mix in the final 'recipe' will vary from workplace situation to situation. Essentially, there is a gap between an individuals actual state and some desired state and the manager tries to reduce this gap.

Motivation is, in effect, a means to reduce and manipulate this gap. It is inducing others in a specific way towards goals specifically stated by the motivator. Naturally, these goals as also the motivation system must conform to the corporate policy of the organization. The motivational system must be tailored to the situation and to the organization.

In one of the most elaborate studies on employee motivation, involving 31,000 men and 13,000 women, the Minneapolis Gas Company sought to determine what their potential employees desire most from a job. This study was carried out during a 20 year period from 1945 to 1965 and was quite revealing. The ratings for the various factors differed only slightly between men and women, but both groups considered security as the highest rated factor. The next three factors were;

- advancement
- type of work
- company - proud to work for

Surprisingly, factors such as pay, benefits and working conditions were given a low rating by both groups. So after all, and contrary to common belief, money is not the prime motivator. (Though this should not be regarded as a signal to reward employees poorly or unfairly.)

Managers are often confronted with high employee attrition. For most managers the easiest solution when a valuable employee resigns his job is to offer more benefits in terms of money and perquisites. But rarely does it work. Exit interviews often point out low moral due to infrequent appreciation and recognition of the contribution of the employee leading to de-motivation and disenchantment with the job.

Gladchenko O.R., *EL advisor*

PATTERN RECOGNITION OR SOLVING EQUATION WITH ALL MULTINOMIAL COEFFICIENTS UNKNOWN

Oleshko A.O., *IN-53*

The problem is as follows. There is a communication point, from where we receive data. Patterns of the pieces of data being sent over the channel are known at the receiving point. Data may be fully or partially distorted while transferring on the communication channel. Moreover, we know that a communication channel distorts signal by n-power polynomial, which has all the parameters unknown. In other words, pattern recognition task is to be solved. It is also needed to find out which parts of the received data were distorted, and whether it was fully or partially distorted.

The best and the only way to solve this task is with use of m-nonproportionalities.

If we have data patterns described as functions $W_i(t)$, where i - number of patterns, at the receiving point we will get a set of distorted values, which will be multinomial of $W_i(t)$ with unknown coefficients U(t). For etalon data recognition, contained in received signal, m-nonproportionality of U(t) on each of $W_i(t)$ is used. I.e. its identification lies in recursive calculation of nonproportionalities U(t) on first derivative of $W_i(t)$. If m-nonproportionality equals to zero the recognition of accepted data is considered to be done.

The depth of the recursive process of calculation nonproportionalities U(t) on first derivative of $W_i(t)$ is defined by a maximum possible power of the polynomial, which is used to distort signal sent from a communication point. Even though communication channel is beyond our control, knowing its properties or empirically studying them allows us to discover polynomial maximum power for calculation algorithm.

There are many real-world examples where such recognition system could be used. In nowadays computers and television-sets, which are mainly built on transistors and semiconductors, processed signal in all of the microcircuit chips is distorted like that if the signal is not strong enough. As another example of the described method use in real-life may be system of remote recognition of airplanes hull numbers, which are printed with given font and its parts may be not fully reproduced or distorted under many circumstances.

Litvinenko G.I., *ELA*

THE MAIN FEATURES OF STOCKS AND THE IMPORTANCE OF STOCK MARKET

T. Myakota, *student F-54*

In the investment world, a share of stock (also referred to as equity share) represents a share of ownership in a corporation or company.

The first company to issue shares of stock after the Middle Ages was the Dutch East India Company in 1606. Economic historians find the Dutch stock market of the 1600s particularly interesting: there is clear documentation of the use of stock futures, stock options, short selling, the use of credit to purchase shares, a speculative bubble that crashed in 1695, and a change in fashion that unfolded and reverted in time with the market.

Stock typically takes the form of shares of either common stock or preferred stock. As a unit of ownership, common stock typically carries voting rights that can be exercised in corporate decisions. Preferred stock differs from common stock in that it typically does not carry voting rights but is legally entitled to receive a certain level of dividend payments before any dividends can be issued to other shareholders.

A stock derivative is any financial instrument which has a value that is dependent on the price of the underlying stock. Futures and options are the main types of derivatives on stocks.

Both private and public traded companies have shareholders. A shareholder (or stockholder) is an individual or company (including a corporation) that legally owns one or more shares of stock in a joint stock company.

Shareholders are granted special privileges depending on the class of stock, including the right to vote on matters such as elections to the board of directors, the right to share in distributions of the company's income, the right to purchase new shares issued by the company, and the right to a company's assets during a liquidation of the company.

Even though the board of directors runs the company, the shareholder has some impact on the company's policy, as the shareholders elect the board of directors. Each shareholder typically has a percentage of votes equal to the percentage of shares he or she owns.

Owning shares does not mean responsibility for liabilities. If a company goes broke and has to default on loans, the shareholders are not liable in any way. However, all money obtained by converting assets into

cash will be used to repay loans and other debts first, so that shareholders cannot receive any money unless and until creditors have been paid.

There are various methods of buying and financing stocks. The most common means is through a stock broker. A stock broker arranges the transfer of stock from a seller to a buyer. There are other ways of buying stock besides through a broker. One way is directly from the company itself. If at least one share is owned, most companies will allow the purchase of shares directly from the company through their investor relations departments.

When it comes to financing a purchase of stocks there are two ways: purchasing stock with money that is currently in the buyer's ownership, or by buying stock on margin. In margin buying, the trader borrows money (at interest) to buy a stock and hopes for it to rise.

Selling stock is similar to buying stock. Generally, the investor wants to buy low and sell high. As with buying a stock, there is a transaction fee for the broker's efforts in arranging the transfer of stock from a seller to a buyer.

Most trades are actually done through brokers listed with a stock exchange. A stock market is a public market for the trading of company stock and derivatives at an agreed price. The stock market in the United States is NYSE while in Canada, it is the Toronto Stock Exchange. Major European examples of stock exchanges include the London Stock Exchange, Paris Bourse, and the Deutsche Börse. Asian examples include the Tokyo Stock Exchange, the Hong Kong Stock Exchange, and the Bombay Stock Exchange. In Latin America, there are such exchanges as the BM&F Bovespa and the BMV.

The stock market is one of the most important sources for companies to raise money. This allows businesses to be publicly traded, or raise additional capital by selling shares of ownership of the company in a public market.

History has shown that the price of shares and other assets is an important part of the dynamics of economic activity, and can influence or be an indicator of social mood. An economy where the stock market is on the rise is considered to be an up and coming economy. In fact, the stock market is often considered the primary indicator of a country's economic development.

I. A. Morozova, *EL Adviser*

THE ECONOMY OF DUBAI

Irina Valkova, *group E-53*

The economy of Dubai is one of the most unique and unusual in the world. Dubai has changed dramatically over the last three decades, becoming a major business centre with a more dynamic and diversified economy. Dubai enjoys a strategic location and serves as the biggest re-exporting centre in the Middle East.

Its low logistical and operational costs and excellent infrastructure, international outlook and liberal government policies are attracting investors in a big way. Activities such as trade, transport, tourism, industry and finance have shown steady growth and helped the economy to achieve a high degree of expansion and diversification.

The Dubai economy enjoys a competitive combination of cost, market and environmental advantages that create an ideal and attractive investment climate for local and expatriate businesses alike.

As an entrepot, (or *free port* or *porto franco*) duties and taxes are not imposed on imported goods. Dubai has numerous free zones including Jebel Ali free zone, Dubai Maritime City, Dubai Internet City, and Dubai Media City.

The free zones in Dubai have attracted considerable foreign direct investment (FDI). Combined, the internet and media free zones are called TECOM (Dubai Technology, Electronic Commerce and Media Free Zone Authority). Within them are large multi-national firms sucah as Microsoft, Oracle Corporation, IBM, and EMC Corporation; BBC, CNN, Reuters, Sky News, and the Assoiated Press are in the medai free zone.

This Emirate, or political territory, specifically in the country of the United Arab Emirates, has grown from relative obscurity in the past half-century to one of the largest and most powerful in the Middle East. Originally built on the oil and gas industry, the city's rapid expansion in the 90s brought the construction industry to the forefront of the state's economy.

O.R. Gladchenko, *EL advisor*

GLOBAL POSITIONING SYSTEM

A.Gusakov, *student ES-52*

The Global Positioning System (GPS) is a U.S. space-based global navigation satellite system. It provides reliable positioning, navigation, and timing services to worldwide users.

GPS is made up of three segments: Space, Control and User. The Space Segment comprises 24 to 32 satellites in Medium Earth Orbit. The Control Segment is comprised of a Master Control Station, an Alternate Master Control Station, and a host of dedicated and shared Ground Antennas and Monitor Stations. The User Segment is comprised of hundreds of thousands of U.S. and allied military users of the secure GPS Precise Positioning Service, and tens of millions of civil, commercial and scientific users of the Standard Positioning Service. GPS satellites broadcast signals from space that GPS receivers use to provide three-dimensional location (latitude, longitude, and altitude) plus precise time.

A GPS receiver calculates its position by precisely timing the signals sent by the GPS satellites high above the Earth. Each satellite continually transmits messages which include:

- the time the message was sent
- precise orbital information (the ephemeris)
- the general system health and rough orbits of all GPS satellites.

The receiver utilizes the messages it receives to determine the transit time of each message and computes the distances to each satellite. These distances along with the satellites' locations are used with the possible aid of trilateration to compute the position of the receiver. This position is then displayed, perhaps with a moving map display or latitude and longitude.

GPS has become a widely used aid to navigation worldwide, and a useful tool for map-making, land surveying, commerce, scientific uses, tracking and surveillance, and hobbies. Also, the precise time reference is used in many applications including the scientific study of earthquakes and as a time synchronization source for cellular network protocols.

T.V.Pochatko, *E L Adviser*

MECHANICAL PROPERTIES OF «ZIGZAG» AND MULTI-WALLED CARBON NANOTUBES

A.D. Karpechenko , *student, group IN-53*

A carbon nanotube (which is the most popular nanotube type at the moment) is a cylinder with a wall of single graphite atoms. Its diameter is exactly one nanometer. Carbon nanotubes (CNTs) attract growing interest due to their exceptional mechanical, thermal, and electrical properties.

They were discovered in 1991 by the Japanese electron microscopist Simio Iijima who was studying the material deposited on the cathode during the arc-evaporation synthesis of fullerenes.

Nanotubes are categorized as single-walled nanotubes (SWNTs) and multi-walled nanotubes (MWNTs).

Most single-walled nanotubes (SWNT) have a diameter close to 1 nanometer, with a tube length that can be many millions of times longer. The way of wrapping the graphene sheet is represented by a pair of indices (n, m) called the chiral vector. If $m = 0$, the nanotubes are called "zigzag". If $n = m$, the nanotubes are called "armchair". Otherwise, they are called "chiral".

Single-walled nanotubes are an important variety of carbon nanotube because they exhibit electric properties that are not shared by the multi-walled carbon nanotube (MWNT) variants.

Multi-walled nanotubes (MWNT) consist of multiple rolled layers (concentric tubes) of graphite. There are two models which can be used to describe the structures of multi-walled nanotubes: the Russian Doll model and the Parchment.

Nanotubes can be metals or semiconductors, and because of their strong chemical bonds and satisfied valences, the materials boast high thermal, mechanical, and chemical stability. In addition, carbon nanotubes can be efficient conductors due to their tiny diameters, long lengths, and defect-free structures that make them ideal one-dimensional systems.

The radius of nanotube "zigzag" can be determined by bending a graphite sheet:

$$Q_n = \frac{\sqrt{3}b}{2\pi}\sqrt{n^2 + m^2 + mn},$$

where b — internuclear distance (0,142 nm).

Taking the effective thickness of the walls of SWNTs (t) as 0,074 nm, the effective radius Q_{na} find as:

$$Q_{na} = \frac{\sqrt{3}b}{2\pi}\sqrt{\left(n^2 + m^2 + mn\right)} + \frac{t}{2}. \qquad (2)$$

To calculate the modulus of elasticity of single-layer nanotubes (SWNTs) «zigzag» following relationship was obtained:

$$E = \frac{\lambda K^{\theta} K^{Q}}{3b^2 K^{Q} + 9\lambda K^{\theta}}\left(\frac{8\sqrt{3}Q_n}{Q_{na}^2}\right). \qquad (3)$$

where $\lambda = \frac{8 - 2\cos^2\gamma}{4 - 3\cos^2\gamma}$.

The angle associated with the effect of curvature and is equal $\frac{\pi}{2n}$.

With the change in the number of layers of the nanotube a modulus of elasticity for the MWNT is expressed by the formula:

$$E_m = \frac{8\sqrt{3}N}{\left[(N-1)h+1\right]}\frac{K^{\theta}K^{Q}}{b^2K^{Q} + 18K^{\theta}},\ 1 < N \le 1 + 2Q_0/h, \qquad (4)$$

where h — distance between the layers of multilayer nanotubes, equal to 0.34 nm. $K^{Q}/2 = 46\,900$ kkal/mol/nm^2, $K^{\theta}/2 = 63$ kkal/mol/rad^2. There are a permanent forces of tension and constriction.

As a result, we see that with decreasing radius of a single-layer nanotubes «zigzag» and, as a consequence, a decrease of chirality, the modulus of elasticity increases. The modulus of elasticity for multilayer nanotubes depends of the diameter of the nanotube and becomes less sensitive to an increase in the number of layers when ($N \ge 8$).

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G.I. Lytvynenko, *EL Advisor*

BANK

T. Sagun, *student F-54*

A bank is a financial institution licensed by a government. Its primary activities include borrowing and lending money.

The first state deposit bank, Banco di San Giorgio (Bank of St. George), was founded in 1407 at Genoa, Italy.

The name *bank* derives from the Italian word *banco* "desk/bench", used by Florentine bankers, who used to make their transactions above a desk covered by a green tablecloth.

Banks act as payment agents by conducting checking or current accounts for customers, paying cheques drawn by customers on the bank, and collecting cheques deposited to customers' current accounts.

Banks borrow money by accepting funds deposited on current accounts, by accepting term deposits, and by issuing debt securities such as banknotes and bonds. Banks lend money by making advances to customers on current accounts, by making instalment loans, and by investing in marketable debt securities and other forms of money lending.

Banks borrow most funds from households and non-financial businesses, and lend most funds to households and non-financial businesses.

Under English common law, a banker is defined as a person who carries on the business of banking, which is specified as:

- conducting current accounts for his customers
- paying cheques drawn on him, and
- collecting cheques for his customers.

Bank statements are accounting records produced by banks under the various accounting standards of the world. There are two kinds of accounts: debit and credit. Credit accounts are Revenue, Equity and Liabilities. Debit Accounts are Assets and Expenses. This means you credit a credit account to increase its balance, and you debit a debit account to increase its balance.

Currently in most jurisdictions commercial banks are regulated by government entities and require a special bank licence to operate.

The requirements for the issue of a bank licence vary between jurisdictions but typically include:

1. Minimum capital
2. Minimum capital ratio
3. 'Fit and Proper' requirements for the bank's controllers, owners, directors, and/or senior officers
4. Approval of the bank's business plan as being sufficiently prudent and plausible.

One source of deposits for banks is brokers who deposit large sums of money on the behalf of investors. Such deposits, combined with risky real estate investments.

A bank generates a profit from the differential between the level of interest it pays for deposits and other sources of funds, and the level of interest it charges in its lending activities.

I.A. Morozova, *EL adviser*

POSSIBILITIES OPENED BY NANOTECHNOLOGY

S.N.Ocheretko, *student, group IN-53*

Nanotechnology is the study of controlling matter on the atomic and molecular level. General nanotechnology deals with structures the size of which is 100 nanometers or smaller in at least one dimension, and involves developing materials or devices within that size.

There has been much debate on the future implications of nanotechnology. Nanotechnology has the potential to create many new materials and devices with a vast range of applications, such as medicine, electronics and energy production.

Nanotechnology can create improved materials, devices, and systems that exploit these new properties. The impact and opportunities reach into every field — from chemistry to physics, from biotechnology to engineering.

There are different types of nanomaterials, named for their individual shapes and dimensions. Think of these simply as particles, tubes, and films that have one or more nanosized dimension.

Nanofilm is a development of nanotechnology-enables products using nanofilms in products. These products are used in precision optics, glass in transport vehicles, architectural glass, electronic display/technical glass, glass and ceramic tableware, homecare and other markets. These coatings add new properties to the surface of substrates, including strength, water resistance, contaminant resistance; scratch and mar resistance, energy control, electrical conductivity.

In future nanotechnology is enabling scientists to find ways to make our home, cars, and businesses more energy efficient through new fuel cells, batteries, and solar panels. They are also finding ways to purify drinking water and to detect and clean up environmental waste and damage. Nanosensors in packaging may soon be able to detect food borne pathogens. New nanomaterials will be stronger, lighter and more durable than the materials we use today in buildings, bridges, automobiles, and more. The possibilities seem limitless and the future of nanotechnology holds great potential.

G.I. Lytvynenko, *EL Advisor*

MULTI-OBJECTIVE OPTIMIZATION OF A 3D VANELESS DIFFUSER

Oleg Shcherbakov , *K-51*

The diffuser, an important component in a centrifugal compressor, is absolutely essential for the efficiency and pressure improvement of the system. Experimental research indicates that the kinetic energy of the impeller outlet gas accounts for 20%–50% of the work given by the impeller.

Therefore, the diffuser and other stationary components determine whether high kinetic energy could be converted into pressure energy with high efficiency.

Diffuser performance is limited by its geometry and aerodynamic parameters. Considering the demand of the industry, it is necessary that a direct shape optimization method be developed.

The optimization problem in fluids generally requires the solution of fluid motion equations, so ordinary multidimensional mapping is improper and impractical.

$$c_r \frac{\partial c_r}{\partial r} + \frac{c_u}{r}\frac{\partial c_r}{\partial \theta} + c_z \frac{\partial c_r}{\partial z} - \frac{c_u^2}{r} = -\frac{1}{\rho}\frac{dp}{dr} + F_r;$$

$$c_r \frac{\partial c_u}{\partial r} + \frac{c_u}{r}\frac{\partial c_u}{\partial \theta} + c_z \frac{\partial c_u}{\partial z} + \frac{c_r c_u}{r} = -\frac{1}{\rho}\frac{dp}{d\theta} + F;$$

$$c_r \frac{\partial c_z}{\partial r} + \frac{c_u}{r}\frac{\partial c_z}{\partial \theta} + c_z \frac{\partial c_z}{\partial z} = -\frac{1}{\rho}\frac{dp}{dz} + F_z;$$

$$\frac{1}{r}\frac{\partial}{\partial r}(rc_r) + \frac{1}{r}\frac{\partial c_u}{\partial \theta} + \frac{\partial c_z}{\partial z}.$$

Of the optimization attempts using computational fluid dynamics, the adjoint method and conjugated gradient method are the most popular. But sometimes the extension of this method is limited.

An optimization model based on fuzzy theory was set up and the corresponding Interactive modified simplex (IMS) method was developed to solve it.

The detailed optimization procedure is described as follows:

(1) The initialization of optimization: the normalization of position vector b and determination of the range of variables;

(2) Diffuser performance calculation: solving of RANS on initial mesh to find the value of the object function;

(3) Optimization with modified simplex: finding the new shroud curve vector;

(4) Convergence check: checking the convergence of the design variables. If the requirements are met, the process is complete. Otherwise, the optimization continues to the next step;

(5) CFD re-grid: defining the new boundary surfaces and smoothing, clustering, and interior grid movement. Return to step (2) for another iteration.

Both static pressure recovery and total pressure loss were considered in the model:

$$\max\left\{U(x)=\left[u_1(x)^{\beta_1}\times u_2(x)^{\beta_2}\right]^{1/\beta_1+\beta_2}\right\},$$

$$\varpi\left(\vec{b}\right)=\frac{p_{3total}-p_{4total}}{p_{3total}-p_{3static}},$$

$$C_p=\frac{p_{4static}-p_{3static}}{p_{3total}-p_{3static}}.$$

Computational fluid dynamics (CFD) method was applied to solve the Reynolds-Averaged Navier-Stokes equation (RANS) and to find flow field distribution to get the value of the object function. After receiving the new shroud curve, grid movement and redrawing technology were adopted to avoid grid-line crossing and negative cells.

The shroud curve was fitted with B-spline. The optimized results concur with the results reported in references. Optimized results indicate that not only diffuser performance is improved but also downstream efficiency is increased because of the change of outlet flow angle.

N.N. Usenko, *EL A*

VIBRATING HYDRAULIC DRIVE

V.P.Chuiko, *student, group GM – 51,*
A.A.Plyhyn, *student, group PR – 71*
V.V.Dubinsky, S.P.Kulinich

The efficiency of manufacturing equipment application depends on the possibility of the power drive characteristics prediction. Due to small sizes and weight and the capabilities that they provide, hydraulic systems are used in the most current manufacturing machinery. For some processes, especially for wood wastes briquetting, it is advisable to impose vibration on the movement of an operational mechanism. The vibration movement improves briquettes characteristics. The development of the mathematical model of the vibrational hydraulically driven press for wood wastes briquetting is the topical scientific problem that has some practical application in industry.

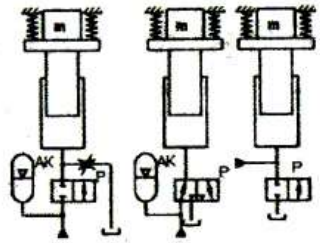
Different scientists have done a lot of research concerning the vibrational hydraulic drivers applied to the operating mechanisms of the manufacturing equipment.

A mathematical model of hydroimpulsive drive is known to be used for compaction of powder material blanks in the enclosed molds during the process of inertial load. The difference between the given schemes is defined by the way the vibration exciter P is connected with void of to the hydraulic cylinder.

There are two ways of vibration on exciter connection:

- in the inlet – the temporary connection of the hydraulic cylinder working cavity with the pump line and drain happens through the vibration exciter P.
- in the outlet – the working cavity of the hydraulic cylinder is connected directly with the pump line, and the vibration exciter P occasionally connects it with the drain.

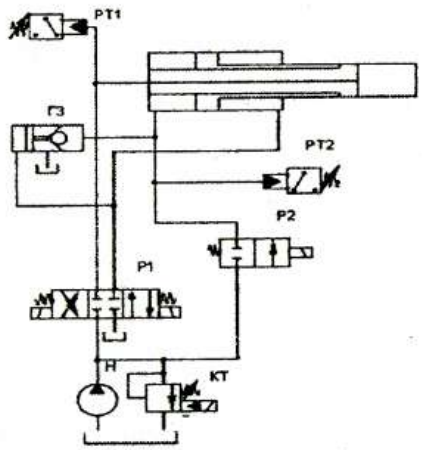
The schemes considered above provide periodical fluctuation of the hydraulic motor outgoing element relatively to the definite initial position. To get the wastes compaction it is necessary to provide the movement of the motor outgoing element together with the imposed vibration on this movement. At the same time hydraulic cylinder capabilities change as the wastes are compacted.



Picture 1 - Principles charts

One of the main specialties of the hydraulically driven press for wood wastes briquetting is also the application of the hydraulic cylinder with two pistons which provide one workload. The problem of such hydraulic systems is not covered in detail.

It is necessary to design the mathematical model of the vibrationally driven press for wood wastes briquetting which takes into account the operational particulars of hydraulic cylinder with two pistons, the ability to be two-phase, the compression of hydraulic liquid, and also nonlinear characteristics of the drive elements.



Picture 2 – Chart of a vibrationally driven press

The obtained system of equations allows to investigate dynamic characteristics of the hydraulically and vibrationally driven press for wood wastes briquetting both in the prior pressing mode (without applying vibration), and in the basic mode.

L.P.Iarmak, *EL Adviser*

AUTHENTICATION

Rep. Mulin D., *ES - 52*

Authentication (from Greek: *αυθεντικός* ; real or genuine, from *authentes*; author) is the act of establishing or confirming something (or someone) as *authentic*, that is, that claims made by or about the subject are true. This might involve confirming the identity of a person, tracing the origins of an artifact, ensuring that a product is what its packaging and labeling claims to be, or assuring that a computer program is a trusted one.

There are two types of techniques for doing this.

The first is comparing the attributes of the object itself to what is known about objects of that origin. For example, an art expert might look for similarities in the style of painting, check the location and form of a signature, or compare the object to an old photograph.

The second type relies on documentation or other external affirmations. For example, the rules of evidence in criminal courts often require establishing the chain of custody of evidence presented. This can be accomplished through a written evidence log, or by testimony from the police detectives and forensics staff that handled it. Some antiques are accompanied by certificates attesting to their authenticity. External records have their own problems of forgery and perjury, and are also vulnerable to being separated from the artifact and lost.

The ways in which someone may be authenticated fall into three categories, based on what are known as the factors of authentication: something you know, something you have, or something you are. Each authentication factor covers a range of elements used to authenticate or verify a person's identity prior to being granted access, approving a transaction request, signing a document or other work product, granting authority to others, and establishing a chain of authority.

Security research has determined that for a positive identification, elements from at least two, and preferably all three, factors be verified. The three factors (classes) and some of elements of each factor are:

- the **ownership factors**. Something the user has (e.g., wrist band, ID card, security token, software token, phone, or cell phone)
- the **knowledge factors**. Something the user knows (e.g., a password, pass phrase, or personal identification number (PIN))
- the **inherence factors**. Something the user is or does (e.g., fingerprint, retinal pattern, DNA sequence (there are assorted definitions of

what is sufficient), signature, face, voice, unique bio-electric signals, or other biometric identifier).

When elements representing two factors are required for identification, the term *two-factor authentication* is applied, e.g. a bankcard (something the user has) and a PIN (something the user knows). Business networks may require users to provide a password (knowledge factor) and a random number from a security token (ownership factor). Access to a very high security system might require a mantrap screening of height, weight, facial, and fingerprint checks (several inherence factor elements) plus a PIN and a day code (knowledge factor elements), but this is still a two-factor authentication.

In a computer data context, cryptographic methods have been developed. Digital signature and challenge-response authentication are currently not spoofable if and only if the originator's key has not been compromised. That the originator (or anyone other than an attacker) knows (or doesn't know) about a compromise is irrelevant. It is not known whether these cryptographically based authentication methods are provably secure since unanticipated mathematical developments may make them vulnerable to attack in future. If that were to occur, it may call into question much of the authentication in the past. In particular, a digitally signed contract may be questioned when a new attack on the cryptography underlying the signature is discovered.

Security experts argue that it is impossible to prove the identity of a computer user with absolute certainty. It is only possible to apply one or more tests which, if passed, have been previously declared to be sufficient to proceed. The problem is to determine which tests are sufficient, and many such are inadequate. Any given test can be spoofed one way or another, with varying degrees of difficulty.

Supervisor Mulina N.I., *ELA*

NANOSENSORS IN MODERN MEDCINE

Byeloshapka I., *FE-51*

One of the first working examples of a synthetic nanosensor was built in 1999. It involved attaching a single particle onto the end of a carbon nanotube and measuring the vibrational frequency of the nanotube both with and without the particle. The discrepancy between the two frequencies allowed the researchers to measure the mass of the attached particle.

With components the size of molecules, nanosensors are intrinsically smaller, more sensitive, less power-consuming and potentially less expensive than other sensors. They can detect single cells or even atoms, making them far more sensitive than counterparts with larger components.

We can consider 10 different industry sectors in which nanosensors are likely to be deployed, seven different kinds of sensors, for targets such as gases or biomolecules, and eight different types of technology platforms, such as nanoparticles and nanocoatings.

In the military and homeland security area, there is a need for highly sensitive and widely distributed sensors to detect biotoxins and radiation. In the healthcare field, ultra-sensitive labs-on-a-chip could detect and analyze the tiny changes that signify the onset of cancer. The aerospace industry wants to use nanosensors in the bodies of aircraft to constantly monitor where and when a plane needs maintenance. The automotive industry could use nanosensors in vehicles to improve fuel usage and in luxury vehicles to provide improved climate control and seat ergonomics.

There are currently several hypothesized ways to produce nanosensors. Top-down lithography is the manner in which most integrated circuits are now made. It involves starting out with a larger block of some material and carving out the desired form. These carved out devices, notably put to use in specific microelectromechanical systems used as microsensors, generally only reach the micro size, but the most recent of these have begun to incorporate nanosized components.

Another way to produce nanosensors is through the bottom-up method, which involves assembling the sensors out of even more minuscule components, most likely individual atoms or molecules. This would involve moving atoms of a particular substance one by one into particular positions which, though it has been achieved in laboratory tests using tools such as atomic force microscopes, is still a significant difficulty, especially to do en masse, both for logistic reasons as well as economic ones. Most likely, this process would be used mainly for building starter molecules for self-assembling sensors.

The third way, which promises far faster results, involves self-assembly, or "growing" particular nanostructures to be used as sensors. This most often entails one of two types of assembly. The first involves using a piece of some previously created or naturally formed nanostructure and immersing it in free atoms of its own kind. After a given period, the structure, having an irregular surface that would make it prone to attracting more molecules as a continuation of its current pattern, would capture some of the free atoms and continue to form more of itself to make larger components of nanosensors.

The classic example that comes up are nanosensors that can detect early signs of cancer. It's one of those diseases that detecting the small molecular changes at the start could literally be a matter of life and death.

Over time, as they grow cheaper, nanosensors should find their way to bring fundamental changes to the study and understanding of biological processes in health and disease, as well as enable novel diagnostics and interventions for treating disease. So we can see that advances based on nanotechnology and nanoscience could result in a new era in healthcare.

Dunaeva M.N., *EL adviser*

E-COMMERCE IN UKRAINE

Moshkina Katya, group E-53

In Ukraine investment in the Internet and e-commerce has increased dramatically in 2008 year. However, a range of obstacles blocks the growth of e-commerce. With regard to the technical hurdles, few people in Ukraine have access to the Internet and even fewer of Ukraine's 49 million citizens have credit cards for making necessary payments online.

The use of electronic documents is allowed only within the banking system. Through its regulations governing interbank payments, the National Bank of Ukraine allows commercial banks to use electronic documents to make necessary payments online.

Commercial banks which are members of the interbank payment system must use electronic signatures to make online payments, both within the banking system and to their clients. To become part of the online bank payment system and to enable the processing of relevant documentation, a client must enter into a specific agreement with its bank. In this case the use of digital signatures and electronic documents will be based upon a contractual relationship existing between the bank and its client.

There is thus a need in Ukraine for new e-commerce legislation which would govern electronic transactions on a larger scale. A number of e-commerce related draft bills are currently being prepared.

The Law on Electronic Documents and Documentary Exchange and the Law on Electronic Digital Signatures are now being drafted by the working group. If adopted by Parliament and signed into law, these draft bills will set forth the legal framework for electronic documents and electronic signatures in Ukraine, which could bring a significant boost to e-commerce in the country.

The Law of Ukraine on the Protection of Consumer Rights, dated May 12 1991 (1023-12, as amended), governs consumer protection in business-to-consumer transactions.

As a general guideline, the Consumer Protection Law provides that consumers have the right to claim, among other things, that:

- their respective rights be protected by the government;
- suppliers ensure due quality and safety of goods and services provided;
- all necessary information as to the quantity, quality and assortment of goods and services be made accessible; and

Existing Ukrainian legislation does not provide for any special rules for the taxation of goods and services purchased over the Internet.

The State Tax Administration of Ukraine has proposed that certain amendments be made to the Draft Tax Code, which is being considered by the Parliament of Ukraine. The Tax Administration maintains that a chapter dealing with electronic transactions, including the sale of goods and provision of services over the Internet, should be added to the code. However, it is difficult to predict what kind of tax regime with respect to electronic transactions might be introduced in Ukraine with the adoption of a new Tax Code.

Although it was expected that the new e-commerce legislation would soon be adopted by the Parliament in order to establish a firm legal framework for e-commerce development in Ukraine, the legislative process seems to be progressing slowly, and it is difficult to foresee when the draft bills will be signed into law. Further, the drafting process is still under way. Thus, the final outcome of the parliamentary debates on the e-commerce legislation could well differ from the draft bills.

It also appears that a system of online payments should be introduced, including a large increase in the number of credit cardholders resident in Ukraine.

In any event, it is clear that in the near future a range of legal and technical developments with respect to e-commerce will take place in Ukraine, which should be closely monitored.

O.R. Gladchenko - EL advisor

DIE LUFTREINHALTUNG UND UMWELTSCHUTZ ANDERER LEBENSBEREICHE

S.Strelezkij, *ED-51*

Wie in anderen Industrieländern wird die Luft in Ukraine von Schadstoffen belastet, die aus dem Betrieb von Industrie und Gewerbe, aus dem Straßenverkehr, Heizungen und Kraftwerken stammen. Die Umweltbelastung zeigt sich besonders an den Waldschäden und am Sommersmog. 1995 waren 61% der Bäume geschädigt. Die menschliche Gesundheit, Böden und Gewässer, Gebäude und Kunstdenkmäler müssen deshalb vor weiteren Belastungen durch verunreinigte Luft geschützt werden.Deshalb wurde in der Ukraine ein umfassendes Programm entwickelt. Darin ist es vorgesehen, Luftverunreinigungen schon an der Quelle zu erfassen und drastisch abzubauen. Die Schadstoffe kann man z.B. durch Filter oder Katalysatoren zum großen Teil reduzieren.

Die Kraftwerksbetreiber und die Industrie sind verpflichtet, ihre Anlagen auf den neuen Stand der Technik umzurüsten. Im Verkehrsbereich wird die Belastung der Umwelt durch die Einführung des bleifreien Benzins reduziert. Die Belastung der Luft durch Stickstoffoxid, Kohlenwasserstoff und Kohlenmonoxid kann man durch die Einführung des geregelten Dreiwege-Katalysators zur Abgasreinigung zunehmend verringern. Heute müssen alle neuen PKW mit Benzinmotor über diese Abgasreinigungsanlage verfügen.

Mitte 1995 ist das Gesetz zur Bekämpfung des Sommersmogs in Kraft getreten. Danach wird das Fahren von hochemittierenden Benzin- und Dieselfahrzeugen verboten, wenn die Ozonkonzentration von 240 Mikrogramm je Kubikmeter Luft als Mittelwert über eine Stunde an demselben Tag erreicht wird und anzunehmen ist, das diese Konzentration auch am nächsten Tag erreicht wird.

Schutz vor Lärm. Lärm, und besonders Verkehrsarm, ist vor allem in Ballungsräumen zu einer Belastung der Bevölkerung geworden. Deshalb ist es notwendig geworden, die Wohnstraßen zu "verkehrsberuhigten" Zonen umzugestalten.

Die Geraschgrenzwerte für Straßenfahrzeuge werden herabgesetzt, es werden leisere Flugzeuge eingesetzt. Immer mehr neue Straßen erhalten schallschluckende Belüge. Beim Bau von Straßen und Bahnstrecken wird Schallschutz am Verkehrsweg oder an den Gebäuden installiert. In der Industrie und am Bau werden lärmmindernde Techniken eingesetzt.

I.Saizewa, *Berater der deutschen Sprache*

FISCAL PARADISE

Nagay Marina, *group E-53*

Fiscal paradise is a country or its part, carrying out low taxation, or which taxation fully absents in. Reason of such choice is interest and desire to attract international investors and their capital, offering low taxes or their absence in exchange. Creation of enterprises (for example, off-shore company) in these jurisdictions quite often is an advantageous decision for organization of business. Many of these countries give possibility to produce bearer shares, guaranteing the greatest degree of confidentiality, facilitated requirements of creation and conduct of company, and also favourable rules to get licenses for giving financial services (for example, for investment funds).

It is necessary to classify fiscal paradises as follows: 1) Absolute fiscal paradise – taxes absent fully, or it is need to pay only nominal sum. These jurisdictions guarantee a bank secret and not exchanged information with other countries; 2) No taxation on Foreign Income (foreign profits are not assessed taxes) – taxes assess that profit which was got on territory of country exceptionally; 3) Low Taxation — is low taxes on a profit, got in any country of the world; 4) Special Taxation — are countries, which normal (considerably high) taxation is used in, but which allow to create some structures, not taxable taxes or with low taxation.

These jurisdictions are attracted by multinational companies and small enterprises for optimization of taxes, and diminishing the cost of conduct of business and higher profits. However, criminal organizations are interested in these jurisdictions.

The purpose of international organizations and international cooperation is to create new laws and norms for a fight against criminal activity, but it is very important not to limit by them absolutely legal activity of other enterprises, because the half of world riches is concentrated in off-shore areas. If it will be forbidden these companies to continue to work in off-shore areas, it not only will entail great deceleration of development of companies but also whole countries in which they conduct the activity. It is necessary to create correct international laws, which control criminal activity and allow to improve international cooperation.

Gladchenko O.R., *EL advisor*

THE KNOWLEDGE ECONOMY

Linnik Juliana, *group E - 53*

The knowledge economy is a term that refers either to an economy of knowledge focused on the production and management of knowledge in the frame of economic constraints, or to a knowledge-based economy. In the second meaning, more frequently used, it refers to the use of knowledge technologies (such as knowledge engineering and knowledge management) to produce economic benefits. The phrase was popularized if not invented by Peter Drucker as the title of Chapter 12 in his book The Age of Discontinuity.

The essential difference is that in a knowledge economy, knowledge is a product, in knowledge-based economy, knowledge is a tool. This difference is not yet well distinguished in the subject matter literature. They both are strongly interdisciplinary, involving economists, computer scientists, software engineers, mathematicians, chemists, physicists, as well as cognitivists, psychologists and sociologists.

Various observers describe today's global economy as one in transition to a "knowledge economy", as an extension of an "information society". The transition requires that the rules and practices that determined success in the industrial economy need rewriting in an interconnected, globalized economy where knowledge resources such as know-how and expertise are as critical as other economic resources. According to analysts of the "knowledge economy", these rules need to be rewritten at the levels of firms and industries in terms of knowledge management and at the level of public policy as knowledge policy or knowledge-related policy.

A key concept of the knowledge economy is that knowledge and education (often referred to as "human capital") can be treated as one of the following two:

- A business product, as educational and innovative intellectual products and services can be exported for a high value return.
- A productive asset.

It can be defined as "The concept that supports creation of knowledge by organizational employees and helps and encourages them to transfer and better utilize their knowledge that is in line with company/organization goals".

The initial foundation for the Knowledge Economy was first introduced in 1966 in the book The Effective Executive by Peter Drucker. In this book,

Drucker described the difference between the manual worker and the knowledge worker. The manual worker, according to him, works with his hands and produces goods or services. In contrast, a knowledge worker works with his or her head not hands, and produces ideas, knowledge, and information.

The key problem in the formalization and modeling of knowledge economy, is a vague definition of knowledge, which is a rather relative concept. For example, it is not proper to consider information society as interchangeable with knowledge society. Information is usually not equivalent to knowledge. Their use, as well, depends on individual and group preferences - which are "economy-dependent".

Commentators suggest there are various interlocking driving forces, which are changing the rules of business and national competitiveness:

- Globalization — markets and products are more global.
- Information technology, which is related to next three:
- Information/Knowledge Intensity — efficient production relies on information and know-how; over 70 percent of workers-in developed economies are information workers; many factory workers use their heads more than their hands.
- New Media - New media increases the production and distribution of knowledge which in turn, results in collective intelligence. Existing knowledge becomes much easier to access as a result of networked data-bases which promote online interaction between users and producers.
- Computer networking and Connectivity – developments such as the Internet bring the "global village" ever nearer.

As a result, goods and services can be developed, bought, sold, and in many cases even delivered over electronic networks.

As regards the applications of any new technology, this depends on how it meets economic demand. It can remain dormant or make a commercial breakthrough.

The knowledge economy has manifold forms in which it may appear but there are predictions that the new economy will extend radically, creating a pattern in which even ideas will be recognised and identified as a commodity.

Gladchenko O.R., *EL advisor*

INFLATION

N. Prihodko, *student F-54*

Most people associate inflation with price increases on specific goods and services. The economy isn't necessarily experiencing an inflation, however, every time the price of a cup of coffee goes up. We must be careful to distinguish the phenomenon of inflation from price increases for specific goods. Inflation is an increase in the average level of prices, not a change in any specific price.

We first determine the average price of all output—the average price level—then look for changes in that average. A rise in the average price level is referred to as inflation.

The average price level may fall as well as rise. A decline in average prices is a deflation, it occurs when price decreases on some goods and services outweigh price increases on all others.

Inflation and deflation are measured in terms of average price levels, it's possible for individual prices to rise or fall continuously without changing the average price level. Relative price is the price of one good in comparison with the price of other goods. Changes in relative prices may occur in a period of stable average prices, or in periods of inflation or deflation.

A general inflation—an increase in the average price level-doesn't perform this same market function. If all prices rise at the same rate, price increases for specific goods are of little value as market signals. In less extreme cases, when most but not all prices are rising, changes in relative prices do occur but aren't so immediately apparent.

The distinction between relative and average prices helps us determine who's hurt by inflation and who's helped. Inflation makes some people worse off, it makes other people better off , even get rich when prices rise. The micro consequences of inflation are reflected in redistributions of income and wealth, not general declines in either measure of our economic welfare. These redistributions occur because people buy different combinations of goods and services, own different assets, and sell distinct goods or services (including labor). The impact of inflation on individuals therefore depends on how the prices of the goods and services each person buys or sells actually change.

Nominal income is the amount of money you receive in a particular time period.

Real income is purchasing power of that money, as measured by

the quantity of goods and services your dollars will buy. If your nominal income doesn't change it's not mean thar real income is stable too – it will rise or fall with price level. People whose nominal incomes rise faster than the rate of inflation end up with a larger share of total income.

To my mind two basic lessons about inflation are to be learned:

- Not all prices rise at the same rate during an inflation. Some prices rise rapidly, others only modestly, and some actually fall.
- Not everyone suffers equally from inflation. Those people who consume the goods and services that are rising faster in price bear a greater burden of inflation; their real incomes fall more. Other consumers bear a lesser burden, or even none at all, depending on how fast the prices rise for the goods they enjoy.

Even if all prices rose at the same rate, inflation would still redistribute income. The redistributive effects of inflation originate not only in expenditure patterns but also income patterns. Keep in mind that there are two sides to every market transaction. What looks like a price to a buyer looks like an income to a seller.

On average, people's incomes do keep pace with inflation. Again, this is a direct consequence of the circular flow: What one person pays out someone else takes in. If prices are rising, incomes must be rising, too. From this perspective, it makes no sense to say that "inflation hurts everybody." On average, at least, we're no worse off when prices rise, since our (average) incomes increase at the same time.

No one is exactly "average," of course. In reality, some people's incomes rise faster than inflation while others' increase more slowly. Some people have fixed incomes that don't go up with inflation.

Fixed-income groups include those retired people who depend primarily on private pensions and workers with multiyear contracts that fix wage rates at preinflation levels. Lenders (like banks) that have lent funds at fixed interest rates also suffer real income losses when price levels rise. They continue to receive interest payments fixed in nominal dollars that have increasingly less real value. All these market participants experience a declining share of real income (and output) in inflationary periods.

I. A. Morozova, *EL adviser*

UTILISATION AND RESYCLING OF PHOSPHOGYPSUM WASTES

A.G. Ableyev, *EK-51*

New inventions and processes have been continuously developed to improve our way of life. Technological advanced help us but many of them also bring about harm to the environment. Ukrainian economy is characterized with great power consumption and a lot of different wastes. The whole weight of all wastes is above 32 billion tons. Most of our rivers and lakes are so badly polluted that they may not be able to regain their health even if all pollution is stopped. Some soil has been eroded to support crops any more. Restrictions can be placed on the use of the materials that pollute.

The environment in Sumy region is endangered by such chemical by-product as phosphogypsum($CaSO_4 \cdot 2H_2O$). It is formed in the course of processing phosphate ore under the influence of sulfuric acid during mineral fertilizers production. Phosphogypsum is obtained in the course of phosphoric acid production, as a result of reaction phosphate (apatite) and sulfuric acid according to the following:

$$Ca_5(PO_4)_3F + 5H_2SO_4 + 2H_2O \rightarrow 5CaSO_4 \cdot 2H_2O + 3H_3PO_4 + HF$$

For each ton of phosphoric acid about 4,3-5,8 tons of phosphogypsum by-product are obtained. The world production of phosphoric acid is about 22 million tons of P_2O_5 and thus the quantity of phosphogypsum is about 100 million tons. There are about 200 million tons of phosphogypsum in Ukraine. It is stored on open stacks influenced by downfall. The problem of its recycling and utilization is especially urgent for our city as Sumykhimprom has stored about 15 million tons of this harmful by-product in the outskirts of a large town.

Much scientific research has been carried out and many methods have been patented but only a few of them have been put into practice. Due to its crystal structure phosphogypsum consists almost 95% of $CaSO_4 \cdot 2H_2O$, one of the methods of its utilization is the conversation to plaster and plaster products. It's characterized by process of thermal (170^0 C) dissociation of dihydrate to hemi-hydrate according to the following reaction:

$$CaSO_4 \cdot 2H_2O \rightarrow CaSO_4 \cdot 0{,}5\,H_2O + 1.5H_2O$$

Obtained plaster is usually used for the production of cement, wall boards, gypsum plasterboard and other gypsum building materials.

My current research deals with the study of optimum parameters in all stages of phosphogypsum conversion and down-grading the contents of P_2O_5.

L.P. Iarmak, *E L Adviser*

ENTERPRISE PERFORMANCE IN TRANSITION

Ganna Tkachenko, *group E - 53*

Generally the question of efficiency as a source of enterprise performance is not widely investigated in literature. The most common approach to measure enterprise performance is to proxy it with growth of sales. This indicator is used in plenty of studies of enterprise performance in transition.

This is appropriate when economic activity is growing. From the other side, in case of external economic shock (growth of energy prices, exchange rates, sharp decrease in consumption) cost-side of economic activity plays a vital role.

Moreover, efficiency captures profit, while growth of sales is just an indicator of scale.

The question of determinants of enterprise performance in transition economies is a case of many publications.

Warzynski (2000) proved that combination of reforms in the market structure, privatization and changes of the executive positions provide maximal growth of efficiency of production for Ukrainian enterprises.

Simon Commander and Jan Svejnar (2007) found that foreign (but not domestic private) ownership and competition have an impact on performance. However ownership change does not appear to have had any positive impact on performance without complementary changes in management structure, financing, the competitive environment and/or other factors specific to the firm.

Nickell's (1996) study shows the growth of efficiency due to competition. Kikeri (1994) shows, that bank loans at lower interest rates and subsidies influence enterprise performance.

The aim of our work is to define the set of determinants which statistically significantly influence economic efficiency of Ukrainian enterprises, based on BEEPS 2005 data set (N of observations = 544). Based on our estimates, policy recommendations for increasing efficiency in contemporary economic crisis are given.

Dyadechko A. M., *EL adviser*

MARKET AND ITS INFRASTRUCTURE

Yulia Reva, *student F -54*

Market economy – social form of economy organization which is based on commodity production, guarantees the interaction between production and consumption with the help of the market.

Market: essence functions and structure.

Market in the wide sense combines several ideas.

Firstly, this is any place of selling commodities and services (market, shop, store etc.).

Secondly, market is a totality of trade processes, acts of purchase and sale, which are characterized by such features as type of the selling goods, sales volume, trade procedure, price level. Here the market is determined as trade in the wide sense, as market process joining seller and buyer.

Thirdly, market – is a system of economic relations, which appear between their participants in the process of purchase and sale, on he base of stable interaction of commodity and money circulation.

Market – is an exchange, which is realized by the laws of commodity production and circulation (that is, commodities exchange happens as a result of their social estimation. It's shown in the commodities and services price). That's why market is a mechanism of coordination of various people activity by the set of prices.

Besides market, market economy includes production, commodities and services distribution, prediction and regulation of state economy.

"Ideal " marketing model includes such elements:

-freedom of enterprise and full responsibility of the economic activity results;

-competition, absence of any kind of monopoly;

-absolute mobility of all kinds of the economic resources;

-autonomous activity of all market subjects;

-freedom of price formation;

-full awareness of all market subjects about market condition;

-stability of state financial system, openness to the foreign market, political stability of the country.

The value of this model is that, it helps to understand the essence of market, market economy and its peculiarities in comparison with economic relations of the command –administrative system. Market helps to solve triads of economic problems: what to produce, how to produce

commodities and services and for whom to produce. Market supplies the correlation between production and consumption, proportionality of reproduction process, its integrity

The essence of the market uncovers in its functions.

Regulative function. State uses such economic regulators as taxes, credit, prices, different economic standards, state order.

Stimulate market function is shown in the most optimum production factors use with the aim of increase of its effectiveness. Distributive function is shown in, that market has functions of exchange and distribution of material and mental benefits.

Integrant market function is shown in creation the economy of the country as a single whole in development of the horizontal and vertical ties between users, branches, regions, and also in development of the external economic links with other countries.

Market infrastructure.

According to the territorial feature we can distinguish local, national and world market. According to the character of selling – wholesale and retail market.

According to the degree of competition organization we can distinguish market of perfect competition with free price formation and market of imperfect competition, which includes market of pure monopoly, market of monopolistic competition and oligopoly market.

According to the economic fixing of market relations objects we can distinguish: means production market, commodities and services market, housing market, market of innovations (science – technical elaborations and information), labour market, money – market, market of mental, intellectual products, financial market, which includes market of capital investment and stock market (market of security), market of personal services and public utilities.

Modern market of developed countries is characterized by stabilization of economic relations between market subjects on the basis of their fusion. Subjects of business relations (when they keep the aspiration to the mutual rivalry) are interested in monopoly economics counteraction by means of further development of fusion process and strategic search. The strengthening of business relations democratization assists it.

I.A. Morozova, EL. Adviser

ENVIRONMENTAL POLLUTION OF CHEMICAL PRODUCTION

Student Scherbak A.S.

I believe, everybody knows that chemical production can impact the environment substantially. On the other hand, it is extremely needed. Hence, our task is to find a compromise, i. e. the best decision for; the chemical production - environment - health equilibrium.

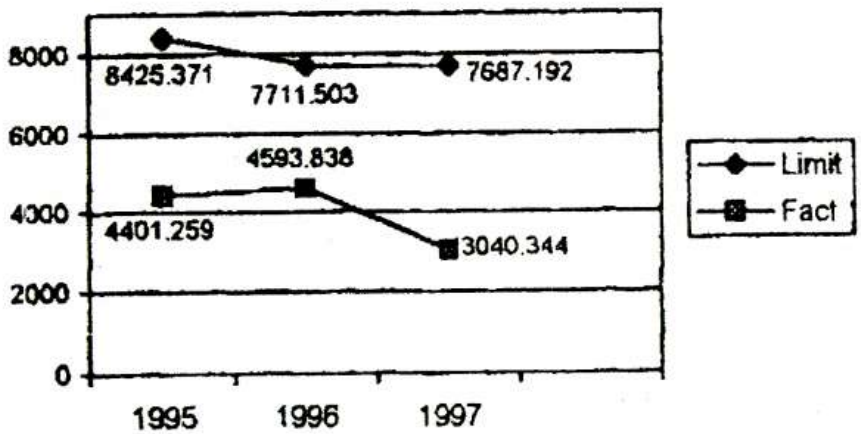
Impact of chemical production to the environment consists of soil pollution, water pollution, and air pollution.

During the production process, the following main substances pollute the air: anhydride sulphide, sulphuric acid, fluorine compounds etc.

OJSC Sumykhimprom, during the last years, identified the injurious substances shown in Figure 1.

Figure 1

Exhaust of Injurious Substances



Average concentration of injurious substances in the inhibited zone per year is shown in Table 1.

Table 1 - Concentration of Injurious Substances in the Inhibited Zone (mg/m^3)

Substances	500m	4km	**MPF**
Anhydride Sulphide	0.029	0.023	0.05
Sulphuric Acid	0.016	0.009	0.1
Ammonia	0.031	0.025	0.04
Fluorine	0.0041	0.0032	0.005

I'd like to point out, that the Maximum Permissible Factor (MPF) of pollution in the air of the inhibited zone specific for Sumykhimprom is not exceeded.

The result of Sumykhimprom activities are three kinds of sewage: industrial, industrial-downpour and consumer sewage. Industrial-downpour and consumer sewage is purified and is discharged into the river Psiol, industrial ones undergo purification at the neutralisation station and in a slurry storage tank and then is dropped into Psiol river during high waters during spring.

As a result of production activities, the following wastes are accumulated: phosphorgypsum is a waste of phosphoric acid production - 4th grade of danger, it is constituted in proportion of 5.5 t/lt acid and is stored in a special dump; iron vitriol is a waste of Titanium Dioxide production - 3rd grade of danger, it is formed in the proportion 1.8 t/lt TiO_2 and is stored on production sites; slurry of sewage is stored in tanks, owing to filtration, it influences subsoil waters.

Waste volume is shown in Table 2.

Table 2 Waste (metric tons)

	1995	1996	1997	Stored
Phosphogypsum	324064	363065	209470	12736606
Iron vitriol	47023	40361	36793	998716
Slorry from sewage	29795	28253	12703	12868751

An excess of maximum concentration limits for any wastes species has not yet been registered.

At the plant are realized a number of measures for reducing emissions and protecting health.

Work on a tender for new sulphuric acid plant construction is carried out at Sumykhimprom.

In my opinion, a complete improvement of environmental problems is possible of a complete upgrading of existing production plants and wastes treatment plants.

The way I see, it is necessary to pay much attention to the working conditions at the plants. To provide constant improvement of exhaust vents, sulphur melting equipment, drying-and-absorption department, lighting system.

To sum up what has been said we can see that steady development is possible only on condition that we introduction into every person conscious the important relationship between economics and the environment.

NANOTECHNOLOGY: REALITY AND PROSPECTS

I.A. Kovalova, *student, group IN-53*

Nanotechnology is the understanding and control of matter at dimensions between approximately 1 and 100 nanometers, where unique phenomena enable novel applications. Encompassing nanoscale science, engineering, and technology, nanotechnology involves imaging, measuring, modeling, and manipulating matter at this length scale.

A nanometer is one-billionth of a meter. Unusual physical, chemical, and biological properties can emerge in materials at the nanoscale. These properties may differ in important ways from the properties of bulk materials and single atoms or molecules.

There are different types of nanomaterials, named for their individual shapes and dimensions. Think of these simply as particles, tubes, and films that have one or more nanosized dimension.

Nanofilm is a development of nanotechnology-enables products using nanofilms in products. These products are used in precision optics, glass in transport vehicles, architectural glass, electronic display/technical glass, glass and ceramic tableware, homecare and other markets. These coatings add new properties to the surface of substrates, including strength, water resistance, contaminant resistance; scratch and mar resistance, energy control, electrical conductivity.

The future of nanotechnology is completely uncharted territory. It is almost impossible to predict everything that nanoscience will bring to the world considering that this is such a young science.

There is the possibility that the future of nanotechnology is very bright, that this will be the one science of the future that no other science can live without. There is also a chance that this is the science that will make the world highly uncomfortable with the potential power to transform the world.

Nanotechnology will be ubiquitous in coming years, just as polymers, silicon chips and the Internet have become part of everyday life. It will facilitate enormous breakthroughs in some cases – medicine, energy, electronics.

G.I. Lytvynenko, *EL Advisor*

COMPUTER SIMULATION IN DESIGNING WATER PUMPS

V.V. Fisher, *student, group ДМ–51*

Computer simulation is helping engineers at Engineered Machined Products, Inc (EMP) of Escanaba, to design more efficient diesel engine water pumps. Using computational fluid dynamics (CFD), they can quickly evaluate the performance of preliminary designs. In particular, potential problems such as cavitation can be avoided early in the design. Cavitation causes noise, vibration and the potential to damage pump components.

EMP engineers use a sophisticated in-house one-dimensional solver to calculate initial 3D design based on the pump's required performance. Since this 1D solver does not take three-dimensional fluid dynamics into account, it cannot detect cavitation and physical pump testing must validate performance. Before creating a rapid prototype of the pump, engineers use CFD to simulate the design in three dimensions.

The simulation provides a much more thorough performance evaluation as well as crucial diagnostic information that helps the engineer quickly optimize the design. As a result, the company is able to rapidly create innovative designs such as its patented fully controllable water pump. The new design uses a proprietary mixed-flow impeller and diffuser leading to a very efficient design that improves the performance of the pump and can eliminate the mechanical seals that currently account for approximately 95% of all pump warranty claims.

Engineers input their customer's pressure, flow and rotational speed requirements along with secondary inputs that place some constraints on the pump geometry. The model then generates the complete 3D geometry for the pump design based on these parameters in a matter of seconds. While the one-dimensional solver provides dramatic advantages in its ability to quickly generate a preliminary design, it is limited because it cannot predict potential performance problems such as flow recirculation caused by the separation of the boundary layer from one of the surfaces of the pump. These three-dimensional effects cause losses in total pressure that will reduce efficiency and output.

EMP engineers use the CFX suite of software from ANSYS Inc of Canonsburg, PA, to verify and analyse the initial design for any potential problems. CFX software enables the engineers to model the full 3D

geometry of the pump and perform a CFD simulation that calculates flow velocities and pressures throughout the pump. The complete information provided by the simulation easily detects design issues that might reduce the performance of the pump and, just as important, pinpoints their location and cause so that engineers can easily solve the problem. For example, the simulation might show that the flow is separating from one of the surfaces of the pump. The engineers can adjust the geometry to correct the problem and verify the new design with another simulation. Without the CFD analysis, while the rapid prototype may have determined that something was harming efficiency, engineers would have to resort to trial and error to solve the problem. Many more design iterations would be required, each delaying the product introduction and causing thousands of dollars in engineering and prototyping costs.

The results of the analyses provide information that is used to continually develop the proprietary design software, which reduces future design iterations. A good example of many innovative designs that EMP engineers have created using these methods is an innovative pump designed to meet the requirements of today's engines. A highly efficient flow-through diffuser is used, which results in a flexible design that can be easily adapted to existing engines by allowing for various mounting locations. The new pump can improve efficiency by over 20%, decrease weight by a factor of 2.5 and cut envelope requirements by 50%. CFX helps develop innovative pumps that provide superior performance in far less time than was required in the past.

D.O. Marchenko, *EL Adviser*

MONETARY EVOLUTION

L. Saban, *student F-54*

Finance is the science of funds management. The general areas of finance are business finance, personal finance, and public finance. Finance includes saving money and often includes lending money. The field of finance deals with the concepts of time, money and risk and how they are interrelated. It also deals with how money is spent and budgeted.

Finance works most basically through individuals and business organizations depositing money in a bank. Banks are the main facilitators of funding through the provision of credit, although private equity, mutual funds,

hedge funds, and other organizations have become important as they invest in various forms of debt.

Finance is used by individuals (personal finance), by governments (public finance), by businesses (corporate finance), as well as by a wide variety of organizations including schools and non-profit organizations. In general, the goals of each of the above activities are achieved through the use of appropriate financial instruments and methodologies, with consideration to their institutional setting.

Finance is one of the most important aspects of business management. Without proper financial planning a new enterprise is unlikely to be successful. Managing money (a liquid asset) is essential to ensure a secure future, both for the individual and an organization.

Finance is a very important part of our everyday life, because we need money almost every minute: paying for education or entertainment, treatment or transport, financing durable goods such as real estate and cars, buying insurance, e.g. health and property insurance, investing and saving for retirement. Nowadays money can characterize social status and the level of your own successfullness. It evaluated from means of circulation to index of our development. It became means and goal simultaneously. That is why financial crisis is felt like apocalypse all over the world. Unfortunately, they are natural and cyclic.

The best-known depression was the Great Depression. It was a severe worldwide economic depression in the decade preceding World War II. The timing of the Great Depression varied across nations, but in most countries it started in about 1929 and lasted until the late 1930s or early 1940s.

It was the longest, most widespread, and deepest depression of the 20th century, and is used in the 21st century as an example of how far the world's economy can decline. The depression originated in the United States, triggered by the stock market crash of October 29, 1929 (known as Black Tuesday), but quickly spread to almost every country in the world. The probable causes of the Great Depression include the loose money policies of the Federal Reserve and the misallocation of capital based on easy and inexpensive credit.

The Great Depression had devastating effects in virtually every country, rich and poor. Cities all around the world were hit hard, especially those dependent on heavy industry. Construction was virtually halted in many countries. Countries started to recover by the mid-1930s, but in many countries the negative effects of the Great Depression lasted until the start of World War II.

I.A. Morozova, *EL Adviser*

TREATMENT OF GRANULAR PHOSPHATE WITH A MULTI-STAGE FLUID-BED COOLER

N.O. Shandyba, *student, group HM-51*

Heat-exchange equipment is known to play a very important role in chemical industry. Two processes are used to produce phosphate fertilizers: run-of-pile and granular. The granular process uses lower-strength phosphoric acid (40%, compared with 50% for run-of-pile). The reaction mixture, a slurry, is sprayed onto recycled fertilizer fines in a granulator. Granules grow and are then discharged to the screen, crusher, cooler and sent to storage. Thus, the multistage fluidized bed can be used for granular solids cooling. But the solid particles do not reach the thermal equilibrium due to relatively short residence time in a cooler.

So, first of all a rational perforated plate construction and an optimal regime is needed to establish. Second, we have to propose some method for energy saving.

When an air stream is passed through a permeable support (perforated plate) on which the free flowing material rests, the bed starts to expand when a certain velocity is reached. The superficial velocity of the air at the onset of fluidization is the minimum fluidization velocity. With a further increase in air velocity, bed reaches a stage where the pressure-drop across fluid bed drops rapidly and the product is carried away by the air. The velocity at this stage is known as terminal velocity and an important parameter in fluidization operations. The operational velocity must remain between these two velocities.

All fluidization regime experiments were conducted in a bath type flexi-glass fluidizing column of 185 mm inside diameter and length 1 m. The cooling air was taken from a ventilator system and directed to the fluidizing column by flexible ducts. Air entered the material bed through a perforated plate with circular holes of 1 mm diameter (18 holes/cm^2). Wall effects, slugging and channeling behaviour can be of concern in small-scale experiments. They have been given sufficient consideration during planning of experimentation. In this study initial ratio of bed diameter to effective particle diameter was 18. It was mentioned that if this ratio is greater than 16 there is no effect from the walls. Therefore, wall effect was considered insignificant in the working range.

Real process exhibits a wide range of random factors, the most important of which are turbulent eddies of different scales, non-uniformity of the concentration fields and agglomeration of particles within the flow.

These phenomena are easily observed with high-speed cinematography or photography under stroboscopic lighting. Airflow entering the fluidization column was varied by means of varying the incoming rate with the manual valves in the system. Differential pressure of incoming air was read from a digital manometer connected to a flow sensor of the Pitot tube through transparent vinyl tubes.

Flow rates entering the fluidizing column were calculated and average air velocity of air passing through the material was determined. Resolution of air velocity measurement was 0.05m/s, minimum fluidization velocity was 1.2 m/s, terminal velocity was 2.0 m/s. Pressure drop across the bed was measured by a U-tube manometer connected to the fluidizing column below the air perforated plate, and above the bed of samples. Bed height was measured from a scale attached to the column. The change of bed pressure drop was measured while increasing the velocity through the bed for each height. In order to determine the optimum bed height for improved fluidization, bed heights of 100, 80, 60 and 40 mm were used. Measurements of pressure drop for each bed height took less than 3 min.

The use of fluidization is one of the technologies commonly used in granular particles and other materials. It is commonly used in freezing and cooling systems. Fluid bed cooling has been recognized as a gentle method with a high degree of efficiency. In the proposed apparatus a fluidized bed has an perforated plate which is inclined to the horizontal so that excessively sized or dense particles migrate to a collection point from which they may be removed, such as by a gate in the side of the bed

A full three-dimensional discrete particle simulation method was performed to study the formation of a stable regime fluidized bed. The course and behavior of particles that formed a dense and stable fluidized bed are discussed. Both the experimental and simulation results of this study show that the process of forming a suspension bed can be categorized into an induced stage, a growing stage, and a stable stage. The velocity of gas through the orifice directly controls the formation of the bed while the solid flow rate over a considerable range maintains a balanced hold-up in the suspension bed system without downcomers.

The existence of a multiplicity of steady states corresponding to different gas flow rates, for the same feed rate and perforated plate type and slope, was observed. Results show that the design of the plate, the particle feed rate and the gas velocity distribution through the holes affect the stability of the fluidized bed. The simulated results agree qualitatively well with experimental observations.

L.P. Iarmak, *EL Adviser*

KOLA SUPERDEEP BOREHOLE

V.S. Kovalenko, *student, group IN-61*
B.A. Fostenko, *student, group IT-61*

The Kola Superdeep Borehole (Russian: Кольская сверхглубокая скважина) is the result of a scientific drilling project of the former USSR. The project attempted to drill as deep as possible into the Earth's crust. Drilling began on 24 May 1970 on the Kola Peninsula, using the *Uralmash-4E*, and later the *Uralmash-15000* series drilling rig. A number of boreholes were drilled by branching from a central hole. The deepest, SG-3, reached 12,262 meters in 1989.

The initial target depth was set at 15,000 m. On 6 June 1979, the world depth record held by the Bertha Rogers hole in Washita County, Oklahoma at 9,583 m was broken. After drilling to 12,066 m, a 5,000 m section of the drill string twisted off and was left in the hole. Drilling was later restarted from 7,000 m. The hole reached 12,262 m in 1989.

In that year the hole depth was expected to reach 13,500 m by the end of 1990 and 15,000 m by 1993. However, due to higher than expected temperatures at this depth and location, 180 °C instead of expected 100 °C, drilling deeper was deemed unfeasible and the drilling was stopped in 1992.

The Kola borehole penetrated about a third of the way through the Baltic continental crust, presumed to be around 35 kilometers, reaching rocks of Archaean at the bottom.

The stated areas of study were the deep structure of the Baltic Shield; seismic discontinuities and the thermal regime in the Earth's crust; the physical and chemical composition of the deep crust and the transition from upper to lower crust; lithospheric geophysics; and to create and develop technologies for deep geophysical study.

To scientists, one of the more fascinating findings to emerge from this well is that the change in seismic velocities was not found at a boundary marking Harold Jeffreys's hypothetical transition from granite to basalt. It was at the bottom of a layer of metamorphic rock that extended from about 5 to 10 kilometers beneath the surface.

The rock there had been thoroughly fractured and was saturated with water, which was surprising. This water, unlike surface water, must have come from deep-crust minerals and had been unable to reach the surface because of a layer of impermeable rock.

Another unexpected discovery was the large quantity of hydrogen gas, with the mud flowing out of the hole described as "boiling" with hydrogen.

I.A. Bashlak, *EL Adviser*

DECISION SUPPORT SYSTEMS

Igor Shishov, *IT-71*

According to Moore's Law volume of the information is doubling every two years, so we have problems with processing and analyzing of data, but quality management requires a well-formalized and organized data, and we can not cope with such huge volume manually. Technology, which helps us with this task has been developed recently, but develops rapidly and reaches a higher level nowadays.

Decision support systems constitute a class of computer-based information systems including knowledge-based systems that support decision-making activities.

A Decision Support System (DSS) is a class of information systems that support business and organizational decision-making activities. A properly designed DSS is an interactive software-based system intended to help decision makers compile useful information from a combination of raw data, documents, personal knowledge, or business models to identify and solve problems and make decisions.

According to Keen (1978), the concept of decision support has been evolving since early 1960s.

As with the definition, there is no universally-accepted taxonomy of DSS either. Using the relationship with the user as the criterion, Haettenschwiler differentiates passive, active, and cooperative DSS.idation. The system again improves, completes, and refines the suggestions of the decision maker and sends them back to her for validation. The whole process then starts again, until a consolidated solution is generated.

Another taxonomy for DSS has been created by Daniel Power. Using the mode of assistance as the criterion, Power differentiates communication-driven DSS, data-driven DSS, document-driven DSS, knowledge-driven DSS, and model-driven DSS.

Using scope as the criterion, Power differentiates enterprise-wide DSS and desktop DSS.

Three fundamental components of a DSS architecture are:
the database (or knowledge base),
the model (i.e., the decision context and user criteria), and
the user interface.

The users themselves are also important components of the architecture.

DSS technology levels (of hardware and software) may include:the actual application that will be used by the user, generator contains

Hardware/software environment that allows people to easily develop specific DSS applications; tools include lower level hardware/software.
An iterative developmental approach allows for the DSS to be changed and redesigned at various intervals. Once the system is designed, it will need to be tested and revised for the desired outcome.
There are several ways to classify DSS applications. Not every DSS fits neatly into one category, but a mix of two or more architecture in one. Holsapple and Whinston classify DSS into the following six frameworks: Text-oriented DSS, Database-oriented DSS, Spreadsheet-oriented DSS, Solver-oriented DSS, Rule-oriented DSS, and Compound DSS.
DSS components may be classified as: inputs, User Knowledge and Expertise, Outputs, Decisions
DSSs which perform selected cognitive decision-making functions and are based on artificial intelligence or intelligent agents technologies are called Intelligent Decision Support Systems (IDSS).
The nascent field of Decision engineering treats the decision itself as an engineered object, and applies engineering principles such as Design and Quality assurance to an explicit representation of the elements that make up a decision.
DSS has many applications. However, it can be used in any field where organization is necessary. So DSS is beneficial because it

Improves personal efficiency.

Expedites problem solving (speed up the progress of problems solving in an organization).

Facilitates interpersonal communication.

Promotes learning or training.

Increases organizational control.

Generates new evidence in support of a decision.

Creates competitive advantage over competition.

Encourages exploration and discovery on the part of the decision maker.

Reveals new approaches to thinking about the problem space.

Helps automate the managerial processes.

So, DSS have many benefits, which are needed in modern world to do our work and products of our work better, more economical and safe for environment.

A.M.Dyadechko, *ELA*

MEDIA ADVERTISING

Artem Avlasovych, *MK-71*

The media is a powerful thing - the average person spends an enormous amount of their life consuming it in one form or another, and will spend a significant percentage of that time looking at, listening to or watching advertisements. If you want to use the power of the media, though, you need to know what you're doing otherwise your investment will be a financial disaster. Listed below are the most common forms of media advertising. No doubt you can think of others as well.

Advertising in Newspapers and Magazines

There are two kinds of advertising you can get in newspapers and magazines: classified and display. Classifieds are the small ads towards the back of the publication, while display ads can be almost any size, from a small corner of a page to a massive double-page spread.

There is, however, an exception: niche and trade magazines. If you've ever looked around in a newsagent, you will have seen just how many magazines there are out there, filling every conceivable gap in the market. You need to find the magazine that people who are interested in your services might read. For example, if you're a wedding photographer, look for a magazine called 'Your Wedding', 'Bride', or something similar. Advertising in these magazines will be far cheaper than placing an ad in a general-audience publication, and far more likely to actually get some responses.

Advertising on the Radio

Wherever you are, the chances are that there's a local radio station. Once your home business grows to a decent size, you might consider buying some time on it.

Really, though, the only kind of home business that can benefit enough from radio ads to justify the cost is one that does anything to do with cars. Since radio is almost entirely limited to use as in-car entertainment now, you know that almost everyone your ad reaches will be a car-owner, and so might be interested in what you're offering. If you offer something that people need cheaply or even for free, you can get a big response.

Unfortunately, that response could be a little too big - thanks to the time-sensitivity of radio, you'll get mobbed the next day, and then everyone will forget you again. Radio advertising offers the listener no opportunity to keep your ad and refer to it later, or to find it again in the future. You will find that any ads involving a phone number are spectacularly useless.

Advertising on the Television

Unless your business is getting pretty big, this would be quite a bad idea. You'd have trouble producing and airing an ad even on local cable channels for less than $10,000. Of course, if there's a market for your product and you've got the budget for this, you could take a gamble and make a mint. The home businesses that tend to do best out of TV ads are ones that have a 'unique and useful invention' product with easy-to-demonstrate benefits - think infomercial. Research shows that you can

sell almost anything given a 60-second ad, a free phone number and a price point of $19.95.

Advertising on Billboards

Here's one that gets overlooked pretty often, but can be very effective if you do it right. Billboard ads are relatively expensive, but they do generally stay up for a long time, and they can be very specifically targeted to an area - the one where they're physically located. You'll have the best results with this if you can put one near enough to your business that it could say 'turn left at the next junction', or something like that. Phone numbers are, again, pretty useless, although you could have some luck putting a website address up there.

Advertising at the Movies

Finally, here's one that often gets overlooked. If you turn up to the cinema early, you might have seen that before the big-budget ads, ads for local businesses are run. This can be a great place to advertise relatively inexpensively in quite a high-profile way, and it works especially well for takeaway food businesses.

Dyadechko A. M., *ELA*

SOCIALIZATION

T. Fedchenko, *student JT-72*

Socialization is the process by which children and adults learn from others. We begin learning from others during the early days of life; and most people continue their social learning all through life.

Sometimes the learning is fun, as when we learn a new sport, art or musical technique from a friend we like. At other times, social learning is painful, as when we learn not to drive too fast by receiving a large fine for speeding.

Natural socialization occurs when infants and youngsters explore, play and discover the social world around them. Planned socialization occurs when other people take actions designed to teach or train others -- from infancy on.

Natural socialization is easily seen when looking at the young of almost any mammalian species. Planned socialization is mostly a human phenomenon; and all through history, people have been making plans for teaching or training others.

Both natural and planned socialization can have good and bad features: It is wise to learn the best features of both natural and planned socialization and weave them into our lives.

Positive socialization is the type of social learning that is based on pleasurable and exciting experiences. We tend to like the people who fill our social learning processes with positive motivation, loving care, and rewarding opportunities.

Negative socialization occurs when others use punishment, harsh criticisms or anger to try to "teach us a lesson;" and often we come to dislike both negative socialization and the people who impose it on us.

There are all types of mixes of positive and negative socialization; and the more positive social learning experiences we have, the happier we tend to be – especially if we learn useful information that helps us cope well with the challenges of life. A high ratio of negative to positive socialization can make a person unhappy, defeated or pessimistic about life.

The many people receive far more negative socialization than they need and fewer people will need to be trained for battle, torture and hardship.

We all have an enormous human potential, and we all could develop a large portion of it if we had the encouragement that comes from positive socialization and the wisdom that comes from valuable information about living.

Information about both natural and planned socialization can be especially useful. Our prior socialization helps explain a gigantic chunk of "who" we are at present – what we think and feel, where we plan to go in life. But we are not limited by the things given to us by our prior social learning experiences; we can take all our remaining days and steer our future social learning in directions that we value.

The most people learn to influence their own socialization as they gain experience in life. It takes special skills to steer and direct our own socialization, and many of us pick up some of those skills naturally as we go through life.

We all come into life with a variety of psychology systems that foster self-actualization and favour the development of our human potential.

These are the biosocial mechanisms that underlie natural socialization. We can see and study natural socialization by examining the socialization of mammals. Once we under the natural biosocial processes, we can try to build strategies of self-actualization that are compatible with the natural biosocial mechanisms we are born with to make self-development as easy and rewarding as possible.

The study of behaviour principles in everyday life is crucial to this. If we understand the ways to create positive socialization experiences, we can take our human potential and develop the happy and creative sides of that potential.

If we had too much negative socialization in the past and have learned to be too sad or inhibited, knowledge about positive socialization can help minimize some of the pain and allow us to build toward a more positive and creative future.

S. V. Podolkova, *EL Adviser*

HOW TO SAVE ENERGY IN YOUR HOME

I.A.Papus, *EM-71*

One of the biggest problem of our country is wasting energy in our homes. Everyone should think about it and do it by himself. There are simple ways to conserve energy used in your home, to make it more energy efficient and save money while doing it. I will tell you what home improvements and products are best for you and your home.

A home energy audit is the first step to assess how much energy your home consumes and to evaluate what measures you can take to make your home more energy efficient. An audit will show you problems that may, when corrected, save you significant amounts of money over time. During the audit, you can pinpoint where your house is losing energy. Audits also determine the efficiency of your home's heating and cooling systems. An audit may also show you ways to conserve hot water and electricity. You can perform a simple energy audit yourself, or have a professional energy auditor carry out a more thorough audit.

A professional auditor uses a variety of techniques and equipment to determine the energy efficiency of a structure. Thorough audits often use equipment such as blower doors, which measure the extent of leaks in the building envelope, and infrared cameras, which reveal hard-to-detect areas of air infiltration and missing insulation. But you can easily conduct a home energy audit yourself. With a simple but diligent walk-through, you can spot many problems in any type of house. When auditing your home, keep a checklist of areas you have inspected and problems you found. Make a list of obvious air leaks (drafts). Check for indoor air leaks, such as gaps along the baseboard or edge of the flooring and at junctures of the walls and ceiling. Also look for gaps around pipes and wires, electrical outlets, foundation seals, and mail slots. Check to see if the caulking and weather stripping are applied properly, leaving no gaps or cracks, and are in good condition.

You can reduce your home's heating and cooling costs through proper insulation and air sealing techniques. These techniques will also make your home more comfortable. Heat loss through the ceiling and walls in your home could be very large if theinsulation levels are less than the recommended minimum.

Any air sealing efforts will complement your insulation efforts, and vice versa. Proper moisture control and ventilation strategies will improve the effectiveness of air sealing and insulation, and vice versa.

It's hard to imagine life without electricity. In our homes, we rely on it to power our lights, appliances, and electronics. Many of us also use electricity to provide our homes with hot water, heat, and air conditioning.

But as we use more electricity in our homes, our electric bills rise. In turn, fossil-fueled power plants not only generate more electricity, but also more pollution. The continued reliance on and depletion of fossil-fuel resources threatens our energy security.

Energy-efficient windows, doors, and skylights - also known as fenestration - can help lower a home's heating, cooling, and lighting costs. Water heating can account for 14%–25% of the energy consumed in your home. You can reduce your monthly water heating bills by selecting the appropriate water heater for your home or pool and by using some energy-efficient water heating strategies.

Heating and cooling account for about 56% of the energy use in a typical U.S. home, making it the largest energy expense for most homes. A wide variety of technologies are available for heating and cooling your home, and they achieve a wide range of efficiencies in converting their energy sources into useful heat or cool air for your home. In addition, many heating and cooling systems have certain supporting equipment in common, such as thermostats and ducts, which provide opportunities for saving energy.

When looking for ways to save energy in your home, be sure to think about not only improving your existing heating and cooling system, but also consider the energy efficiency of the supporting equipment and the possibility of either adding supplementary sources of heating or cooling or simply replacing your system altogether.

The quantity and quality of light around us determine how well we see, work, and play. Light affects our health, safety, morale, comfort, and productivity. In your home, you can save energy while still maintaining good light quantity and quality.

I hope people of our county will become more educated from year to year and even they won't use the services of professional energy audit they will make it themselves. Annually billions of dollars are wasted in our homes all over the country, but we should stop it. I believe we can.

S.G.Zolotova, *ELA*

ENERGY STORAGE BASICS

Yu. S. Potapova, *EM-71*

Distributed energy management technologies include energy storage devices. Energy storage technologies are essential for meeting the levels of power quality and reliability required by high-tech industries.

Energy Storage Technologies include: batteries, compressed air, flywheels, pumped hydropower, supercapacitors, superconducting magnetic energy.

Batteries are the most common device used for storing electrical energy. Specifically advanced batteries, flow batteries and lead-acid batteries can be used as storage devices.

Compressed air energy storage is really a hybrid storage/power production system. Off-peak electricity is used to power a motor/generator that drives compressors to force air into an underground storage reservoir, such as a rock cavern or abandoned mine.

A flywheel is a cylinder that spins at very high speeds, storing kinetic (movement) energy. The faster the flywheel spins, the more energy it retains. Energy can be drawn off as needed by slowing the flywheel.

Pumped hydro facilities use off-peak electricity to pump water from a lower reservoir into one at a higher elevation. When the water stored in the upper reservoir is released, it is passed through hydraulic turbines to generate electricity. Thus, two reservoirs in combination can be used to store electrical energy for a long period of time, and in large quantities.

Supercapacitors are electrochemical storage devices that work like large versions of common electrical capacitors. Supercapacitors store their energy in an electrostatic field. The energy is stored as a charge or concentration of electrons on the surface of a material.

Superconducting magnetic energy storage systems store energy in the magnetic field created by the flow of direct current through a large coil of superconducting material that has been super-cooled. In low-temperature superconducting materials, electric currents encounter almost no resistance, greatly enhancing their storage capacity.

Energy storage is important for other distributed energy devices by giving them more load-following capability, and also supports renewable technologies such as wind and solar electricity by making them dispatchable.

S.G.Zolotova, *ELA*

MATHEMATICAL MODELING ECONOMIC GROWTH WITHIN THE FRAMEWORK OF SOLOW MODEL

Manko N. M., *PM-61*

Study of economic growth is an important problem. Classical economists, such as Adam Smith (1776), David Ricardo (1817), and Thomas Malthus (1798), and, much later, Frank Ramsey (1928), Allyn Young (1928), Frank Knight (1944), and Joseph Schumpeter (1934), provided many of the basic ingredients in modern theories of economic growth.

Stylized facts of economic growth are

- output per worker shows continuing growth "with no tendency for a falling rate of growth of productivity";
- capital per worker shows continuing growth;
- the rate of return on capital is steady;
- the capital-output ratio is steady;
- labor and capital receive constant shares of total income.

One of the most famous growth models is Solow model. In this model, part of each instant's output ($Y(t)$) is consumed and the rest is saved and invested. The fraction of output saved is a constant s, so that the rate of saving is $sY(t)$. The community stock of capital $K(t)$ takes the form of an accumulation of the composite commodity. Net investment is then just the rate of increase of the capital stock dK/dt. Depreciation of stock of capital is proportional to capital (qK).

Output is to be understood as net output after making good the depreciation of capital. That why, output is produced with the help of two factors of production, capital and labor, whose rate of input is $L(t)$. As a result of exogenous population growth the labor force increases at a constant relative rate n, Harrod's natural rate of growth. So we have the basic identity at avery instant of time

$$\dot{K} = sF(K, L) - qK \qquad (1)$$

Many different methods have to implement this model. The unknown functions of the output have been specified as decomposition of a trajectory of movement on trend and periodic, the unknown constant factors of decomposition in model have been estimated with help of econometrics' methods. The model has been adjusted on optimum parameters with help of multicriterion regulator. The model approbation have been realized on statistics data of the real macroeconomic systems.

A. M. Dyadechko, *ELA*

ACTION SCRIP 3.0

Y.A.Tevosyan, *PM-81*

ActionScrip is the official programming language of Adobe's Flash platform. While originally conceived as a simple tool for controlling, ActionScript has since evolved into a sophisticated programming language for creating content and applications for Web, mobile devices, and desktop computers. True to its roots, ActionScript can be used in many different ways by many different kinds of programmers and content producers. For example, an animator might use just a few lines of ActionScript to pause the playback of web animation. Or, an interface designer might use a few hundred lines of ActionScript to add interactivity to mobile phone to create an entire email-reading application for web browser and desktop deployment.

ActionScript 3.0 is an object-oriented language for creating application and scripted multimedia content for layback in Flash client (such as Flash Player and Adobe AIR). With a syntax reminiscent of Java and C#, ActionScript's core language should be familiar to experienced programmers.

ActionScript 3.0's core language is based on the ECMAscript 4th edition language specification. In the future, ActionScript is expected to be a fully conforming implementation of ECMAScript 4. ECMAScript 4 dictates ActionScript's basic and grammar - the code to create things as expressions, statements, variables, functions, classes, and objects. ECMAScript 4 also defines a small set of built -in data types for working with common values (such as String, Number, Boolean). Some of ActionScript 3.0's key core-language features include: First-class support for common object-oriented constructs, such as classes, objects, and interfaces Single-threaded execution model Runtime type-checking. Optional compile-time type-checking. Runtime exceptions. Direct support for XML as a built-in data type. Packages for organizing code libraries.

A.M. Dyadechko, *ELA*

WHAT IS A LEASE?

Goncharuk R., *MK-71*

A lease is a legally enforceable contract which defines the relationship between an owner, the lessor, and a renter, the lessee. A typical lease spells out all of the terms involved in a land or merchandise rental agreement, including the length of time a lessee may use it and what condition it must be in upon return to the lessor. The amount of payments and any financial penalties for late payments may also be included in a lease contract.

Most consumers encounter a lease when renting housing or leasing a car. A lease can be very short-term (a few weeks or months), or it can be extended for a number of years. Many small businesses and retail stores have lease agreements for 10 years or more, and renewal of the lease may just be a formality. Apartment renters, however, rarely sign a lease extending past one year of occupancy. Those who lease vehicles usually sign two-year agreements as opposed to five-year financing plans for buyers.

A lease agreement protects both the lessor and the lessee. The lessor knows that a legally binding contract obligates the renter to make regular payments throughout the life of the lease. The lessee knows that he or she has full rights to the property without fear of sudden seizure or eviction. A lease also guarantees that the original rental terms will not change until the lease has expired.

A lease arrangement does not always guarantee smooth sailing between landlord and tenant, however. Unlike a mortgage between a bank and homeowner, the lease between landlord and tenant can contain a number of restrictions. Renters and leasers are not owners, therefore the property is always subject to scrutiny by the landlord and/or titled owner. If certain conditions of the lease are violated, such as an unauthorized pet or a sanitation problem, the lessor can decide to terminate the lease.

Another consideration is the length of the lease itself. Some renters sign longer leases in order to reduce monthly payments, only to encounter a more appealing housing situation long before the end of the lease. A lease may allow lessees to legally break the terms if a new job is located 50 miles away or more, but in general the renter may have to honor the entire lease. Some lessees may find someone willing to continue the rental obligation without a lease--a practice called 'subletting'. Some landlords allow tenants under a lease to sublet, but it's not always a viable option.

Dyadechko A.M., *ELA*

THE ARTIFICIAL RETINA PROJECT

Znamenshchykov Y., *student ES-71*

The DOE (The U.S. Department of Energy) Artificial Retina Project is a multi-institutional collaborative effort to develop and implant a device containing an array of microelectrodes into the eyes of people blinded by retinal disease. The ultimate goal is to design a device with hundreds to more than a thousand microelectrodes. This resolution will help restore limited vision that enables reading, unaided mobility, and facial recognition.

The device is intended to bypass the damaged eye structure of those with retinitis pigmentosa and macular degeneration. These diseases destroy the light-sensing cells (photoreceptors, or rods and cones) in the retina, a multilayered membrane located at the back of the eye.

Normal vision begins when light enters and moves through the eye to strike specialized photoreceptor (light-receiving) cells in the retina called rods and cones. These cells convert light signals to electric impulses that are sent to the optic nerve and the brain. Retinal diseases like age-related macular degeneration and retinitis pigmentosa destroy vision by annihilating these cells.

With the artificial retina device, a miniature camera mounted in eyeglasses captures images and wirelessly sends the information to a microprocessor (worn on a belt) that converts the data to an electronic signal and transmits it to a receiver on the eye. The receiver sends the signals through a tiny, thin cable to the microelectrode array, stimulating it to emit pulses. The artificial retina device thus bypasses defunct photoreceptor cells and transmits electrical signals directly to the retina's remaining viable cells. The pulses travel to the optic nerve and, ultimately, to the brain, which perceives patterns of light and dark spots corresponding to the electrodes stimulated. Patients learn to interpret these visual patterns.

The DOE project is built on the foundational work of its leader, Mark Humayun at the Doheny Eye Institute of the University of Southern California. In a breakthrough operation performed in 2002, the team led by Humayun successfully implanted the first device of its kind — an array containing 16 microelectrodes — into the eye of a patient who had been blind for more than 50 years. Since then, more than 30 additional volunteers around the world have had first- or second-generation (60-electrode) devices implanted. These devices enable patients to distinguish light from dark and localize large objects.

Three models in testing and development are:

Model 1 (Argus™ I). The Model 1 device was implanted in six blind patients between 2002 and 2004, whose ages ranged from 56 to 77 at time of implant and all of whom have retinitis pigmentosa. The device consists of a 16-electrode array in a one-inch package that allows the implanted electronics to wirelessly communicate with a camera mounted on a pair of glasses. It is powered by a battery pack worn on a belt. This implant enables patients to detect when lights are on or off, describe an object's motion, count individual items, and locate objects in their environment. To evaluate the long-term effects of the retinal implant, five devices have been approved for home use.

Model 2 (Argus™ II). The smaller, more compact Model 2 retinal prosthesis is currently undergoing clinical trials to evaluate its safety and utility. This model is much smaller, contains 60 electrodes, and surgical implant time has been reduced from the 6 hours required for Model 1 to 2 hours.

Model 3. The Model 3 device, which will have more than 200 electrodes, has undergone extensive design and fabrication studies at the DOE national laboratories and is ready for preclinical testing. The new design uses more advanced materials than the two previous models and has a highly compact array. This array is four times more densely packed with metal contact electrodes and required wiring connecting to a microelectronic stimulator. Simulations and calculations indicated that the 200+ electrode device should provide improved vision for patients.

Other retinal prostheses projects are under way in the United States and world-wide, including Germany, Japan, Ireland, Australia, Korea, China, and Belgium. These programs pursue many different designs and surgical approaches. Some show great promise for the future, but have yet to demonstrate practicality in terms of adapting to and lasting long-term in a human eye.

Marchenko D.O., *E L Adviser*

СУЧАСНІ ІНФОРМАЦІЙНІ ТЕХНОЛОГІЇ – НЕВІД'ЕМНИЙ АТРИБУТ МЕДИЧНОЇ ГАЛУЗІ

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Об'єкт дослідження – структурна організація, стратегії та значення HL7 для галузі охорони здоров'я.

Метою даного дослідження є доведення доцільності стандартизації медичної інформації і створення медичних інформаційних моделей для галузі охорони здоров'я. Це може не лише значно полегшити і оптимізувати роботу працівників медичної галузі, але і запобігти неточностям, які виникають під час обробки інформації медичним персоналом.

Health Level 7 – це стандарт обміну, управління і інтеграції електронної медичної інформації. Дослідження функціонування HL7 є досить актуальним, адже новітні технології стають невід'ємною частиною нашого життя.

HL7 – це вищий рівень комунікаційної моделі відкритих систем. Основною метою організації є розробка, розвиток і накопичення медичних знань. Ця безприбуткова добровільна організація була створена в 1987 році, штаб-квартира знаходиться в місті Енн Арбор шт. Мічиган, США. HL7 – це один з Інститутів Американських Національних Стандартів (ANSI), акредитованих Організаціями Розробляючими Стандарти (SDOs). Існує помилкова думка, що HL7 розробляє програмне забезпечення. Насправді, HL7 займається стандартами які розповсюджуються між медичними установами.

Існує безліч організацій які розробляють стандарти розповсюджені по всьому світу. Чому ж саме HL7 ? HL7 фокусується на потребах цілої організації охорони здоров'я, тоді як інші – на потребах окремої галузі. Крім того, HL7 на постійній основі розробляє ряд протоколів які адресуються до лікарень та відділень. HL7 обслуговує такі країни, як Аргентина, Австралія, Канада, Китай, Чехія, Фінляндія, Германія, Індія, Японія, Корея, Литва, Нідерланди, Нова Зеландія, Південна Африка, Швейцарія, Тайвань, Туреччина та Об'єднане Королівство Великої Британії.

Місія HL7: HL7 забезпечує стандарти для взаємодії організацій, які покращують надання допомоги, оптимізують потік роботи,

зменшують неоднозначність інформації, що передається між усіма посередниками, включаючи провайдерів, урядові агенції, постачальників та пацієнтів. У всіх проектах HL7 приділяється велика увага своєчасності виконаної роботи та науковій точності.

Основні стратегії HL7:

- Стимуляція, допомога і полегшення роботи спеціалістів в області охорони здоров'я і розробка стандартів медичної інформації.
- Розробка стандартів по розширенню структурної кодованої медичної інформації,що потрібна для належного догляду за хворим.
- Розробка формальної методології для підтримування створення стандартів HL7 з довідковою інформаційною моделлю.
- Доведення як до професіоналів, так і до широкої аудиторії переваг комп'ютеризованої інформаційної стандартизації системи охорони здоров'я, стандартів HL7 особливо.
- Розповсюдження і використання стандартів HL7 по всьому світу через приєднання нових інформаційних організацій які приймають участь в розробці стандартів HL7.
- Співпраця з іншими організаціями які розробляють стандарти в медичній та інформаційній галузях .
- Співробітництво з користувачами медичних інформаційних технологій для впевненості в тому, що стандарти HL7 задовольняють потреби сьогодення.

Сучасні інформаційні технології широко розповсюджені в багатьох країнах світу, чий досвід показує доцільність використання інформаційних технологій у галузі медицини. Введення стандартизації медичної інформації полегшує і оптимізує роботу медичного персоналу, забезпечує конфіденційність медичної інформації і швидку передачу структурних даних між лікарськими установами.

Запровадження HL7 в нашій країні сприятиме покращенню функціонування сфери охорони здоров'я, адже технічний прогрес є невід'ємною складовою розвинутого суспільства яке прагне удосконалення.

Наук.кер. - доц. Терлецька І.М.

STRING THEORY

N.A.Dedik, *IN-73*

We live in a wonderfully complex universe, and we are curious about it by nature. Time and again we have wondered - why are we here? Where did we and the world come from? What is the world made of? It is our privilege to live in a time when enormous progress has been made towards finding some of the answers. String theory is our most recent attempt to answer the last (and part of the second) question.

So, what is the world made of? Ordinary matter is made of atoms, which are in turn made of just three basic components: electrons whirling around a nucleus composed of neutrons and protons. The electron is a truly fundamental particle (it is one of a family of particles known as leptons), but neutrons and protons are made of smaller particles, known as quarks. Quarks are, as far as we know, truly elementary.

Our current knowledge about the subatomic composition of the universe is summarized in what is known as the Standard Model of particle physics. It describes both the fundamental building blocks out of which the world is made, and the forces through which these blocks interact. There are twelve basic building blocks. Six of these are quarks --- they go by the interesting names of up, down, charm, strange, bottom and top. (A proton, for instance, is made of two up quarks and one down quark.) The other six are leptons --- these include the electron and its two heavier siblings, the muon and the tauon, as well as three neutrinos.

There are four fundamental forces in the universe: gravity, electromagnetism, and the weak and strong nuclear forces. Each of these is produced by fundamental particles that act as carriers of the force. The most familiar of these is the photon, a particle of light, which is the mediator of electromagnetic forces. (This means that, for instance, a magnet attracts a nail because both objects exchange photons.) The graviton is the particle associated with gravity. The strong force is carried by eight particles known as gluons. Finally, the weak force is transmitted by three particles, the W+, the W- , and the Z.

The behavior of all of these particles and forces is described with impeccable precision by the Standard Model, with one notable exception: gravity. For technical reasons, the gravitational force, the most familiar in our every day lives, has proven very difficult to describe microscopically. This has been for many years one of the most important problems in theoretical physics -- to formulate a quantum theory of gravity.

In the last few decades, string theory has emerged as the most promising candidate for a microscopic theory of gravity. And it is infinitely more ambitious than that: it attempts to provide a complete, unified, and consistent description of the fundamental structure of our universe. (For this reason it is sometimes, quite arrogantly, called a 'Theory of Everything').

The essential idea behind string theory is this: all of the different 'fundamental ' particles of the Standard Model are really just different manifestations of one basic object: a string. How can that be? Well, we would ordinarily picture an electron, for instance, as a point with no internal structure. A point cannot do anything but move. But, if string theory is correct, then under an extremely powerful 'microscope' we would realize that the electron is not really a point, but a tiny loop of string. A string can do something aside from moving--- it can oscillate in different ways. If it oscillates a certain way, then from a distance, unable to tell it is really a string, we see an electron. But if it oscillates some other way, well, then we call it a photon, or a quark, or a ... you get the idea. So, if string theory is correct, the entire world is made of strings!

Perhaps the most remarkable thing about string theory is that such a simple idea works--- it is possible to derive (an extension of) the Standard Model (which has been verified experimentally with incredible precision) from a theory of strings. But it should also be said that, to date, there is no direct experimental evidence that string theory itself is the correct description of Nature. This is mostly due to the fact that string theory is still under development. We know bits and pieces of it, but we do not yet see the whole picture, and we are therefore unable to make definite predictions. In recent years many exciting developments have taken place, radically improving our understanding of what the theory is.

So, string theory, also known by names such as "super string theory" and sometimes "M-theory", is an idea that has been around for a rather long time, over two decades. It is, at one and the same time, a logical continuation of established theoretical notions dating back over half a century, and a radical new paradigm in fundamental physics.

Dyadechko A.M., *EL4*

ELECTRICITY SAVINGS

Vasyl Kuguk, *EM-71*

Electricity accounts for a large portion of most of our monthly bills. It was one of those "modern conveniences" that quickly became necessity, to the point that most of us have never lived without it and even insist that we couldn't - with good reason because of how most homes are designed.

According to the U.S. Department of Energy, one third of our energy dollars goes to lighting and appliances, not including heating water and using refrigeration.

Here are some ways how to decrease that big percentage and the overall electricity cost

1. Start changing out regular incandescent light bulbs with compact fluorescents. Although fluorescents cost more to buy, their life times are longer and they use far less electricity for the same amount of light.

2. Maybe this should be number one, but turn off anything you're not using. That includes lights, TVs, radios, stereos and computers. Most computers use the equivalent of around three 100 watt light bulbs, so turning them off at night will save plenty.

3. Flip the switch off on power strips, or unplug "instant on" anything, including TVs and computers. These use electricity all the time unless electricity is cut off to them.

4. Keep a freezer full - it operates on a different principle than a refrigerator. A frozen mass tends to keep things around it frozen, too. If you don't have enough food to fill it, save plastic containers and fill them two thirds of the way with water. Water-filled plastic bags that can be sealed make an excellent choice for odd shaped vacant areas.

5. Switch to using as many manual appliances as you can. Plain old hand operated can openers, knives and toothbrushes save a lot of electricity!

6. If you use an electric stove, use all the heat. Turn off the burners and oven a few minutes before food is through cooking. Or, if you're heating other foods there's plenty left to do the job after you turn off the burner. Remember, it's not the stove that cooks your food. It's the heat.

7. If you drink tea or coffee throughout the day, use a thermos. You can save electricity if you make several cups at one time and keep it hot in a thermos than if you make individual cups.

It takes some effort, yes, but the rewards will be worth it when you get your cost in next bill and you've knocked off 20 percent, or even more.

S.G. Zolotova, *ELA*

3D GRAPHICS: AUTODESK MAYA

Ol'ga Shulima, *IT-72*

3D Graphics is a very popular technology nowadays, because of great role of visualization in the perception of information by people. And 3D graphics programs are my specialization.

3D computer graphics software refers to programs used to create 3D computer-generated imagery. 3D modelers are used in a wide variety of industries. Many 3D modelers are general-purpose and can be used to produce models of various real-world entities, from plants to automobiles to people. Some are specially designed to model certain objects, such as chemical compounds or internal organs.

Autodesk Maya (Sanskrit word for "illusion") is a high-end 3D computer graphics and 3D modeling and 3D animation software package originally developed by Alias Systems Corporation, but now owned by Autodesk as part of the Media and Entertainment division. Maya is used in the film and TV industry, as well as for computer and video games, architectural visualization and design.

Maya is a popular, integrated node-based 3D software suite.

NURBS, polygons and subdivision surfaces are available in Maya.

Polygons are a widely used model medium due to its relative stability and functionality. Polygons are also the visualization bridge between NURBS and SubDivs. NURBS are used for their ready-smooth appearance and respond well to deformations in the Dynamics Workbench. SubDivs resemble a combination of both NURBS and polygons, but they are actually just a smoothed mesh.

Maya features a particle system for handling masses like steam and water drops. Dynamic fields allow adding gravity, wind and vortexes, allowing for effects such as blowing leaves or even tornadoes. Special tools give artists the ability to brush and style particles like hair and fur.

An artist may create rigid body geometric objects which collide automatically without explicit animation, as well as soft body objects which can ripple and bend, like flags and cloth.

Maya effects are built-in programs that make it easy for users to create complex animation effects such as smoke, fire and realistic water effects, with many options and attributes for tuning the results.

Many popular computer-animated films have been made with Maya software.

A. M. Dyadechko, *ELA*

THE APPLICATION OF THE ELASTICITY THEORY

N. V. Bondar

During centuries, a great role has been devoted to such branch of science as "elasticity theory". Even in those far times, when people faced at first with building, they understood the necessity of knowing the elasticity of materials. The fundamental knowledge of it help them to appointed the correct size of details in the structures in conformity to their admissible loads. There is no doubt that Egyptians knew some empirical rules of this science, in other case they couldn't built such grandiose monuments, pyramids, temples, obelisks, which are standing even nowadays. The origin of elasticity theory concerns the 17th century. Galileo is considered to be the founder of it. With the help of this science, people built great buildings.

One of the most wonderful ancient town is Petra. The complexity of the buildings are so improbable, that nowadays the most outstanding scientists can only make hypothesis, they don't know the answers how the ancient people made such miracles. Petra is situated on the territory of Jordan. In this ancient town was filmed "Indiana Johns and the last crusade". Petra is one of the new 7 miracles of the world. The Petra inhabitants were great masters in work with stone. The meaning of the word "Petra" is "Rock". People cut homes, crypts from the boulders. Petra is settled down in the red sandstone in the heart of the desert.

The most famous building in Petra is Al-Hazne – the greatest example of the skill of ancient architects and stone-cutters. How did they cut façade? How did they make the preliminary project? Scientist can only make assumptions. The big surface of the rock was cut off. It was necessary to built scalfolds but there were any tree in this place. Without scalfolds they could use the roughness as a step. In such case the mason and the carver began to work from the very top. But how could they define the necessary scale of the construction? It is real to mark the future construction and then to cut it, but it is very hard to do the same thing if you are hanging over the precipice.

The existence of Petra is the acknowledgement of beautiful merging of science and imagination.

One of the most famous buildings of the present is Petronas Towers. They are situated in Kuala Lumpur, Malaysia. This buildings were the world's tallest buildings from 1998 to 2004. They are the 88 – floor towers. Twin Towers were built in Islamic style, that is why we see in them the eight-final star. They were built on the site of Kuala Lumpur's race track.

Because of the depth of the bedrock, the building were built on the world's deepest foundations. The Twin Towers occupy the territory of 40 hectares

Due to a lack of steel and the huge cost of importing steel, the towers were constructed on a cheaper radical design of super high-strength reinforced concrete. High-strength concrete is a material familiar to Asian contractors and twice as effective as steel in sway reduction; however, it makes the building twice as heavy on its foundation than a comparable steel building.

Petronas Towers have a very interesting lift system. All main lifts are double-deckers with the lower deck of the lift taking passengers to odd numbered floors and upper deck to even-numbered floors. To reach an even-numbered floor from the ground level, passengers must take an escalator to the upper deck of the lift. The lifts contain number of safety features. It is possible to evacuate people from a lift stuck between floors by manually driving one of the adjacent lifts next to it and opening a panel in the wall. That's why it is possible for people to walk between lift cars.

The towers feature is a sky bridge between the two towers on the 41st and 42nd floors, which is the highest build in the bridge in the world. It was designed to slide in and out of the towers to prevent it from breaking during high winds. The sky bridge is open to all visitors, but their amount is limited. The sky bridge also acts a safety device, so that in the event of a fire or other emergency in one tower, tenants can evacuate by crossing the sky bridge to the other tower. So, the beauty and the complexity intertwine in Petronas Towers.

This two examples show, that people can build really magnificent structures, with help of the science and fantasy.

A. M. Dyadechko, *ELA*

ECOLOGICAL PROBLEMS

M.S.Dodotchenko, *EK-71*

Since ancient Nature has served Man, being the source of his life. For thousands of years people lived in harmony with environment and it seemed to them that natural riches were unlimited. But with the development of civilization man's interference in nature began to increase.

Large cities with thousands of smoky industrial enterprises appear all over the world today. The by-products of their activity pollute the air we breathe, the water we drink, the land we grow grain and vegetables on.

Every year world industry pollutes the atmosphere with about 1000 million tons of dust and other harmful substances. Many cities suffer from smog. Vast forest are cut and burn in fire. Their disappearance upsets the oxygen balance. As a result some rare species of animals, birds, fish and plants disappear forever, a number of rivers and lakes dry up.

The pollution of air and the world's ocean, destruction of the ozone layer is the result of mane's careless interaction with nature, a sign of the ecological crises.

The most horrible ecological disaster befell Ukraine and its people after the Chernobyl tragedy in April 1986. About 18 percent of the territory of Belarus were also polluted with radioactive substances. A great damage has been done to the agriculture, forests and people's health. The consequences of this explosion at the atomic power-station are tragic for the Ukrainian, Bylarussian and other nations.

Environmental protection is of a universal concern. That is why serious measures to create a system of ecological security should be taken. Some progress has been already made in this direction. As many as 159 countries – members of the UNO – have set up environmental protection agencies. Numerous conferences have been held by these agencies to discuss problems facing ecologically poor regions including the Aral Sea, the South Urals, Kuzbass, Donbass, Semipalatinsk and Chernobyl. An international environmental research centre has been set up on Lake Baikal. The international organization Greenpeace is also doing much to preserve the environment.

But these are only the initial steps and they must be carried onward to protect nature, to save life on the planet not only for the sake of the present but also for the future generations.

S.G. Zolotova, *ELA*

HUMAN'S HEALTH AND FOOD ADDITIVES

I.Yu.Matyushenko, *EK-71*

Shopping was easy when most food came from farms. Now factory-made foods have made chemical additives a significant part of our diet. Food additives have been used by mankind for centuries. Salt, sugar and vinegar were among the first and used to preserve foods. In the past 30 years, however, there has been a massive explosion in the chemical adulteration of foods with additives. Most people may not be able to pronounce the names of many of these chemicals, but they still want to know what the chemicals do and which ones are safe and which are poorly tested or possibly dangerous.

A food additive is any substance added to food that changes its characteristics. There are two types of food additives, direct and indirect. Additives are used in food to improve the keeping quality of a food by making it last longer on the shelf or in the fridge, or improve the taste or appearance of processed food. Their quantities in food are small, yet their impact is great.

Food additives are grouped into classes according to their function. The different types of food additives and their uses include: anti-caking agents, antioxidants, artificial sweeteners, emulsifiers Food acids, colours, humectants, flavours, flavour enhancers, mineral salts, preservatives, thickeners, stabilisers, flour treatment, glazing agent, propellants.

To check what additives are in foods, read the label. All food ingredients, including any additives, must be listed on the label of a food. To regulate these additives and inform consumers each additive is assigned a unique number. Initially these were the "E numbers" used in Europe for all approved additives. This numbering scheme has now been adopted and extended to internationally identify all additives, regardless of whether they are approved for use. E numbers are all prefixed by "E", but countries outside Europe use only the number, whether the additive is approved in Europe or not.

Most food additives are considered safe. However, some are known to be carcinogenic or toxic. Some people are sensitive to particular food additives and may have reactions like hives or diarrhoea. This doesn't mean that all foods containing additives need to be automatically treated with suspicion. Many of the food additives used occur naturally within foods that are regularly consumed.

Some food additives can cause reactions. For most people additives are not a problem. Some food additives are more likely than others to cause reactions in sensitive people.It is often the additives that are used to give a food a marketable quality, such as colour, that most commonly cause allergic reactions.

Some of these hypersensitive reactions include:

- Digestive disorders - diarrhoea and colicky pains.
- Nervous disorders - hyperactivity, insomnia and irritability.
- Respiratory problems - asthma, rhinitis and sinusitis.
- Skin problems - hives, itching, rashes and swelling.

It is important to realise that many of the symptoms experienced as a result of food sensitivities can be caused by other disorders. Medical diagnosis is important. If you try to diagnose yourself, you may restrict your diet unnecessarily and neglect an illness. The E numbers are helpful to these people because they can easily see whether the food contains an additive to which they are allergic.

For example, monosodium glutamate (MSG), commonly found in Chinese foods, can also cause adverse reactions in small groups of people. The symptoms, usually mild, include body tingling or warmth, and chest pain. These symptoms are usually mild and often last less than an hour.

Lastly, people with a rare genetic disease known as phenylketouria (PKU) should avoid foods sweetened with aspartame (Equal). Aspartame is made from two amino acids, one being phenylalanine. Individuals with PKU cannot metabolize this amino acid, and if consumed can cause serious side effects including tissue damage.

The best advice to any individual that has adverse reactions to any food additives is to read labels carefully and avoid these products whenever possible. If an adverse reaction does occur, be sure to contact your physician immediately.

Today food and color additives are more strictly studied, regulated and monitored more than any other time in history. The FDA sets safety standards, determining whether a substance is safe for its intended use. Chemicals usually are tested for an ability to cause cancer by feeding large dosages to small numbers of rats and mice. When a large dosage causes cancer, most scientists believe that a smaller amount would also cause cancer, but less frequently. Additionally, food manufacturers must prove to the FDA their product is safe before it is put on the market.

S.G.Zolotova, *ELA*

MERCHANDISING

Oliynyk O., *MK-71*

Merchandising is the direction of marketing promoting stimulation of retails through attraction of attention to final buyers to certain brands or groups of terms of sale without active participation of experts. Merchandising makes the goods easily accessible for the consumer and the seller. The correct placement of the goods and advertising materials remind the buyer of the goods of your firm and influences their decision to purchase.

Merchandising problems include:

1. Informing the buyer about 6the place where he can find the goods produced by your company.
2. Granting all possible information about the goods and their price.
3. Attracting maximum attention to the area where the goods are placed.
4. Influencing the buyer for the purpose of his belief to make purchase immediately.
5. Granting tool after-sale service and support.
6. Supporting the shop, aspiration to raise its income due to the goods sale, and an increase in volumes of purchases consequently.

According to the researches, more than 70 % of buyers make a choice in favour of these or those goods just in a trading floor. To convince the buyer to make purchase, means that all advertising budgets have been spent knowingly. The statistics testifies: buyers leave 13 % more money in those shops where merchandising production is faultless. Places of sale can be divided conditionally into some marketing zones, where application of POS materials has the following features: external registration, an input zone, a trading floor, a place of the priority calculation, a cash zone. Merchandising production t is important, as working towards the brand of the goods, the outdoor advertising or carrying out advertising activities. The matter is that merchandising is the series of measures, directed to the advancement of these or those goods, brands, packings in a selling area,, i.e. the place where the seller has his last chance to.

Therefore today we witness a new trend because there appear lots of merchandising agencies, with staff menchandisers who provide the necessary research and placement of POS-materials.

Dyadechko A.M., *ELA*

SMART SPECTACLES AID TRANSLATION

N. Provozin, *student M-71*

In Japan's continuing quest to turn the world into a place completely controlled by crazy technology, NEC has announced a pair of glasses that, among other things, work to translate foreign languages.

Foreign language dictionaries could soon be a thing of the past, after Japanese manufacturer NEC unveiled a pair of glasses that can automatically translate spoken words and phrases.

The language barrier which exists between massive groups of the world population went one step closer to elimination when NEC Corporation and NEC Personal Products announced the development of an automatic speech-to-speech Travel Interpreter recently.

The Tele Scouter glasses feature a compact microphone and camera, which picks up the foreign-language conversation. The text - provided instantly through voice recognition and translation programs - would effectively provide movie-like ``subtitles" during a conversation between two people wearing the glasses.

This audio recording is then relayed to a small computer worn on the user's waist, which transmits the information to a remote server. The server translates the words from speech to text, and transmits it back to the glasses, where the translated phrase is then appears on a tiny retinal display, providing the wearer with a transcript of the conversation in their own language.

The system is designed to be compact and lightweight, so it can be comfortably worn for long periods and not to use too much battery power. The retinal display projects the text in the wearer's peripheral vision, enabling the user to maintain eye contact with whoever they're speaking to.

Starting in 2010/2011 they'll be sold in sets of 30 at a cost of 7.5 million yen, or roughly 82.5 thousand USD, not including the cost of the translation software. Unfortunately, this puts it slightly out of the price range for everyday people like us who just want to take a trip down to Tijuana without having to learn basic Spanish.

NEC spokespeople claim that the high price will likely be offset by the appeal of having the representatives of those who buy the glasses look like intimidating cyborgs. That's a compelling argument, but whether they'll be effective tools for the business world or will instead cause hilariously offensive incidents due to mistranslation remains to be seen.

The Tele Scouter is currently still a prototype, although NEC plans to start selling the system to businesses next year. The Japanese manufacturer admits that the device's translation capabilities are limited at the moment, so it will market the device as a wearable, hands-free data display.

NEC envisages that it could be used by engineers and technicians to view user guides or manuals while installing and repairing hardware.

One day you may be able to wear glasses that translate other languages in real-time and display them onto the glasses' lenses so you can read it, if NEC is successful.

S.V. Podolkova, *E L Adviser*

THE ARAL SEA MAN-MAID DISASTER

Y.A. Nasemtseva, *group EK-61*,
O.A. Iegorov, *group IN-61*

The destruction of the Aral Sea is one of the most staggering disasters of the twentieth century. Once the world's fourth-largest lake and inland saline body of water the Aral Sea has been steadily shrinking since the 1960s after the rivers that fed it were diverted by Soviet Union irrigation projects. As of 2007, the Aral Sea's surface area was only 10% of its original size. Nearly fivefold increase in salinity had killed most of its natural flora and fauna and left people living in the area in sufferings from a lack of fresh water and health problems.

The History of Aral

Straddling the borders of Uzbekistan and Kazakhstan and surrounded by the Karakum and Kyzylkum deserts, the Aral has been for thousands of years an inland saltwater lake with no outlet. Because of its size and significance it was regarded by people from ancient times as a sea. Two main rivers, the Amu Darya and the Syr Darya, kept the salty lake in balance to support a commercial fishery, tourism, and a true oasis in a very dry, remote region of Central Asia. As many as 20 species of fish flourished in the giant glacial bathtub, and life along the shore was intrinsically linked to the inland sea.

Doomed by the USSR

In 1918, the Soviet government decided that the two rivers that fed the Aral Sea, the Amu Darya and the Syr Darya, would be diverted to irrigate the desert, in order to attempt to grow rice, melons, cereals, and cotton. This

was part of the Soviet plan for cotton, or "white gold", to become a major export. The construction of irrigation canals began on a large scale in the 1940s. Many of the canals were poorly built, allowing water to leak or evaporate. As a result, most of the sea's water supply had been diverted, and in the 1960s the Aral Sea began to shrink. The disappearance of the lake was no surprise to the Soviets; they expected it to happen long before.

The consequences of the Aral Sea catastrophe

As water has been drained from the rivers for cotton farming, the sea's salinity increased more than 3 times. In addition, more and more water has been taken from the rivers to the irrigation canals. As a result, the sea's surface decreased by more than two times and it's volume more than 4 times just in a few decades. Drinking water supplies have dwindled, and the water now is contaminated with pesticides and other agricultural chemicals as well as bacteria and viruses. The farms in the area used some highly toxic pesticides and other harmful chemicals. For decades, these chemicals have been deposited into the Aral Sea. When the wind blows across the dried-up sea, it carries dust containing these toxic chemicals. All these devastating consequences nearly destroyed the ecosystem of the Aral Sea. The environmental degradation intertwined with both poverty and the weak social and economic development in the area has considerably deteriorated the health of the area's population.

Possible environmental solutions

Many different solutions to the different problems have been suggested over the years, varying in feasibility and cost, like improving the quality of irrigation canals, redirecting water from the Volga, Ob and Irtysh rivers and pumping sea water into the Aral Sea from the Caspian Sea via a pipeline. But rather a little work is being done. In August 2005 the dam connected two remnants of the former Aral Sea – the South and the North Aral - was completed by Kazakhstan; since then the water level of the North Aral has risen, and its salinity has decreased. The South Aral Sea, which lies in poorer Uzbekistan, is largely abandoned to its fate.

The Aral Sea disaster has been a stark reminder of man tinkering with the forces of nature without consideration for the long – term after effects on an extremely vulnerable ecosystem and the people who have for centuries resided along its shores.

I.A. Bashlak, *EL Advisor*

SOMETHING ABOUT LAWYER

Tania Vinichenko, *L - 74*

In the past few decades, there has been an explosion in the number of people applying for admission to law schools. A lot of this increase is the result of more and more women and minorities pursuing a legal career. But this means it's tougher than ever to get into law school these days, as not nearly enough new law schools have been created to meet the huge increase in competition for admission to law school. So not only do you have to have an excellent academic profile to be admitted to law school, you've also got to write an intelligent, personal, and persuasive essay on your application if you hope to be admitted. We'll discuss the most common types of essay questions you'll find on law school applications.

By far, the essay question you're most likely to see on a law school application is Why Do You Want To Be A Lawyer? Everyone has their own reasons for wanting to be a lawyer, and for many, it's the prestige and income of the profession. But you certainly don't want to write that, even if it's your main reason for wanting to be a lawyer. You'll want to come up with something that demonstrates that you understand how important the legal profession is, and how they can defend the innocent, speak out against injustice, help people protect their rights, and speak up for the oppressed. And you'll want to have a story or incident that you personally experienced that made you want to be a lawyer to achieve these ends. Admissions committees don't want to hear that you were inspired to become a lawyer by watching Law & Order or that your mother is a lawyer and you want to follow in her footsteps. You'll need a real, meaningful experience to relate about how and when you first realized just how much good attorneys can do, and that you knew from then on it was your calling in life. About a time when you witnessed or experienced injustice, or when legal counsel saved you or a friend or loved one from being defrauded or wrongly accused. But have a story to tell about how the legal profession has profoundly affected your or someone you know and love, and then tell that story with passion and sincerity. That's the key to success with this type of essay.

Another common essay question on law school applications is Why Do You Believe You're Qualified To Be A Lawyer? Of course, you'll want to write something about your personal qualities like compassion, love for study, an analytical mind, etc., that you feel would be assets in a legal career. And if you've had actual experience in the world of law, such as volunteering at Legal Aid, or working in a prosecutor's office during the

summer, or any other directly applicable experience, you'll want to stress that.

Some law schools will ask you to write an essay about an issue or controversy that you feel strongly about. You can approach this in two ways. The first approach is to write about something that means a lot to you, and advocate for that position in your essay. By doing so, you'll demonstrate that you're politically aware, that you think for yourself, and that you're passionate about things. These are all good qualities in a lawyer. Of course, you run the not insignificant risk that the reader of your essay will be someone who's violently in disagreement with your position, and will irrationally reject your application on that basis alone. Theoretically, that shouldn't happen-admissions officers are supposed to be objective and impartial, and able to leave their personal biases out of admissions decisions. And in a perfect world, everyone of them would be one hundred percent impartial every time they read an essay. But we don't live in a perfect world, and people are human. You probably shouldn't worry too much about this, unless you hold some really radical political positions. In that case, you should be aware of the danger of writing about and standing for a highly inflammatory political position. So use your best judgment. The other approach you can take is to take a current issue and look at it from both sides, or several sides, as the case may be. This demonstrates that you're open minded, that you're able to put yourself in the other person's shoes, and that you have good reasoning skills. These, too, are all good qualities that a lawyer needs. Whichever approach you take, just don't come across as either insincere, or unwilling to take any position on any controversy. Either attitude will jump out at your essay reader and have a hugely negative impact on your chance of being accepted for admission.

Zolotova S.G., *advisor*

EXXON VALDEZ OIL SPILL (1989)

N.N.Kiktenko, *RC-61*
S.S. Konyk, *ES-61*

Exxon Valdez was the original of an oil tanker owned by the former Exxon Shipping Company, a division of the former Exxon Corporation. It gained widespread infamy after the March 24, 1989 oil spill in which the tanker, captained by Joseph Hazelwood and bound for Long Beach, California, hit Prince William Sound's Bligh Reef and spilled an estimated minimum 10.8 million US gallons (40.9 million liters) of crude oil. The first cleanup response was through the use of a dispersant, a surfactant and solvent mixture. Because there was not enough wave action to mix the dispersant with the oil in the water, the use of the dispersant was discontinued. The test was relatively successful, reducing 113,400 litres of oil to 1,134 litres of removable residue, but because of unfavorable weather no additional burning was attempted. Mechanical cleanup was started shortly afterwards using booms and skimmers. This has been recorded as one of the largest spills in U.S. history and one of the largest ecological disasters. The damage to the fishing industry and to native subsistence hunting lasted for years. Exxon originally was ordered by a federal court to pay $5 billion in punitive damages in 1994. On June 25, 2008, the United States Supreme Court further reduced the damages to just over $500 million. Following the oil and its impacts over the past 20 years has changed our understanding of the long-term damage from an oil spill. Because of the scope and duration of the restoration program, lingering oil and its effects were discovered and tracked. As a result, we know that risk assessment for future spills must consider what the total damages will be over a longer period of time, rather than only the acute damages in the days and weeks following a spill. Beaches in the Gulf of Alaska are unique because of their composition and structure, and the lack of waves and winter storm action. This, along with the colder temperatures, is partly why oil has persisted and remained toxic here. The potential for long-term damage remains wherever oil persists after an oil spill, whether it is buried in the ocean bottom, marshes, mangroves, or other habitats that are not dynamic. In 2009, Exxon Valdez Captain Joseph Hazelwood somewhat belatedly offered a "heartfelt apology" to the people of Alaska, suggesting he had been wrongly blamed for the disaster: "The true story is out there for anybody who wants to look at the facts, but that's not the sexy story and that's not the easy story," he said. Yet Hazelwood said he felt Alaskans always gave him a fair shake.

I.A. Bashlak, *EL Advisor*

LATIN AND GREEK IN ENGLISN MEDICAL TERMINOLOGY

Piddubna T., *student ЛС – 704*

Medical terminology is a vocabulary for accurately describing the human body and associated components, conditions, processes and process in a science-based manner. It is to be used in the medical and nursing fields. This systematic approach to word building and term comprehension is based on the concept of: Word roots, prefixes, and suffixes. The word root is a term derived from a source language such as Greek or Latin and usually describes a body part. The prefix can be added in front of the term to modify the word root by giving additional information about the location of an organ, the number of parts, or time involved. Suffixes are attached to the end of a word root to add meaning such as condition, disease process, or procedure.

In the process of creating medical terminology, certain rules of language apply. These rules are part of language mechanics called linguistics. So, when a term is developed, some logical process is applied. When in doubt, the result should be verified by a medical terminology dictionary. The process of learning a new language, such as medical terminology, is a challenging, yet attainable goal as the basic rules once learned make the process easier.

Decoding the medical term is an important process. One approach involves breaking down the word by evaluating the meaning of the suffix first, then prefix, and finally the word root. This will generally produce a good result for the experienced health care professional.

In forming or understanding a word root, one needs a basic comprehension of the term and the source language. The study of the origin of words is called etymology. For example, if a word was to be formed to indicate a condition of kidneys, there are two primary roots – one from Greek (*nefr(os)*) and one from Latin (*ren(es)*). Renal failure would be a condition of kidneys, and nephritis is also a condition, or inflammation, of the kidneys. The suffix *-itis* means inflammation, and the entire word conveys the meaning inflammation of the kidney. To continue using these terms, other combinations will be presented for the purpose of examples: The term '*suprarenal* is a combination of the prefix *supra-* (meaning "above"), and the word root for kidney, and the entire word means "situated above the kidneys". The word "nephrologist" combines the root word for kidney to the suffix *-ologist* with the resultant meaning of "one who studies the kidneys".

In medical terminology, the word root is not usually capable of standing alone as a complete word within a sentence. This is different than most word roots in modern standard English. The medical word root is taken from a different source language, so it will remain meaningless as a stand-alone term in an English sentence. A suffix or prefix must be added to make a usable medical term. For example the term for "concerning the heart" is "cardiacus", from the Greek *kardía*. If a person is suffering from a heart related illness, the statement, "The patient suffered a *kardía* event," would not make sense. However, with the addition of a suffix "ac", the statement would be modified to read, "The patient suffered a cardiac event" which is an acceptable use of medical terminology. The process is different in standard English because the word roots are capable of standing alone in a sentence. For example, the word eye is a word root in English that can be used without modification in a sentence.

An additional challenge to the student of medical terminology is that the formation of the plural of a word must be done using the rules of forming the proper plural form as used in the source language. This is more difficult than in English, where adding "s" or "es" is the rule. Greek and Latin each have different rules to be applied when forming the plural form of the word root. Often such details can be found using a medical dictionary.

There is also another rule of medical terminology to be recognized by the student. When more than one body part is used in the formation of a medical term, the individual word roots are joined together by using the combining form using the letter *-o-* to indicate the joining together of various body parts. For example if there is an inflammation of the stomach and intestines, this would be written as *gastro* and *enter* plus *itis*, gastroenteritis. In this example, the *-o-* signifies the joining together of two body
parts.

Medical Terminology often uses words created using prefixes and suffixes in Latin and Ancient Greek. In medicine, their meanings, and their etymology, are informed by the language of origin. Prefixes and suffixes, primarily in Greek -- but also in Latin, have a dropable -o-. Medical roots generally go together according to language: Greek prefixes go with Greek suffixes and Latin Prefixes with Latin Suffixes. Although it is technically considered acceptable to create hybrid words, it is strongly preferred not to mix different lingual roots.

Symonenko N. O., *EL adviser*

COMPUTER-AIDED DESIGN (CAD)

Victoria Zakharchenko, *IT-72*

Computer-aided design (CAD) is the use of computer technology for the design of objects, real or virtual. CAD often involves more than just shapes. The output of CAD must convey also symbolic information such as materials, processes, dimensions, and tolerances, according to application-specific conventions.

Current Computer-Aided Design software packages range from 2D vector-based drafting systems to 3D solid and surface modelers. Modern CAD packages can also frequently allow rotations in three dimensions, allowing viewing of a designed object from any desired angle, even from the inside looking out. Some CAD software is capable of dynamic mathematic modeling, in which case it may be marketed as CADD — computer-aided design and drafting.

CAD is mainly used for detailed engineering of 3D models and/or 2D drawings of physical components, but it is also used throughout the engineering process from conceptual design and layout of products, through strength and dynamic analysis of assemblies to definition of manufacturing methods of components. It can also be used to design objects.

CAD is an important industrial art extensively used in many applications, including automotive, shipbuilding, and aerospace industries, industrial and architectural design. CAD is used in the design of tools and machinery and in the drafting and design of all types of buildings, from small residential types (houses) to the largest commercial and industrial structures (hospitals and factories). CAD is also widely used to produce computer animation for special effects in movies, advertising and technical manuals. The modern ubiquity and power of computers means that even perfume bottles and shampoo dispensers are designed using techniques unheard of by engineers of the 1960s. Because of its enormous economic importance, CAD has been a major driving force for research in computational geometry, computer graphics (both hardware and software), and discrete differential geometry.

CAD has become an especially important technology within the scope of computer-aided technologies, with benefits such as lower product development costs and a greatly shortened design cycle. CAD enables designers to lay out and develop work on screen, print it out and save it for future editing, saving time on their drawings.

A.M. Dyadechko, *ELA*

GOOGLE LATITUDE

Ponomarenko A. S., *IT-71*

Our century is called the century changes and developments. The last 30-40 years have changed a lot: the ways of our communication and spending our free time, our work places, houses and our attitude to life in general. Today most of people have computers, washing machines and TV sets at home. These inventions make our life more comfortable and interesting. But with new inventions we risk to lose the most important thing that humanity possesses, that is our relations which include different people and which are the purport of our life. It happens because of a big amount of work and capabilities, which we are having now. Very often there is a great distances between the loved people. It is a big problem of nowadays and a lot of developers try to solve it.

There are a lot of ways to communicate for people who are not together. Earlier it was letters, the telegraph appeared later, then we started to use phones. Nowadays it is much easier to communicate with the help of the Internet. There are a lot special programmes with the help of which we can send letters. We can call somebody and even see him or her in real time, providing he or she has a web-camera on the computer. One of the latest achievements is called Google Latitude. It is the programme with the help of which you can do a lot of things to be closer to your beloved people. For example, you can see your friends' locations in a map or in a list; quickly contact your friend with a text message, instant message or phone call. If you want, you can share, set or hide your location, or sign out of google latitude. Also, with the help of this application, you can check and control those who can see your location, and at what level of detail.

This programme makes wider your abilities in communication. You can use Latitude to plan an important meeting, see that a loved one got home safely, or just stay in touch with friends. Latitude is a new feature for Google Maps for mobile and an iGoogle gadget. Such technologies make people closer to each other and give much time and a lot of opportunities to communicate with any person you want!

A. M. Dyadechko, *ELA*

A LOOK AT ALTERNATIVE THERAPIES

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The effectiveness of any kind of therapy depends upon a host of factors, including the type of disease and its severity and the patient's general state of health. In order to combat sickness, many doctors rely heavily on prescribing medicines that are developed by pharmaceutical companies.

Alternative medicine differs from conventional therapies in its approach to health. Practitioners of alternative therapies generally look at the whole person rather than at just a troubled organ or a disease state. Alternative methods usually work more slowly, gentler and less hazardous than orthodox methods. But there are cases when a disease may develop to the point where strong drugs- perhaps even surgery-are necessary to save life. Therefore, many doctors are now recognizing value of both orthodox and alternative therapies. A few examples of alternative therapies are presented.

Naturopathy is a system of treatment that emphasizes the use of natural agents or physical means to condition the body and allow it to heal itself.

Hydrotherapy uses water in various ways to treat ailments, and now various forms of such treatment are also recognized by modern medicine.

Herbal remedies are perhaps the most common form of alternative medicine. But only a relatively small number of plant species have been studied. A number of scientific studies show the usefulness of certain herbs in treating mild depression, age-related memory loss, and symptoms of benign prostate enlargement. There is the perception that these remedies are safer than synthetic drugs and have no side effects. But people with chronic illnesses, such as diabetes or high blood pressure, or those taking other medications should be careful about taking herbal remedies.

Chiropractic is among the most commonly used alternative treatments. Healing can be promoted when spinal misalignments are corrected. That is why chiropractors specialize in spinal manipulation to adjust the vertebrae of their patients. Significantly, there is a low incidence of side effect.

Dietary supplements, such as vitamins and minerals, have reportedly been helpful in preventing and treating a number of health problems, including anemia and osteoporosis-and even in preventing some birth defects. Government recommended daily doses of vitamins are relatively safe and useful. On the other hand, megadoses promoted for treatment of some illnesses may be hazardous to health. In life-threatening emergencies, however, it may be wiser to use more conventional medical treatments.

Ilyina G.S., *EL advisor*

THE USE OF BIOGAS ENERGY FROM MUNICIPAL SOLID WASTE LANDFILLS AS A STEP TO REMOVE THE GREENHOUSE EFFECT IN THE THIRD MILLENNIUM

Tolbatov S.V., *student, group SU-72*

In the last half century a trend to the enhancement of the greenhouse effect, global by nature, has been observed. This has led to a need for a solution to a problem of energy saving and environmental pollution decrease, which causes more efficient use of traditional energy resources, as well as the research of others, preferably renewable and inexpensive energy resources.

The main greenhouse gas of the atmosphere is water vapor, which traps 60% of heat radiation of the Earth. Approximately 40% is trapped by other gases, more than 20% is comprised of carbon dioxide.

This 40% includes biogas - gas derived from the methane fermentation of biomass. It consists of methane - 55-75%, CO2 25-45%, with a slight touch of H2 and H2S. After biogas undergoes refinement from CO2, we get biomethane. Biomethane is a complete analogue of natural gas, different only in origin. This type of fuel, as far as efficiency concerned, is in no way inferior to already well-known alternative solutions, such as biodiesel and ethanol.

Biomethane is produced virtually out of nothing. Municipal solid waste (MSW), the remains of living creatures, plants and even urban sewage can be used to produce biomethane. Being independent as an alternative source of world energy from the markets of fossil fuels, such as natural gas, coal, oil, and covering many other above enumerated advantages, it is of interest to European and American developers and politicians as regards the engines that use biomethane today.

Currently, two main ways of energy recycling of MSW are being intensively developed – burning and burying with biogas getting. Waste burning requires expensive refinement systems, therefore, landfill MSW dumping is more widespread and rational. The main advantages of the burial are simplicity, relatively low money and labor costs, more safety. Biogas released during the decomposition of municipal waste contains up to 60-75% of methane. 100-200 m3 of biogas can be formed during the decomposition of one ton of solid waste. Depending on the content of methane the lowest heat of the combustion of the landfill biogas is 18-24 MJ/m3 (about half of the heat capacity of natural gas).

It should be noted that if biogas is not extracted from landfills, the methane, produced during the interaction with oxygen, becomes a mixture, which sometimes leads to explosions and fires at landfills, which not only causes additional harm to the environment, but also constitutes danger to people.

In Ukraine, in urban areas the production of MSW is about 10 million tons annually. Over 90% of solid waste is transported to 655 landfills and dumps, 140 of them are suitable for the production and use of gas from a landfill. The potential of gas from landfills in Ukraine makes up about 400 million m3 per year, which can almost be compared_to the potential of the United States.

The utilization of biogas at landfills requires the landfill designed with engineering in mind (the creation of an insulating screen, gas wells, gas collection system, etc.).

The implementation of this project is based on an embedded computer system. It can be divided into two parts: Hardware and Software. The software part, namely, the SCADA (from Engl. Supervisory Control And Data Acquisition) system performs control functions of management process and provides a convenient man-machine interface. The SCADA System usually consists of the following subsystems: a human-machine interface, a supervisory (computer) system, remote terminal units, programmable logic controller and communication infrastructure. Hardware consists of a controller which directly controls executive mechanism and eBox-3310A-MSJK, which is optimally suitable for embedded computer systems with high requirements for reliability and compactness due to its properties.

Since the process of waste decomposition takes many decades, landfills can be regarded as a stable source of biogas. The emission of biogas from landfill to landfill, depending on the amount of mass, can range from several tens of liters / s (small landfills) to several m 3 / s (large landfills). The scale and stability of producing, location in urban areas and low cost of production make biogas one of the most promising sources of energy for local needs. At the same time the major task of environmental protection in urban areas such as providing the purity of air and prevention of groundwater pollution is solved.

Tolbatov V.A., *Scientific Supervisor,*
Mikhno S.V., *E L Advisor*

REASONS FOR AND AGAINST HUMAN CLONING

M. V. Ruban, *student M-71*

Recently, the controversy around human cloning has received a lot of news coverage; yet unsurprisingly, a clear and thorough examination of both sides has been lacking from the news media.

Basically, human cloning is the artificial process of making a genetic twin of a person. This means a person could literally become the parent of their own twin or the parent of anyone's twin. Human cloning has already become illegal or restricted in a variety of degrees in several countries, thus scientific research has been greatly reduced throughout the world. Furthermore, there has been quite a bit of legislation proposing to completely ban human cloning, and a large amount of legislation proposing to allow human cloning. In the article the list of the reasons for and against human cloning is available.

Reasons for allowing human cloning:

Infertility: Though if a couple is unable to conceive a child, then there are plenty of children in orphanages and foster care that could use a home and family. Adopting an orphan is much easier, cheaper, virtuous, and safer solution than trying to clone a human being, not including helping a child in need.

Genetic Illness: If a person chooses not to have a child that is genetically their own because of a risk with passing on a genetic illness, then again adoption is a better solution for the reasons mentioned previously.

Vanity: Bringing a child into the world should not about our vanity or an attempt at indirect immortality, because we are all unfairly biased for ourselves and our genes.

Super Humans: Selecting the most perfect genetic donor in someone's opinion, whether it is Albert Einstein, Michael Jordan, or some other above average person, changes the norms of society. Imagine a world with fewer variations of people who are either super-geniuses or super-athletes. On the other hand, advances in science and technology would grow at an even faster rate and more people would be healthier. This purpose can be judged as a sufficiently good enough reason for allowing human cloning; however, intentionally making a better race of people is very suspicious.

Curing Diseases: The growing scientific field known both as regenerative medicine and as therapeutic cloning, allows thousands of lives

to be saved from cloning human cells, tissues, and even organs. Cloning human body parts guarantees a genetic match to prevent organ rejections and also does not require immunosuppressive drugs. However, this research is still in its infancy and requires a lot more time, effort, and money before it matures into saving a lot more people. If human cloning is completely banned, then this type of research would be stopped and a lot of lives would be lost. Therefore, this type of human cloning should also be allowed.

Body Replacements: One of the stranger reasons for cloning humans is for a complete body replacement. This is only science fiction now, yet it may some day be a possibility in the distant future. It has been always unethical to kill another human being to save another person, so the cloned human body intentionally designed for replacement can be used, for example, for replacing an aged body with a new body.

Nevertheless, just because science gives humanity the ability to do something does not mean that humankind should do it. The reasons for doing any action must outweigh the reasons for not doing the action, therefore cloning a person should not be because of capability.

Reasons for banning human cloning:

Playing God: Mankind is already "playing" God when we cure diseases, fly airplanes, create nuclear energy, or use any advanced technology.

Religion: It is impossible for anyone to know the true intentions of God. There is an opinion that God in any religion has not directly banned human cloning. Though the Catholic Pope is against cloning, but some scientists find that at odds with being fruitful and multiplying.

S.V. Podolkova, *EL Adviser*

ENERGY MANAGEMENT

D. S. Volovik, *EM-71*

Formation and development of a civilisation of mankind inseparably linked with growth of consumption of energy resources. By existing expert estimations, the continuous, steady gain of world consumption of fuel and energy resources on the average on 1 - 2 % now is observed annually, and as increase in power dependence on the third countries which under forecasts, by 2020 will reach 70 % from the general consumption.

Fast growth of power consumption is caused, first of all, by constant increase in world production. Therefore by consideration of dynamics of power consumption its level is necessary for correlating to change of the basic indicator characterising a level of development of economic. Such indicator is the volume of a world national produce which is defined by the general market cost of all final goods and the services made in the world within year.

The analysis of experience of countries of Western Europe, the USA, Japan shows that without a state policy and energy savings programs, without creation of system of energy management to leave crisis it is impossible.

Throughout 15 years after oil crisis of 70th as a result energy politicians of an effective utilisation of energy in whom considerable resources of the industrial countries of the West have been involved, the volume of consumption of energy per capita practically stabilised, while the volume of a national product has grown almost on 30 %. Such results have been received thanks to the detailed technical and economic organisation of introduction of a power saving up policy. If energy consumption in these countries remained at level of 1973 power consumption by 1986 would grow on 24 % and would reach 900 million tons of conditional fuel in recalculation on oil.

Energy management it is optimisation of use and efficient control power resources. Technologies of energy savings become claimed in various industries, power, building, housing and communal services. The share of expenses for energy carriers in the cost price of the unit of production which are let out in Russia, reaches now 30 - 40 % that is considerable above, than, for example, in Japan or countries of Western Europe.

The tendency of the last 2 - 3 years on increase in cost of power resources lead to growth of this share. Thus the Russian enterprises spend in 3 - 3,5 times are more than energy resources on release of a unit of production, than similar manufactures in the Western Europe. Principal causes of such essential distinction are: Out-of-date infrastructure of energy supply, actual absence of the account and the control of energy consumption, problem at interaction with suppliers of the energy, historically developed scornful relation to a theme of economy of energy resources in a society.

System energy management of the enterprise it is a complex of management methods consumption of energy resources and introduction of decisions on maintenance of energy efficiency of the enterprise. The purposes of energy management are:

- Detailed elaboration of energy consumption and decrease in expenses for the energy resources used at the enterprise;
- Optimization of technological processes of manufacture from the point of view of energy efficiency;
- Increase of ecological compatibility of the enterprise;
- Increase of competitiveness of production at decrease in its energy consumption;
- Improvement of image of the enterprise and its development.

Energy management is the control system based on carrying out of typical measurements and checks, providing such work of the enterprise at which quantity of energy absolutely necessary for manufacture is consumed only.

At the same time energy management is a tool of operation of business which provides the constant research, allowing to possess knowledge of distribution and consumption levels of energy resources at the enterprise, and also about optimum use of energy resources both for manufacture, and for non-productive needs, for example for a heat supply of buildings and constructions.

By introduction of power management it is possible to receive more detailed picture of consumption of energy, to spend comparison of consumption levels of the given enterprise or an economy with energy consumption at similar other enterprises, to execute more exact estimation of power saving up actions or projects on economy of the energy, planned for introduction at the given enterprise.

S.G.Zolotova, *ELA*

LARGE HADRON COLLIDER

D.A. Dedik, *PM-71*

The Large Hadron Collider (LHC) is the world's largest and highest-energy particle accelerator. It is a gigantic scientific instrument near Geneva, where it spans the border between Switzerland and France about 100 m underground. It is a particle accelerator used by physicists to study the smallest known particles – the fundamental building blocks of all things. It will revolutionize our understanding, from the minuscule world deep within atoms to the vastness of the Universe.

Two beams of subatomic particles called 'hadrons' – either protons or lead ions –travel in opposite directions inside the circular accelerator, gaining energy with every lap. Physicists use the LHC to recreate the conditions just after the Big Bang, by colliding the two beams head-on at very high energy. Teams of physicists from around the world will analyse the particles created in the collisions using special detectors in a number of experiments dedicated to the LHC.

The Large Hadron Collider that was built by the European Organization for Nuclear Research (CERN) has the intention of testing various predictions of high-energy physics, including the existence of the hypothesized Higgs boson and of the large family of new particles predicted by super symmetry.

The LHC accelerates bunches of protons to the highest energies ever generated by a machine, colliding them head-on 30 million times a second, with each collision spewing out thousands of particles at nearly the speed of light.

Physicists hope that the LHC will help answer the most fundamental questions in physics, questions concerning the basic laws governing the interactions and forces among the elementary objects, the deep structure of space and time, especially regarding the intersection of quantum mechanics and general relativity, where current theories and knowledge are unclear or break down altogether.

The collider is contained in a circular tunnel, with a circumference of 27 kilometers (17 mi), at a depth ranging from 50 to 175 metres (160 to 570 ft) underground.

The six experiments at the LHC are all run by international collaborations, bringing together scientists from institutes all over the world. Each experiment is distinct, characterised by its unique particle detector.

The first beam was circulated through the collider on the morning of 10 September 2008.
The first p-p collisions at energies higher than Fermi lab's Tevatron p-pbar collisions have been published on arXiv, yielding greater-than-predicted charged hadron production.
Data produced by LHC as well as LHC-related simulation will produce a total data output of 15 petabytes per year.
The LHC Computing Grid is being constructed to handle the massive amounts of data produced.
Thousands of scientists around the world want to access and analyse this data, so CERN is collaborating with institutions in 34 different countries to operate a distributed computing and data storage infrastructure: the Worldwide LHC Computing Grid (WLCG).
The distributed computing project LHC@home was started to support the construction and calibration of the LHC.
The size of the LHC constitutes an exceptional engineering challenge with unique operational issues on account of the huge energy stored in the magnets and the beams.
The Large Hadron Collider has gained considerable attention from outside the scientific community and its progress is followed by most popular science media.
The LHC has sparked the imaginations of authors of works of fiction, such as novels, TV series, and video games, although a description of what it is, how it works, and projected outcomes of the experiments are often only vaguely accurate, occasionally causing concern among the general public.
There are many theories as to what will result from these collisions, but what's for sure is that a brave new world of physics will emerge from the new accelerator, as knowledge in particle physics goes on to describe the workings of the Universe. For decades, the Standard Model of particle physics has served physicists well as a means of understanding the fundamental laws of Nature, but it does not tell the whole story. Only experimental data using the higher energies reached by the LHC can push knowledge forward, challenging those who seek confirmation of established knowledge, and those who dare to dream beyond the paradigm.

A.M.Dyadechko, *ELA*

OFFERING MORE PRODUCTS

Yana Timokhina, *MK-71*

Introducing new products is a strong way to expand your share of a particular market — eventually. If you sold only 10 products last year, and you offer 20 this year, you just may find that your sales double, too. Of course, it's quite likely that the new products won't sell as well as your old ones at first, but if you persist, you should be able to ramp up their sales over the course of a few years. When looking to offer more products, you have two options:

1)add new products simply by reselling or distributing products that complement your current line and meet some need of your current customer base; 2) innovate to create one or more new products that nobody else sells.

Either way, you have the two-fold challenge of informing customers that you have something new to offer and convincing them to take a look. That's why being especially visible and persistent in the first few months of your campaign to open a new market is so crucial. A concentrated blast of marketing communications is the key to opening a new market successfully.Create visibility by showing people your brand or product often and in a consistent, professional manner. You can do this through advertising, direct mail, e-mail blasts, paid placement of your Web address for key-term searches, signage (such as billboards and transit ads), sales calls, or presence at conferences and trade shows. Plan to use at least three of these or similar methods in the beginning of your campaign to open a new market .Risks and costs increase when you experiment with new products — defined as anything you're not accustomed to making and marketing. Consequently, you should discount your first year's sales projections for a new market by some factor to reflect the degree of risk. A good general rule is to cut back the sales projections by 20 to 50 percent, depending on your judgment of how new and risky the product is to you and your team. It may also cost you double the time and money to make each sale when entering a new market, because your new prospects won't be familiar with your brand, and you likely won't have a well-defined marketing formula at the start. Budget accordingly.

Dyadechko A.M., *ELA*

PM-PREPAREDNESS OPERATIONS AND USE OF MATERIAL MOTIVATION OF STAFF INVOLVED IN PROJECT

Denysenko Tatiana, Merzlikina Julia, Konzevich Valery

The rapid development of information technology and software has created a demand in the recording features of this area in project management (PM) and created a need for the learning process for the preparation of specialists in information technology design, disciplinary, management-related IT projects. Such projects are aimed at automating business processes throughout the enterprise and their distinguishing feature is the need for full or partial re-engineering of the organizational structure of the company.

While preparing the work program of the discipline, it was determined that there is a need to examine the rules of effective work organization in a team project. The analysis of literary and the Internet sources showed that the introduction of PM ideology in enterprises can be structured by PM-ready companies by providing three levels of commitment: leadership, organizational structure and personnel.

The concept of PM-readiness leader we offer is considered as its ability either to learn the basics of most project management, or use the services of certified professionals. Then the head of the company or the same visiting scholars are also engaged in optimizing the organizational structure of the enterprise. The basic principle of constructing the project structure is the concept of the project, defined as any purposeful change in the system. The restructuring is considered as a process of institutional, structural and financial changes that are necessary at the enterprise to realize the goal, which means bringing the organizational structure according to the priorities of innovation development and technology foresight; developing a systematic mechanism of interaction between state and corporate sector of the economy.

Speaking of the PM-readiness of personnel, we mean the attachment of time and physical resources. Top managers have to be ready to financial costs.

PM-readiness of personnel also implies the willingness of the project team which is a fundamental element of success of the project. Therefore, the creation and selection of staff should be paid particular attention to, as to the process of the team formation the competence and knowledge of each project participant should be taken into account for correctly distribution of jobs and responsibilities in the project.

The concept of the project team includes the planning, formation and team building, team development, transformation or dissolution of command.

When we have implemented the proposed levels of PM-readiness of the enterprise we can assume that it is possible to prepare certified managers of their own staff. They will be engaged in project management of the enterprise which further saves on the invited experts.

When implemented all proposed levels of PM-readiness at the enterprise, you can raise for certified managers of their own staff, who will be engaged in project management of the enterprise, saving further on the invited experts.

Project organization of work differs from other methods of organization. Methods of motivation of staff applicable throughout the world: 1. wages. It is effective but the most expensive way of motivation. The disadvantage of this method is the effect of addiction; 2. award. In project management effective prize can only be called when it is issued on the basis of concrete work. However, sometimes in the form of premium is considered part of wages using it as a tool of manipulation; 3. payments to assess the types of work. For example, the factors are the knowledge and skills, responsibility, decision complexity, lobbying; 4. social package. Effect of savings is achieved through the acquisition of various benefits for employees on corporate costs. Also, it could be economically interesting social package, providing financial compensation in the course of any event; 5. bonus. This is a remuneration as a percentage of profits. It is used to promote project management; 6. contracts. The main plus of this type of payment is that the person knows the essence of work and agrees on proposed conditions; 7. encourage participation in the property. For example, premiums in the form of shares, loans or savings system for the acquisition of shares.

The existing project experience suggests the conclusion that a crucial element of a successful project is a good team. Team building is very laborious and responsible process which is guaranty for the successful implementation of the project's success.

We believe that the term PM-readiness we proposed has already gained the right to exist and its study will allow to identify three levels of PM-readiness of the enterprise: the willingness of leadership, organizational structure and personnel. It will also help to determine the extent of the RM - readiness of the enterprise more accurately. Further refinement of these levels with the use of CASE-tools will determine the weighty value of these levels and their components.

Podolkova S.V., *Language supervise*

THE IMPLEMENTATION OF NON-MATERIAL MOTIVATION IN COMMAND OF PROJECT MANAGEMENT

Merzlikina J.I., Denisenko T.L., Konzevich V.G.

Previously, when we considered PM-readiness of the enterprise, it has been allocated 3 of its components: readiness of leader, readiness of enterprise organizational structure and readiness of personnel. Speaking about the preparation of the organizational structure of enterprises to adopt project management (PM) ideologies, there exists a need of reengineering, which entails changes in the conditions and motivation of staff.

Since every project requires the financial costs and its introduction is associated with a high degree of risk and only 20% of the projects are implemented successfully, the development team should consist of the best experts, selected according to the same principles as for work. Therefore the project is stressful for a person the first time engaged in such work and for experienced staff studying a new project. A person resists not anything new in his/her life, but its effects: the uncertainty in the results, fear of the future.

There are two types of simulated responses to the changes: positive and negative. Both types attest to the fact that a person strives to achieve control over the circumstances and to avoid the uncertainty. If a person has a positive response we should use the non-material motivation (hereinafter N-M.M.) between the stages of "informed pessimism", "hopeful realism" and "informed optimism". In the case of a negative perception the implementation of the N-M.M. methods is needed at all eight stages. Purpose of N-M.M. is simple: to achieve the greater interest of employees in their work which affects its effectiveness as a member of the project team. It can also be formulated as the establishment of the commitment of staff which has three components: a belief in the need of project, a desire to exert maximum efforts for the project and loyalty to the project and the desire to remain a member of this team.

Initially the ratio of tangible and intangible motivations at different stages of the staff will be different. According to research company «Kelly Services», an increase in wages as a motivation is enough only for 3 months. So managing project team must constantly monitor what is happening with the motivation of team members under the influence of time and learn to measure expectations.

In addition presence of subjective factors in determining the motivation and mechanisms for the promotion in serious companies is unacceptable. The underlying principle should be the maximum objectivity and transparency. The criterion for evaluation of staff should be initially identified and managing project team should inform staff about this criterion. If mechanisms of promotion is being continuously varied without any reason, it would disrupt the work of staff.

On the basis of this analysis we can say that financial motivation is no more effective but is more universal while the maximum benefit can be achieved by selecting N-M.M. as the key to each employee. It should be implemented by team leader and project management.

As a result of the system research lifecycle of the project team, it was decided that the project team can be viewed as a dynamic system with its requirements one of which is to conduct a phased decomposition.

It is proposed to allocate 5 stages of the implementation of the non-material motivation:

• Stage 1 - Preparatory, which includes support of the project beginning and the creation of commitment;

• Stage 2 - Definition of motivational policies (mentality and personality characteristics of staff) and the choice of methods of motivation;

• Stage 3 - testing - monitoring employees' motivation in the process of working on the project;

• Stage 4 - eliminating demotivators and adjustment methods of motivation;

• Stage 5 - final - the establishment of confidence in the future at the end of the project. Attention is drawn to the fact that stage 2, 3 and 4 may form a loop that terminates simultaneously with the completion of the project.

In the future we plan to consider the possibility of selected phases to implement the non-material motivation for the highest level.

Podolkova S.V., *Language superviser*

THINGS, INVENTED OR DISCOVERED ACCIDENTALLY

S.P.Baranov, *student, group TM – 71*

So many of the things that we use often today were discovered or invented completely by accident. This is true of many everyday items, including the following surprise inventions.

1. Fireworks.

Fireworks were originated in China some 2,000 years ago, but the legend also says that they were accidentally invented by a cook who mixed together charcoal, sulfur and saltpeter – all items commonly found in kitchen in those days. The mixture burned and when compressed in a bamboo tube, it exploded. There's no record of whether it was the cook's last day on the job.

2. Artificial Sweetener.

Saccharin, the oldest artificial sweetener, was accidentally discovered in 1879 by researcher Constantine Fahlberg, who was working at johns Hopkins University. Dahlberg's discovery came after he forgot to wash his hands before lunch. He had spilled a chemical on his hands and it, in turn, caused the bread he ate to taste unusually sweet. In 1880, the discovery was published, and in 1884, Fahlberg obtained a patent and began mass-production of saccharin.

3. Summertime.

Have you ever wondered why you have to set your clock ahead in March? It is called Daylight Saving Time or summertime. Daylight Saving Time began as a

joke by Benjamin Franklin, who proposed waking up people earlier on bright summer mornings so they might work more during the day and thus save candles. It was introduced in the U.K. in 1917 and then spread around the world.

4. Penicillin.

By 1928, Alexander Fleming, the Scottish scientist was investigating the properties of staphylococcus. He was already well known by then due his earlier works, and known to be a brilliant but careless researcher because his lab was usually in chaos. Returning from holiday on September 3, 1928, Fleming began to sort through petri dishes containing colonies of staphylococcus and other bacteria. He noticed something unusual on one dish. He noticed that a blue-green mold had infected one of his petri dishes and killed the staphylococcus bacteria growing in it.

5. Microwave Ovens.

The microwave oven is now a standard in appliance in most households, but it has only begun since the late 1940s. In 1945 Percy Spencer was experimenting with a new vacuum tube called a magnetron. And while doing research he was intrigued when the candy bar in his pocket to melt, so he tried another experiment with popcorn. When it began to pop, Spencer immediately saw the potential in this revolutionary process.

In 1947, Raytheon Corporation built the first microwave oven, which weighed 750 pounds and cost $5,000. When it first became available for home use in the early 1950s, its big size and expensive price made it unpopular with customers. But in 1967, a much more popular 100-volt version was introduced at a price $495.

6. Potato Chips.

The first salty snack, which was like a potato chip, was created by the chef George Crum in 1853 at Moon's Lake House near Saratoga Spring, New York. The customer sent his fried potatoes back, complaining that they were soggy and not crunchy enough, Crum sliced the potatoes as thin as possible, fried them in hot oil, then doused them with salt. The customer loved them and "Saratoga Chips" quickly became a popular item at the lodge and throughout New England.

7. LSD.

Swiss chemist Albert Hofmann took the world's first acid hit in 1943, when he touched a smidge of lysergic acid diethylamide, a chemical he had researched for inducing childbirth. He later tried a bigger dose and made another discovery: the bad trip.

8. X-Rays.

Several 19th-century scientists toyed with the penetrating rays emitted when electrons strike a metal target. But the x-ray wasn't discovered until 1895, when German egghead Wilhelm Rontgen tried sticking various objects in front of the radiation - and saw the bones of his hand projected on a wall.

I.A.Bashlak, *EL. Adviser*

THE MARKETING CONCEPT

Zhurbenko A.S., *Mk-71*

The marketing concept is a management orientation that holds that the key task of the organization is to determine the needs and wants of target markets and to adapt the organization to delivering the desired satisfactions more effectively and efficiently than its competitors.

In short, the marketing concept says "find wants and fill them" rather than "create products and sell them." This orientation is reflected in various contemporary ads: "Have it your way" (Burger King); "You're the boss" (United Airlines); and "No dissatisfied customers" (Ford).

The marketing concept replaces and reverses the logic of the selling concept. The selling concept starts with the firm's existing products and considers the task as one of using selling and promotion to stimulate a profitable volume of sales. The marketing concept starts with the firm's target customers and their needs and wants; it plans a coordinated set of products and programs to serve their needs and wants; and it derives profits through creating customer satisfaction

Among the prime practitioners of the marketing concept is McDonald's Corporation, the fast-food hamburger retailer.

Before McDonald's, Americans could get hamburgers in restaurants or diners, but not without problems. In many places, the hamburgers were poor in quality, service was slow, decor was poor, help was uneven, conditions were unclean, and the atmosphere noisy. McDonald's was formulated as an alternative, where the customer could walk into a spotlessly clean outlet, be greeted by a friendly and efficient order-taker, receive a good-tasting hamburger less than a minute after placing the order, with the chance to eat it there or take it out. There were no jukeboxes or telephones to create a teenage hangout, and in fact, McDonald's became a family affair, particularly appealing to the children.

In addition, McDonald's management knows how to efficiently design and operate a complex service operation.

In today's competitive world putting the customer at the heart of the operation is strategically important. Whilst some organizations in certain industries may follow anything other then the market orientation concept, those that follow the market orientation concept have a greater chance of being successful.

Dyadechko A.M., *ELA*

MARKETING COMMUNICATIONS

Zholudeva A.N., *MK-71*

Marketing communications is defined by actions a firm takes to communicate with end-users, consumers and external parties. A simple definition of marketing communication is "the means by which a supplier of goods, services, values and/or ideas represent themselves to their target audience with the goal of stimulating dialog leading to better commercial or other relationships".

The process in which the differing modes of marketing communications are complemented and synthesised is called integrated marketing communications (IMC). It is used in order to create a single and coherent marketing communications process. As an example, a firm can advertise the existence of a sales promotion, via a newspaper, magazine, TV, radio, etc. Several different subsets of marketing communications can be distinguished.

1. Personal selling

Oral presentation given by a salesperson who approaches individuals or a group of potential customers. Personal selling is often used in business to business settings, in addition to business to consumer scenarios in which a personal and face to face medium is required for the communication of the product. Personal selling involves the following points:

- Live, interactive relationship
- Personal interest
- Attention and response
- Interesting presentation
- Clear and thorough.

2. Sales promotion

Short-term incentives to encourage buying of products: Instant appeal, anxiety to sell.

An example is coupons or a sale. People are given an incentive to buy, but this does not build customer loyalty or encourage future repeat buys. A major drawback of sales promotion is that it is easily copied by competition. It cannot be used as a sustainable source of differentiation.

Sales promotions are typically used to heighten sales/revenue, especially if a firm holds dead/excess stock, or if the market for a product has matured.

3. Public relations

Public Relations (or PR, as an acronym) is the use of media tools by a firm in order to promote goodwill from an organization to a target market segment, or other consumers of a firm's good/service. PR stems from the fact that a firm cannot seek to antagonize or inflame its market base, due to incurring a lessened demand for its good/service. Organizations undertake PR in order to assure consumers, and to forestall negative perceptions towards it. PR can span:

- Interviews
- Speeches/Presentations
- Corporate literature, such as financial statements, brochures, etc.

4. Publicity

Publicity involves attaining space in media, without having to pay directly for such coverage. As an example, an organization may have the launch of a new product covered by a newspaper or TV news segment. This benefits the firm in question since it is making consumers aware of its product, without necessarily paying a newspaper or television station to cover the event.

5. Advertising

Advertising occurs when a firm directly pays a media channel to publicize its product. Common examples of this include TV and radio adverts, billboards, branding, sponsorship, etc.

6. Direct marketing

Direct marketing is a process where a firm uses communication channels to attain and retain consumers for its product. It is a comparatively new mode of marketing communications (when compared with forms such as advertising, sales promotions, personal selling, etc.) Direct marketing involves carefully seeking out persons within a target market, and communicating to them about the nature of a product.

Marketing communications can be seen as a part of the promotional mix, as the exact nature of how to apply marketing communications depends on the nature of the product in question.

Dyadechko A.M., *ELA*

NANOFOOD

A. Holovchenko, *group FE-71*

The word "nanotechnology" is penetrating into our lives. The scientists' new invention may seem to be approaching, however, it is not exactly so. Nanostructures have always existed, but it has been impossible to study them until recent times. For example, examining mayonnaise with a strong microscope, one can notice lipids placed in capsules that are few nanometers in size. A new leap of progress has reduced the distance between technology and mankind.

Nanotechnologies can be used in the production, storage and packaging of food and products. They let us "collect" things out of atoms, and food is not an exception. Scientists assume in the future the possibility of integrating nanostructures into products without the slightest concern about their behavior after getting into the human body. So far this problem involves much discussion since the artificial nanostructures have not been studied thoroughly.

Food industry presupposes two uses of nanotechnology. The first one - is the design of food products, that can significantly reduce the costs (time and labor) spent on growing vegetables, fruit etc. The main problem of this approach is not excellent studying of nanostructures and their behavior in the body. Now the world community carries on a struggle against genetically modified organisms (GMO), which have appeared to have a pernicious influence on health. Scientists fear that introduction of nanotechnologies in food production can lead to similar consequences. The second one is the usage of nanoparticles in the area adjacent to food industry. For example, it will be possible to specify the date of manufacturing of the product with the help of an implanted nano-sensor. Expiration rays straight through the packaging, it will be impossible to replace it. Also there is a model of an interactive drink, the main idea of it is that a person buys the same product (drink), and each time changes the taste, color and flavor on his own volition, managing nanostructures in it.

Nanoparticles that come with products can be used to deliver useful substances into the body. Thus, the products will become more useful and, in some ways, therapeutic.

S.V. Mikhno, *EL Advisor*

SECURITY PITFALLS IN CRYPTOGRAPHY

V. V. Kontchevich, *PM-71*

Today all people are interested in safety of the data and reliability of programs, but the cryptography doesn't guarantee absolute reliability – it is possible to crack almost any algorithm.

But reality isn't that simple. Longer keys don't always mean more security of cryptographic product.

Hackers simply exploit errors in design, errors in implementation, and errors in installation.

A cryptographic system can only be as strong as the encryption algorithms, digital signature algorithms, one-way hash functions, and message authentication codes it relies on. Break any of them, and you've broken the system.

Random-number generators are another place where cryptographic systems often break. Good random-number generators are hard to design, because their security often depends on the particulars of the hardware and software. Specific random-number generators may be secure for one purpose but insecure for another; generalizing security analyses is dangerous.

Many systems fail because of mistakes in implementation. Some systems don't ensure that plaintext is destroyed after it's encrypted. For example, one product used a special window for password input. The password remained in the window's memory even after it was closed.

It's vital to secure all possible ways to learn a key, not just the most obvious ones.

Electronic commerce systems often make implementation trade-offs to enhance usability. It too badly influences safety.

Some systems can be broken through replay attacks: reusing old messages or parts of old messages, to fool various parties.

Systems that allow old keys to be recovered in an emergency provide another area to attack. Good cryptographic systems are designed so that the keys exist for as short a period of time as possible.

Many systems break because they rely on user-generated passwords. Left to themselves, people don't choose strong passwords. If they're forced to use strong passwords, they can't remember them. Some systems, particularly commerce systems, rely on tamper-resistant hardware for security: smart cards, electronic wallets, dongles, etc. These systems may assume public terminals never fall into the wrong hands.

Another research has looked at fault analysis: deliberately introducing faults into cryptographic processors in order to determine the secret keys. The effects of this attack can be devastating.

Many interesting attacks are against the underlying trust model of the system: who or what in the system is trusted, in what way, and to what extent. For example, some commerce systems can be broken by a merchant and a customer colluding, or by two different customers colluding.

Many software systems make poor trust assumptions about the computers they run on; they assume the desktop is secure. These programs can often be broken by Trojan horse software. Systems working across computer networks have to worry about security flaws resulting from the network protocols.

Even when a system is secure if used properly, its users can subvert its security by accident--especially if the system isn't designed very well. The classic example of this is the user who gives his password to his co-workers so they can fix some problem when he's out of the office.

Strong systems are designed to keep small security breaks from becoming big ones. In a multi-user system, knowing one person's secrets shouldn't compromise everyone else's. Many systems have a "default to insecure mode." Other systems have no ability to recover from disaster. If the security breaks, there's no way to fix it. Good system design considers what will happen when an attack occurs, and works out ways to contain the damage and recover from the attack.

Sometimes, products even get the cryptography wrong. There are some implementations that repeat "unique" random values, digital signature algorithms that don't properly verify parameters, hash functions altered to defeat the very properties they're being used for.

Once the attack is detected, the system needs to recover: generate and promulgate a new key pair, update the protocol and invalidate the old one, remove an untrusted node from the system, etc.

All it means the following. A good security product must defend against every possible attack, even attacks that haven't been invented yet. Defense should never be that narrow. One of the fundamental design principles is that sooner or later, every system will be successfully attacked, probably in a completely unexpected way and with unexpected consequences. It is important to be able to detect such an attack, and then to contain the attack to ensure it does minimal damage.

A. N. Dyadechko, *ELA*

WHAT IS GLOBAL WARMING?

Yarmak A. V., *gr. EP-81*

While some would call global warming a theory, others would call it a proven set of facts. Opinions differ vehemently. Let us consider global warming to be both a premise that the environment of the world as we know it is slowly, but very surely increasing in overall air and water temperature, and a promise that if whatever is causing this trend is not interrupted or challenged life on earth will dynamically be affected.

The prevailing counter opinion is that all that is presently perceived to be global warming is simply the result of a normal climactic swing in the direction of increased temperature. Many proponents of this global warming ideology have definitive social and financial interests in these claims.

Global warming and climate change are aspects of our environment that cannot be easily or quickly discounted. Many factions still strongly feel that the changes our Earth is seeing are the result of a natural climatic adjustment. Regardless of one's perspective the effects of global warming are a quantifiable set of environmental results that are in addition to any normal changes in climate. That is why the effects of global warming have catastrophic potential. Global warming may well be the straw that breaks the camel's back. It could turn out to be the difference between a category three hurricane and a category four. Global warming as caused by greenhouse gas emissions can lead us to a definite imbalance of nature.

The premise of global warming as an issue of debate is that industrial growth coupled with non-structured methods we as humans use to sustain ourselves has created a situation where our planet is getting progressively hotter. We have seemingly negatively effected our environment by a cycle of harmful processes that now seem to be feeding upon themselves to exponentially increase the damage to our ecosystem.

Zolotova S. G., *ELA*

CRIMINAL AND CIVIL LAW IN THE USA

Eugenia Kusyl, *student Um-81*

Law is a system of rules, usually enforced through a set of institutions. It shapes politics, economics and society in numerous ways. Law determines our rights and delineates our wrongs. Knowledge of the types of people who commit crime is generally based on studies of those who have been detected and prosecuted. As generally known it has always been motivation of committing crimes. A perfect crime with the different degree of probability generates one of two results: 1) the successful of violator or 2) punishment of violator. There have always exited a lot of reasons of committing crimes: an economic crisis, unemployment, price increase on commodities, and other. There are types of law: criminal and civil.

Most countries make a rather clear distinction between them, so that an English criminal court may force a defendant to pay a fine as punishment for the crime and he or she sometimes may sometimes has to pay the legal costs of the prosecution. But the victim of the crime pursues his claim for compensation in a civil not a criminal action.

Criminal and civil procedure are different in the USA. Despite the fact that some judicial systems, particularly English, allow an individual to undertake prosecution against another person, criminal actions are nearly always started by the state in the USA. On the other hand civil actions are usually started by individuals. One of the most fundamental distinctions between civil and criminal law a guilty defendant is punished by either incarceration into jail or fine paid to the government or in exceptional cases, by death penalty. Although some systems, including the English, allow a private citizen to bring a criminal prosecution against another citizen, criminal actions are nearly always started by the state. Civil actions, on the other hand, are usually started by individuals.

In contrast, a defendant in civil litigation is never incarcerated and never executed. In general, a loser in civil litigation only reimburses the plaintiff for losses caused by the defendant's behavior. The notion that the threat of punishment will deter criminal conduct is based on the principle that human beings are rational. In practice, criminals are either impulsive that they will not be caught by the police.

Evidence criminating presented to confident criminal trial is not necessarily admissible as the evidence to a civil court in the same case. For example, the victim of a road accident does not directly benefit if the driver who injured him or her is found guilty of the crime of careless driving. A

person still has to prove his case in a civil action. In fact he may be able to prove his civil case even when the driver is found not guilty in the criminal court.

Once the plaintiff has shown that the defendant is liable, the main argument in a civil court is about the amount of money, or damages, which the defendant should pay the plaintiff.

So, criminal or penal law involves prosecution by the government of a person for an act that has been classified as a crime. It is the body of statutory and common law that deals with crime and the legal punishment of criminal offenses. There are four theories of criminal justice: punishment, deterrence, incapacitation, and rehabilitation. It is believed that by imposing sanctions for the crime, society can achieve justice and a peaceable social order.

That's why, civil procedure is the body of law that sets out the rules and standards that courts follow when adjudicating civil lawsuits (as opposed to procedures in criminal law matters). These rules give explanations how a lawsuit or case may be commenced, what kind of service of process (if any) is required, the types of pleadings or statements of case, motions or applications, and orders allowed in civil cases, the timing and manner of depositions and discovery or disclosure, the conduct of trials, the process for judgment, various available remedies, and how the courts and clerks must carry out their functions.

The statement "ignorance of the law has no excuse" is written in the legal doctrine and it interprets that a person committed crime without knowing about the punishment, will be by all means subjected to the criminal responsibility. If a defendant were allowed to escape legal responsibility for his acts, merely by saying "I didn't know it was illegal", the system of using law to regulate human conduct would collapse. So the doctrine is a practical necessity. This doctrine still has vitality and validity today.

So, criminal and civil law is needed in every state, because they served to enforce the law and defend the interests of the United States according to the law; to ensure public safety against threats foreign and domestic; to provide federal leadership in preventing and controlling crime; to seek just punishment for those guilty of unlawful behavior; and to ensure fair and impartial administration of justice for all Americans. This is a fair and just way to deter crime and offset the damage created by it. It does not have the potential of unjustly taking the life of another since time would be provided for proof of innocence. Their present penal system does not work. It is a huge and unjust cost to society. To many it neither serves as punishment nor deterrent. About three quarters of all U.S. prison space has been built in the last decade.

V.Y. Pronyayeva, *EL Adviser*

INTERNATIONAL TRADE

T. V. Rudenko, *E-81*

International trade is exchange of capital, goods, and services across international borders or territories. It refers to exports of goods and services by a firm to a foreign-based buyer (importer). In most countries, it represents a significant share of gross domestic product.

International trade is in principle not different from domestic trade as the motivation and the behavior of parties involved in a trade do not change fundamentally regardless of whether trade is across a border or not. The main difference is that international trade is typically more costly than domestic trade. The reason is that a border typically imposes additional costs such as tariffs, time costs due to border delays and costs associated with country differences such as language, the legal system or culture.

International trade is also a branch of economics, which, together with international finance, forms the larger branch of international economics.

Several different models have been proposed to predict patterns of trade and to analyze the effects of trade policies such as tariffs:

1. The Ricardian model focuses on comparative advantage and is perhaps the most important concept in international trade theory. In a Ricardian model, countries specialize in producing what they produce best. Unlike other models, the Ricardian framework predicts that countries will fully specialize instead of producing a broad array of goods.

Also, the Ricardian model does not directly consider factor endowments, such as the relative amounts of labor and capital within a country. The main merit of Ricardian model is that it assumes technology differences between countries.

The Ricardian model makes the following assumptions:

- Labor is the only primary input to production.
- Constant Marginal Product of Labor.
- Limited amount of labor in the economy.
- Labor is perfectly mobile among sectors but not internationally.
- Perfect competition.

The Ricardian model measures in the short-run, therefore technology differs internationally. This supports the fact that countries follow their comparative advantage and allows for specialization.

2. The Heckscher-Ohlin theory stresses that countries should produce and export goods that require resources that are abundant and import goods that require resources in short supply. This theory differs from the theories of comparative advantage and absolute advantage since these theories focus on

the productivity of the production process for a particular good. On the contrary, the Heckscher-Ohlin theory states that a country should specialise production and export using the factors that are most abundant, and thus the cheapest. Not to produce, as earlier theories stated, the goods it produces most efficiently.

The theory argues that the pattern of international trade is determined by differences in factor endowments. It predicts that countries will export those goods that make intensive use of locally abundant factors and will import goods that make intensive use of factors that are locally scarce.

The Heckscher-Ohlin model makes the following core assumptions:

- Labor and capital flow freely between sectors.
- The production of shoes is labor intensive and computers - is capital intensive.
- The amount of labor and capital in two countries differ.
- Free trade.
- Technology is the same across countries.
- Tastes are the same.

3. In specific factors model, labor mobility between industries is possible while capital is immobile between industries in the short-run. Thus, this model can be interpreted as a 'short run' version of the Heckscher-Ohlin model. The theory suggests that if there is an increase in the price of a good, the owners of the factor of production specific to that good will profit in real terms.

4. The Gravity model of trade presents a more empirical analysis of trading patterns rather than the more theoretical models. The gravity model, in its basic form, predicts trade based on the distance between countries and the interaction of the countries' economic sizes. The model has been proven to be empirically strong through econometric analysis.

Companies doing business across international borders face many of the same risks as would normally be evident in strictly domestic transactions.

International trade also faces the risk of unfavorable exchange rate movements. International trade is a major source of economic revenue for any nation. Without international trade, nations would be limited to the goods and services produced within their own borders.

T. M. Burenko, *ELA*

THE EFFECTS OF THE USE OF STEM CELLS IN VARIOUS DISEASES

Antsibor I., *ЛС – 805*

Stem cells today heard everywhere. They try to cure various diseases, and, according to press reports, they work miracles. "Able to turn into any tissue, they found" weaknesses", restoring the fabric of vessels, glands, muscles, nerves or wrinkles disappear, there is a burst of energy ..." - read the advertising press releases. In short, in modern medicine - a rational, analytical, divided into many branches, specialties, he returned the ancient image of a panacea. Even wonder why the stem cells have not cured all the world of disease and not forced out of circulation all the old drugs. What actually are these wondercells and what they can do?

AIM: the investigation was studing the significance of learning of stem cells. At the very beginning of XX century it was known that mature blood cells are unable to breed, and the most numerous of them -red blood cells - even lose their nucleus together with all the chromosomal apparatus. This, of course, an extreme case, but in general a waiver of the production of a similar characteristic of most specialized cells in the human body - muscle, glandular, nervous. But if the neurons, or, say, the egg can live for decades, the red blood cells - about one hundred days. However, less than their while not becoming. Where did they come from?

METHODS AND MATERIALS: In the 1900's well-known histologist, Professor of Military Medical Academy, St. Petersburg, Alexander Maximov investigated the development of blood cells and created a fairly consistent theory. According to her in the red bone marrow cells live special, the only thing that - to share. After each division, as it should be, obtained by two identical young cells. But in one of them starts morphological changes, which resulted in it becoming one of the blood cells. The other, grown up to the desired size, divided again - and again one of its two subsidiaries pursue careers blood cells, while the other took the "mother". One can imagine that the dividing cells as would constitute a barrel, from which in each cycle to the side branches diverge - cells acquire the specialization. Apparently, therefore, Maksimov, stating in 1909, his discovery at a meeting of hematology society in Leipzig, called the "mother of all cells, blood cells Stamzelle, ie the stem.

In fact, the existence of stem cells was "opening at the tip of the pen": neither Maksimov, nor anyone else at that time did not see them, rather, could not distinguish among the numerous and diverse cell "population" of

bone marrow. Later, the theory was direct evidence, but for a long time it was thought that such cells are specific to the hematopoietic tissue, by which blood is continuously updated. But the constant change of cellular composition - is a necessary condition for the existence of any epithelium, the lining of the nasopharynx to the upper skin layer (which is why the tattoo have to drive under it - or even the most resistant paint in a few days come alive along with his "canvas"). The basis of this continuous renewal is the same mechanism: some descendants of dividing unspecialized cells acquire specific properties. It is estimated that over 70 years of his life stem cells in a regularly updated tissues produce a total of about 14 tones of live weight. And on blood cells make up only one-fifth of this amount, the lion's share of the same (about two-thirds) are constantly generated and lost by the flesh of the epithelium of the intestine.

Muscles and vessels of constant renewal seems to be not required, but in certain circumstances, for example, in trauma or under the influence of regular physical activity, they also use this function. Most, apparently, not prone to bone regeneration humans and other mammals still accrete after fractures, filling the gap of the newly formed bone tissue. And in all these cases, the new tissue is not formed due to division of specialized cells, but at the expense of differentiation (the so-called process of cell specialization) of the descendants of dividing cells that are found there in all these tissues. Sometimes they have special names: the cells that can turn into muscle tissue, called myoblasts, to the bone -osteoblasts and etc. The total of their name - tissue stem cells. It reflects their main feature - the ability to develop into any cell type specific tissue, usually the one in which or near which this stem cell lives.

However, even in 1960 the Soviet hematologist Alexander Fridenshtein found in the same bone marrow among the normal hematopoietic stem cells a small number of more plastic. In experiments Fridenshtein and his staff of these cells (mesenchymal he called them) were transformed into cartilage, bone, adipose tissue and seems to give rise to any of the approximately 230 cell types of the human body. And could not give: a laboratory Fridenshtein they have learned to multiply indefinitely "in vitro" (more precisely, in Petri dishes), so that one cell grew an entire colony, but its members remain stem cells.

Abroad, these works have not noticed. Impacted the increasing isolation of Soviet science. Much later, these cells were "rediscovered" by American scientists, who named their stromal. Discoverer of universal stem cells died in 1998, and about the same time started the current boom around the cell therapy.

Ochtema S.I., *EL adviser*

INNOVATIONS IN THE MANAGEMENT

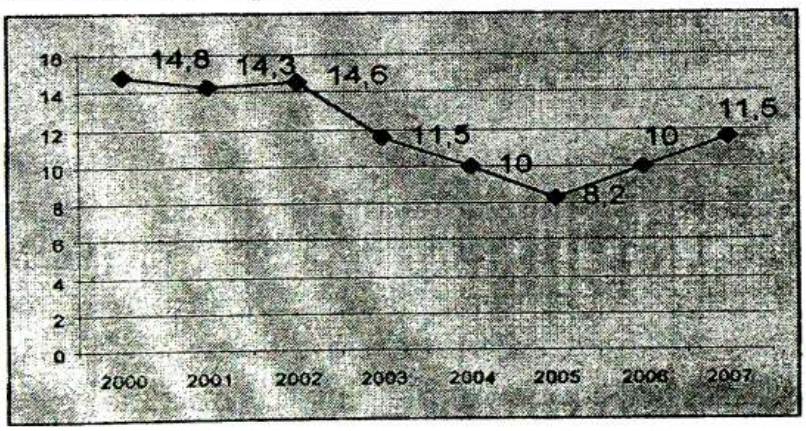
T.G. Redkach, *M-82*

Innovations are using new ideas causing to the creation of a new product, process or service. It's also means using new technology to produce new value and to bring the important changes in society.

Innovations lead to new products, services or systems, that add value or improve quality. It possibly involves technological transformation and management restructuring.

Experts have identified many types of innovations such as "Product Innovation" that entails the introduction of a new product or a service that is new or considerably improved, "Process Innovation" including the implementation of a new or considerably enhanced manufacture or delivery method, "Supply Chain Innovation" in which innovations transform the sourcing of input products from the market and delivery of output products to customers and "Marketing Innovation" which results in the evolution of new methods of marketing.

Researches have confirmed that all firms want to be more innovative. One research identified that almost 90 percent of firms think that innovation is a priority for them.



Specific weight of firms, which introduced innovations, %

Importance of innovation is increasing, and increasing considerably.

In the graph you can see statistical analysis of innovations introducing.

Innovation is directly proportional to the higher of senior management.

If an established organization, which in this age necessitating innovation, is not able to innovate, it faces decline and extinction.

Every organization and business is feeling the impact of globalization, technological migration and knowledge revolutions. Innovation will bring added value and widen the employment base.

T.N.Byrenko, *ELA*

GOVERNMENT AND COURTS IN UKRAINE

A.O. Klushyk, *student, group U-84*

Ukraine is a sovereign state. Its independence was proclaimed on August 24, 1991. There are 26 administrative districts and the Crimean autonomous republic in Ukraine. The power in the country is divided into three branches: legislative, executive and judiciary. Verkhovna Rada is the main legislative body, it consists of 450 deputees. The elections to the Verkhovna Rada are held every four years. The deputees are elected by equal, secret and direct ballot. All parties that win at least 3% of the national vote in the parliamentary election are awarded seats on a proportional basis.

The highest executive body is the President. He can veto any decision of Verkhovna Rada. The President is the commander-in-chief of the armed forces of Ukraine. He also represents the state in international relations. The other part of the executive branch is the Cabinet of Ministers, which is headed by the Prime Minister. There are 20 Ministries and 25 seats in the Cabinet. The Cabinet of Ministers may introduce bills to the legislative body. So, the Cabinet is responsible to the President of Ukraine and is under the control of and accountable to the Verkhovna Rada.

The judicial system of Ukraine consists of four levels of courts of general jurisdiction, as follows: local courts of general jurisdiction (combining criminal and civil jurisdiction), appeals courts, high courts with specialized jurisdiction, the Supreme Court, covering all cases. The Constitutional Court of Ukraine is a special body with authority to assess whether legislative acts of the Parliament, President, Cabinet or Crimean Parliament are in line with the Constitution of Ukraine. This Court also gives commentaries to certain norms of the Constitution or laws of Ukraine (superior acts of Parliament). The courts enjoy legal, financial and constitutional freedom guaranteed by measures adopted in Ukrainian law in 2002. Although there are still problems with the performance of the system, it is considered to have been much improved since 1991.

V.E. Pronyeva, *EL adviser*

ELECTRONIC PAPER

Shapko D.V., *gr. EP-81*

Electronic paper, e-paper or electronic ink display is a display technology designed to mimic the appearance of ordinary ink on paper. Unlike a conventional flat panel display, which uses a backlight to illuminate its pixels, electronic paper reflects light like ordinary paper and is capable of holding text and images indefinitely without drawing electricity, while allowing the image to be changed later.

To build e-paper, several different technologies exist, some using plastic substrate and electronics so that the display is flexible. Anecdotal evidence suggests that e-paper is more comfortable to read than conventional displays. This is due to the stable image, which does not need to be refreshed constantly, the wider viewing angle, and the fact that it reflects ambient light rather than emitting its own light. An e-paper display can be read in direct sunlight without the image appearing to fade. The contrast ratio in available displays as of 2008 might be described as similar to that of newspaper, though newly-developed implementations are slightly better. There is ongoing competition among manufacturers to provide full-color capability.

Applications include electronic pricing labels in retail shops, and general signage, time tables at bus stations, electronic billboards, the mobile phone Motorola FONE F3, and e-Readers capable of displaying digital versions of books and e-paper magazines. Electronic paper should not be confused with digital paper, which is a pad to create handwritten digital documents with a digital pen.

Electronic paper was first developed in the 1970s by Nick Sheridon at Xerox's Palo Alto Research Center. The first electronic paper, called Gyricon, consisted of polyethylene spheres between 75 and 106 micrometres across. Each sphere is a janus particle composed of negatively charged black plastic on one side and positively charged white plastic on the other (each bead is thus a dipole). The spheres are embedded in a transparent silicone sheet, with each sphere suspended in a bubble of oil so that they can rotate freely. The polarity of the voltage applied to each pair of electrodes then determines whether the white or black side is face-up, thus giving the pixel a white or black appearance. At the FPD 2008 exhibition, Japanese company Soken has demonstrated a wall with electronic wall-paper using this technology.

Electro fluidic displays are a variation of an electro wetting display. Electro fluidic displays place an aqueous pigment dispersion inside a tiny reservoir. The reservoir comprises <5-10% of the viewable pixel area and therefore the pigment is substantially hidden from view. Voltage is used to electromechanically pull the pigment out of the reservoir and spread it as a film directly behind the viewing substrate. As a result, the display takes on color and brightness similar to that of conventional pigments printed on paper. When voltage is removed liquid surface tension causes the pigment dispersion to rapidly recoil into the reservoir. As reported in the May 2009 Issue of Nature Photonics, the technology can potentially provide >85% white state reflectance for electronic paper.

The core technology was invented at the Novel Devices Laboratory at the University of Cincinnati. The technology is currently being commercialized by Gamma Dynamics.

In January 2007, the Dutch specialist in e-Paper edupaper.nl started a pilot project in a secondary school in Maastricht, using e-Paper as digital schoolbooks to reduce costs and students' daily burden of books.

In December 2005 Seiko released their Spectrum SVRD001 wristwatch, which has a flexible electrophoretic display.

Motorola's low-cost mobile phone, the Motorola F3, also uses an alphanumeric black/white electrophoretic display.

In September 2006 Sony released the PRS-500 Sony Reader e-book reader. On October 2, 2007, Sony announced the PRS-505, an updated version of the Reader. In November 2008, Sony released the PRS-700BC which incorporated a backlight and a touch screen.

Some devices, like USB flash drives, have used electronic paper to display status information, such as available storage space.

In February 2006, the Flemish daily De Tijd distributed an electronic version of the paper to select subscribers in a limited marketing study, using a pre-release version of the iRex iLiad. This was the first recorded application of electronic ink to newspaper publishing.

Zolotova S.G., *advisor*

A BRAND AS A THING, THAT INFLUENCES ON OUR SUBCONSCIOUSNESS

Student Khizhnyak M. A., *group MK-81*

Every time when we go shopping we think that we choose things that we need ourselves. We even have some reasons to buy this very product. They are: things that we always buy, high quality of the commodity and when the product is a brand it's also a reason to buy it. In modern diversity of goods in supermarkets it's difficult to find the best product we need. That's why the most powerful from all other reasons for choice is brand, because it influences on our subconsciousness.

So what is a brand? It's not only a trademark of some company, but the name of a certain product we use every day. A lot of people work on its creation very hard. First of all a group of people decide to start producing some kind of goods. Then they give a name for this product, design a logo and start to manufacture their goods. Only then the group of experts in marketing begins to introduce this product on the market. They create advertising on radio and TV, print booklets, promo-sheets and try to make about the goods a pleasant impression at consumers. If the work has been done successfully, some time later the goods become recognized. Consumers wish to buy it. This is success. Since that moment the trademark becomes a brand. Brands easily become a part of our everyday life

For example, speaking about coffee most of us say Nescafe, but not 'coffee'. This short example also illustrates the main aim of producers - to create brand popularity, so that most of people would recognize the product among the competitors' products. This is one of the differences between trademark and brand.

Every brand is a trademark, but not every trademark is a brand. Advertising campaigns are launched to enhance brand awareness, that's why sometimes brand costs more than the whole company, for example one day of advertising at Yandex website (what is called by Yandex sales managers as 'increasing brand popularity') costs $20000. Recognition of a brand or, how it's called, brand awareness helps people to find the necessary size, quantity, taste, especially, when they are in another country and don't know the local products specifications.

What qualities should brand name possess? First of all, it should be eye-catching. Namel.ab, the company, which creates brand names, gives an example of 7-Up Company, which lost $120 millions using name 'Like

Cola' as a brand name first time after launching its product. Lexicon of some companies can be original. For example, name Sony is based on 'son', which means "sound" in most of the countries. As all brand names are registered and protected by law, no one else can produce the same product under such brand name. It's a very hard to create a new brand name, as more than 365000 brands were registered in October, 2000 by American Patent Organization, whereas Oxford dictionary consists of 615100 words, so some companies use brand stretching - using a leader-brand to launch a new product in a new category, for example 'Bochkarev' chips.

There are top 10 most valuable global brands 2009 in the table 1.

Table 1 – The most valuable global brands in 2009

#	Brand	Brand value 09 ($M)	% Brand Value Change 09 vs. 08
1.	Google	100.039	16%
2.	Microsoft	76.249	8%
3.	Coca-Cola	67.625	16%
4.	IBM	66.622	20%
5.		66.575	34%
6.		63.113	14%
7.	中国移动通信 CHINA MOBILE	61.283	7%
8.		59.793	-16%
9.	vodafone	53.727	45%
10.	Marlboro	49.460	33%

Brands always add value to products. That's why branded products seem to be more expensive among other ones. But if we pay more, we pay for better quality. All in all, brands are one of the moving forces of globalization.

Gladchenko O. R., *EL Adviser*

HOW TO COPE WITH THE WORLD SPINNING OUT OF CONTROL

Boyko A., *ЛС – 810*

If the 1920s were known as "Roaring", the 1960s were about "Flower Power", and the 1980s were the "Me Generation", then the 2000s went on as the "Age of Anxiety". And I think it's true. Now more than ever we are worrying ourselves sick. Why are we so scared?

First, I believe a number of factors play into the "excessive worry" epidemic. We are literally overloaded, bombarded, with information daily. This "information crush" has the effect of short circuiting our electrical systems.

Then, too, people in general have less quiet time and very few understand how to get it. Solitude acts as a safety valve to let off "excess information" steam. Exercise, especially meditative types like Yoga, Tai Chi, and Pilates, and solitary pursuits like walking or running alone, can serve the same purpose.

Processed foods – really little more than conglomerations of chemicals with refined sugar added – also overload the central nervous system. Any toxins including food additives, overload the liver and make it work harder to keep the body functioning properly.

More heavy demands are made on the body by stress, which overloads the adrenal glands. Eventually, the body just wears out and the copy mechanisms break down, sometimes completely. The body processes "fear" in a two-phase approach. When fearful stimuli are perceived, one circuit goes through the amygdala, otherwise known as "fear central". The amygdala is the tiny almond-shaped portion of the brain that doesn't take time to discriminate or reason things out. It just sends out messages to the "fight-or-fight" mechanism that say "Hey, get us out of here!" The body responds blindly. Digestion and reasoning are shut down as blood is moved away from the brain and stomach and toward the arms and legs so we can "run like crazy" or stand up and fight.

A second, slower route is through the cerebral cortex. This portion of the brain takes time to analyze the situation and come up with a game plan. If it decides, for example, that the "ghost" was only some sheets "Grandma" hung outside to dry that are now flapping in the breeze, it will send a message to the amygdala to "stand down". The only problem with the system is that the fear switch is much easier to turn on than it is to turn off. In fact, what scientists are beginning to learn is that some people have

switches that are stuck in the "on" position (namely chronic sufferers from anxiety disorders, like panic attacks, generalized anxiety, phobias, and obsessive-compulsive disorder).

So, what can you do if you're one of those people who suffer from "excessive fear and worry"? At best, anti-anxiety medications can help you temporarily while you rebuild your adrenals and the rest of your coping mechanism. But you should be quite aware that many of these drugs have serious side effects and some are highly addictive.

I think, what works best for each person is highly individualized. So, a multiple-pronged approach is usually suggested. First, essential oils like lavender can have fairly instantaneous calming effects. A few drops in the bath or a foot soak or dabbed behind the ears work wonders.

Second, borrowing from the Behaviorists, one of the best treatments "fearful" people can give themselves is usually the hardest for them to follow. To reduce anxiety and worry, remove as much disturbing stimuli as you can from the environment. Change jobs or take a vacation. Cut back on the amount of activities you try to cram into a week and get more sleep.

Third, spend more time exercising. Exercise produces endorphins, nature's antidepressants. Fourth, breathe – deeply. Oxygen is the number one ingredient your body needs to survive and thrive.

Fifth, try the cognitive approach. Practice becoming aware of negative self talk and transforming it to positive. According to Dr. Bourne, worries tend to imagine the worst possible scenarios all of the time.

One of the best ways to change negative self talk is at the subconscious level. The primary tool is hypnosis. After all, all habits including the habit of being afraid are stored in the subconscious mind. The particular hypnotic techniques used in working with "excessive worriers" include releasing root causes; parts therapy (negotiating with the fearful part and getting it to agree to relax); desensitization to the fear producing stimuli; anchoring a "safe feeling" button; providing post-hypnotic suggestions that work automatically to keep the person calm; and translogic, which helps move the anxious thinking from the emotional right brain to the logical left brain.

In the conclusion, I should say the following: once the people can begin to see the problem logically, they can begin to take actions to heal themselves.

Horobchenko N.G., *EL adviser*

WIMAX

Ostapenko O. P., IN-81

Communications and information technologies pervade our homes, our workplaces, our schools, even our own bodies. All vast communications networks have in fact become so ubiquitous as to be almost invisible; you probably have never given much thought to how they work, how they got here, and who was involved in making them happen

Wireless communication is the transfer of information over a distance without the use of electrical conductors or "wires". The distances involved may be short (a few meters as in television remote control) or long (thousands or millions of kilometres for radio communications).

A wireless local area network (WLAN) links devices via a wireless distribution method, and usually provides a connection through an access point to the wider internet. This gives users the mobility to move around within a local coverage area and still be connected to the network.

WiMAX is the next-generation of wireless technology designed to enable pervasive, high-speed mobile Internet access to the widest array of devices including notebook PCs, handsets, smartphones, and consumer electronics such as gaming devices, cameras, camcorders, music players, and more.

WiMAX is an IP based, wireless broadband access technology that provides performance similar to 802.11/Wi-Fi networks with the coverage and QOS (quality of service) of cellular networks. WiMAX is also an acronym meaning "Worldwide Interoperability for Microwave Access (WiMAX).

WiMAX is a wireless digital communications system, also known as IEEE 802.16, that is intended for wireless "metropolitan area networks". WiMAX can provide broadband wireless access (BWA) up to 30 miles (50 km) for fixed stations, and 3 - 10 miles (5 - 15 km) for mobile stations. In contrast, the WiFi/802.11 wireless local area network standard is limited in most cases to only 100 - 300 feet (30 - 100m).

WiMAX combines the familiarity of Wi-Fi with the mobility of cellular that will deliver personal mobile broadband that moves with you.

WiMAX supports ATM, IPv4, IPv6, Ethernet, and VLAN services. So, it can provide a rich choice of service possibilities to voice and data network service providers. In addition, WiMAX provides an ideal wireless backhaul technology to connect 802.11 wireless LANs and commercial hotspots with the Internet.

WiMAX doesn't just pose a threat to providers of DSL and cable-modem service. The WiMAX protocol is designed to accommodate several different methods of data transmission, one of which is Voice Over Internet Protocol (VoIP). VoIP allows people to make local, long-distance and even international calls through a broadband Internet connection, bypassing phone companies entirely. If WiMAX-compatible computers become very common, the use of VoIP could increase dramatically. Almost anyone with a laptop could make VoIP calls.

WiMAX success stems from a robust vision incorporating four key strengths:

- open standards-based, interoperable technology built from the ground up for the Internet fosters innovation and competition;
- vibrant, growing ecosystem of industry leaders such as Intel, Sprint, Clearwire, Motorola, Samsung, Nokia, Cisco, and hundreds of other companies;
- global economies of scale and more attractive intellectual property environment that enable lower costs compared to other wireless technologies;
- advanced wireless technology that enables a faster wireless broadband solution for doing more on the go.

The WiMAX network includes two key components: a base station and a subscriber device. The WiMAX base station is mounted on a tower or tall building to broadcast the wireless signal. The subscriber receives the signals on a WiMAX enabled notebook, mobile Internet device (MID), or even a WiMAX modem.

WiMax is all set to take over the wireless world. With its non-line-of-sight and long coverage, WiMax addresses a major part of the existing problems faced by Wi-Fi. In addition to this, WiMax's QoS assurance feature gives it a competitive edge and helps position this new platform as a very effective solution in the wireless domain.

Mulina N. I., *ELA*

QUALITY PRESS IN UKRAINE

M. O. Osjukhina, *student, group JT-81*

There are many types of press in world's science of journalism and in Ukrainian science too. We can divide newspapers according to it's readers, target, distribution area, circulation and other criteria. But also there is an interesting division, which divides all press into two types: quality and popular. What are they?

If we ask people, what newspapers they mean quality ones, we'll get an answer, these are newspapers, that they read. And they can be mistaken. Quality press is not popular press, it intends to have some signs. For example, quality press is independent and no government can influence it. In quality press can be only useful information, without advertisings, scandals and hysterics.

Furthermore such newspapers contain analytic articles on politics, economics, social life of the country in and out, there are no scandals, gossips, unchecked information and advertisings.

The press is generally called as "the fourth estate". In every period of its existence and depending on the political system, the mass communication have always maintained certain relations with those public and political structures which were actually in control of most spheres in the life of society. But only equal relations between media and government can make newspapers quality. Press is financially independent. The compulsion of quality press is to be objective, truthful, unbiased according to its articles.

In the world press we can name such quality newspapers as "The Wall Street Journal", it covers national and international news, "The Washington Post", in particular cause it contains full coverage of Congress, "US Today" with a popular from news of general interest and others.

In Ukraine they are: "The Mirror of a Week", "Correspondent", "The Day", "The Young Ukraine" and, maybe, that's all. There are some ideas, that there is no quality press in Ukraine and we need a lot of time for transforming our newspapers into something really worthy.

V. E. Pronyaeva, *EL Adviser*

КАФЕДРА МОВНОЇ ПІДГОТОВКИ ІНОЗЕМНИХ ГРОМАДЯН

УЧЁТ ОСОБЕННОСТЕЙ ПАРАЛИНГВИСТИЧЕСКОГО ПОВЕДЕНИЯ НА ЗАНЯТИЯХ РУССКОГО ЯЗЫКА КАК ИНОСТРАННОГО

Бурнос Е.Ю., *преподаватель*

В настоящее время возрос интерес к вопросам паралингвистики и, в частности, к невербальным средствам коммуникации. Это вызвано тем, что коммуникация не замыкается рамками только чисто языкового общения, в неё органически входят и паралингвистические факторы.

Сопоставительное описание элементов кинесической коммуникации различных народов позволяет говорить о том, что в целом ряде случаев во внешнем проявлении, например, эмоций, наблюдается топологическое сходство. Что свидетельствует о единой биологической основе человеческих эмоций. Однако для выражения одного и того же эмоционального состояния разные народы могут использовать "свои" свойственные только им, элементы кинесической коммуникации. Это обусловлено различием культур. Под влиянием национальной культуры обычаев, воспитания одни биологически обусловленные формы выражения чувств предпочитаются другим, также биологически обусловленным.

Социально и национально специфичные правила поведения, как речевого, так и неречевого, играют важную роль в процессе коммуникации. Как отмечает А.А. Леонтьев, "представители одной лингвокультурной общности, входя в контакт с членами другой лингвокультурной общности и даже говоря на языке последней, действуют по "своим" моделям поведения, употребляют "свои" кинесические, проксемические системы, опираются на свои культурные знания. Поэтому речевое взаимодействие представителей разных лингвокультурных общностей проходит этап "притирки", в ходе которой вырабатываются невербальные модели речевого взаимодействия".

Изучение невербальных компонентов общения имеют большую практическую значимость для преподавания русского языка иноязычной аудитории. Жесты и мимика образуют модель коммуникации, которую можно сравнить с моделью поведения и которую следует изучать преподавателю русского языка как

иностранного, так как жестовая коммуникация в значительной мере такой же национальный феномен, как и вербальные языки.

Преподаватель русского языка как иностранного должен хорошо ориентироваться в становедческом материале обучаемого контингента, должен овладеть культурологически ценностной информацией о том народе, с представителями которого он работает. Изучение же языка жестов - одна из форм познания культуры, традиций того или иного народа. Если каждая лингвокультурная общность имеет свою специфичную модель динамического поведения, то неадекватное использование "своих" жестов общения иностранных студентов на русском языке может привести к непониманию содержания коммуникации русским собеседником и, следовательно, нарушить речевой контакт. Задача преподавателя - обучить студента без затруднений участвовать в коммуникации, т.е. он должен учитывать и возможную интерференцию в жестовом поведении обучаемых им иностранных студентов.

В настоящее время в науке идёт процесс накопления наблюдений над национальными системами, проводится сопоставительное описание элементов кинесической коммуникации различных народов.

Описание элементов кинесического поведения предусматривает :

- раскрытие смыслового назначения жеста (жест является одним из основных компонентов, передающих паралингвистическое поведение коммуниканта и отличающих его в акте коммуникации от других представителей лингвокультурных общностей),
- указание органа, выполняющего движение (данный элемент является показательным для кинесической коммуникации),
- словесное описание рисунка движения,
- указание на взаимодействие жеста с языком (взаимодействие жеста с языком для представителей лингвокультурной общности определяется различием культур и влиянием обычаев того или иного народа).

Изучение национальных особенностей кнесического поведения различных народов необходимо, так как речь не покрывает всего процесса коммуникации, и человеческому обществу присущи также другие формы знакового поведения, а национально-культурная специфика тех или иных лингвокультурных особенностей влияет на процесс общения как на речевом, так и на паралингвистическом уровнях.

МОВА ЯК ЧИННИК ІСНУВАННЯ І РОЗВИТКУ НАЦІЇ, ВПЛИВ ВНУТРІШНІХ МОВНИХ ПРОЦЕСІВ НА ВИВЧЕННЯ УКРАЇНСЬКОЇ МОВИ ІНОЗЕМЦЯМИ

Ворона Н О., *викладач*

За сто останніх років багато що змінилося в мовному і національному питанні в Україні. І якщо підходити до цього з формальної точки зору (статус української мови як державної, закон про мови в Україні і т.п.), то мовну проблему можна було б вважати вирішеною. Але об'єктивна реальність свідчить, що статус державної мови задекларовано, але повною мірою не забезпечено, українська мова так і не стала консолідуючим чинником для нації, а ставлення до неї в окремих регіонах сучасної України принципово не відрізняється від колишнього імперського, продовжуються політичні спекуляції на мовному ґрунті, ставиться під сумнів необхідність функціонування єдиної державної мови і т.д. Все це є свідченням того, що вирішення мовно-національних проблем залишається надзвичайно актуальним.

Говорячи про поняття нації, слід звернути увагу, що не існує певної кількості обов'язкових для всіх націй чинників їх існування. Це пояснюється насамперед тим, що для різних націй процес формування відбувався на різних етапах їх суспільно-політичного розвитку і мав свої специфічні передумови.

З теоретичного погляду відсутність уніфікованих ознак нації дає підстави стверджувати, що мова не є обов'язковим чинником їх існування. З погляду практичного, оскільки національна свідомість дуже часто ґрунтується на етнічній мові, втрата цієї мови може зруйнувати і національну свідомість. Українська нація формувалась в умовах бездержавності, коли мова і культурні традиції залишились єдиними об'єктивними національними ознаками. Минуло більше ста років з часу, коли відомими мовознавцями (О. Потебнею, С.Єфремовим, А.Кримським та ін.) неодноразово піднімалося питання про надзвичайну важливість національної мови як чинника існування і розвитку нації, але мовне питання в Україні залишається нерозвязаним. Українська мова формально запроваджена в середніх і вищих навчальних закладах, але не в усіх регіонах України. Крім того, якість її викладання далеко не завжди є високою, а неусталеність мовних норм, що відображена в підручниках, словниках, мовленні дикторів центральних телевізійних каналів, багатьох радіопрограмах дезорієнтує як викладачів, так і студентів, не надає можливості мати

необхідні мовні еталони. Особливо актуальною ця проблема є для студентів-іноземців, для них відсутність нормальної, а часто й будь-якої мовної практики є просто згубною.

Викладачі української як іноземної не просто допомагають студентам засвоїти граматичні норми, вони готують студентів до мовленнєвої діяльності. І навпаки, мовленнєва діяльність повинна забезпечити остаточне засвоєння граматичних норм. Якщо щого не відбувається, то вивчення української мови іноземцями є неповноцінним. Пристосовуючись до несприятливої мовної ситуації, студенти-іноземці часто переходять у побуті на російську мову, з якою в нашому мовному середовищі теж не все гаразд, тому що переважна більшість мовців замість літературної мови використовує суржик, тобто суміш двох мов, мовний покруч, без додержання норм літературної мови.

Про причини виникнення суржику, про його згубний вплив на обидві мови, про можливі шляхи подолання цього шкідливого явища почали говорити лише останнім часом, хоча виник він досить давно, а поширення набув ще наприкінці XIX сторіччя. В 1970 році про суржик спробував серйозно заговорити Б.Антоненко-Давидович, але тоді його праця «Як ми говоримо» була швидко заборонена.

У дев'яностих роках суржик став, нарешті, об'єктом лінгвістичного аналізу. Одна з перших його дослідниць Олександра Сербенська, упорядник посібника з промовистою назвою «Антисуржик», розвинула погляд Б. Антоненка-Давидовича на досліджувану субмову як здеградовану під тиском русифікації форму українського мовлення, підкресливши, крім лінгвістичного, психологічний аспект його негативного впливу на свідомість. Суржик в Україні є небезпечним і шкідливим, бо паразитує на мові, що формувалась упродовж віків, загрожує змінити мову.

Серед невтомних борців з негативними мовними явищами такі відомі мовознавці як О Пономарів, І. Фаріон. Але їх зусилля часто не сприймаються можновладцями, від яких насамперед і залежить мовна політика в Україні. Допоки в Україні не буде діяти «Закон про мови», допоки не будуть розроблені спеціальні освітні програми, спрямовані на викорінення суржику, праця окремих ентузіастів залишатиметься голосом волаючого в пустелі. Таке становище української мови не сприяє її вивченню ані українськими студентами, ані іноземцями, шкодить авторитету нашої держави, не сприяє українській самосвідомості й патріотизму.

К ВОПРОСУ АКТИВИЗАЦИИ ВНЕАУДИТОРНОЙ РАБОТЫ ПО ИЗУЧЕНИЮ РУССКОГО ЯЗЫКА КАК ИНОСТРАННОГО

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К факторам, оптимизирующим изучение русского языка как иностранного, относится целенаправленная организация внеаудиторной работы студентов. Она является важнейшим условием повышения качества подготовки будущих специалистов, т.к. развивает творческие способности, превращает учащегося в активную личность, умеющую добывать знания.

При определении содержания и принципов организации внеаудиторной работы иностранных студентов необходимо опираться не только на общие психолого-педагогические характеристики, но и учитывать специфику изучаемого предмета. Самостоятельная внеаудиторная работа служит целям закрепления и расширения знаний, выступает звеном цепочки «аудиторная работа – самостоятельная работа – контроль преподавателя».

Человек, попавший в незнакомую языковую среду, должен прежде всего научиться общаться с носителями языка в жизненно важных для него ситуациях. Поэтому важнейшей задачей для преподавателя является отбор такого языкового материала, который позволил бы студенту-иностранцу удовлетворить основные коммуникативные потребности в социально-бытовой сфере и тем самым быстрее адаптироваться к новым условиям жизни.

Дополнительные внеаудиторные занятия должны содержать материал преимущественно по проблемно-тематическим комплексам на основе реалий: квартира, дом, условия жизни, одежда и её роль в жизни человека, магазины и покупки, в гостях, праздники, подарки, здоровье, врачи и симптомы, город и его достопримечательности, транспорт, экскурсии, культура и искусство, театры, музеи, особенности национального характера и менталитет. Организация такой работы по данным темам предполагает разработку механизма управления процессом усвоения учебного материала, т.е. создание алгоритмов управления. В методике преподавания иностранных языков алгоритмом называют регламентированную систему учебных действий, обеспечивающих достижение определённой языковой или речевой цели. Алгоритмы управления могут быть представлены в виде памяток.

Назначение памяток – помочь студентам осознать приемы, используемые преподавателем при обучении разным видам речевой деятельности, выработать алгоритм самостоятельных действий. Работа с памятками способствует развитию самостоятельности студентов, проводя их через разные виды самостоятельной деятельности от копирующей, воспроизводящей, к творческой.

В качестве примера приведем памятку для работы над темой «Моя семья» и задания для самоконтроля.

1. Работая над темой, вы сможете назвать членов своей семьи, расспросить собеседника о его семье, представить свою семью, кратко рассказать о каждом члене семьи.
2. Покажите Вашим друзьям свой альбом с фотографиями и представьте своих родственников, отвечая на вопросы: Кто это? Как его зовут? Кто он (она)? Где он (она) работают или учатся? Где живут эти люди?
3. Попросите Вашего друга показать его альбом с фотографиями и расспросите его о семье, используя вопросы из задания 2.
4. Опираясь на вопросы, составьте небольшой рассказ об одном из членов Вашей семьи. Запишите эту информацию.

Задания для самоконтроля.

1. Сможете ли вы быстро перечислить своих родственников по-русски.
2. Опираясь на вопросы, напишите небольшой рассказ об одном из членов Вашей семьи.
3. Расскажите о Вашем брате (сестре).

Актуальная тематика, типичные ситуации межкультурного общения, четкая структура занятий, продуманный отбор и строго определенное количество речевого и языкового материала, подробные комментарии и задания для самоконтроля, доступные и простые объяснения и рекомендации на русском языке по организации внеаудиторной работы – все это обеспечивает успех в достижении целей обучения.

Говоря об организации внеаудиторной самостоятельной работы, следует подчеркнуть, что процесс самообучения не заменяет процесса обучения, а дополняет его. Надо искать оптимальные сочетания таких форм обучения.

ЗНАЧЕННЯ УКРАЇНСЬКОЇ ПІСНІ У ФОРМУВАННІ ЛІНГВОКРАЇНОЗНАВЧОЇ КОМПЕТЕНЦІЇ ІНОЗЕМНИХ СТУДЕНТІВ

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Проблеми формування лінгвокраїнознавчої компетенції під час оволодіння українською мовою як іноземною набувають особливої актуальності. Через відсутність знань соціокультурного фону тієї країни, мова якої вивчається, неможливо сформувати комунікативну компетенцію мовця, необхідну йому для міжкультурної комунікації. Серед умов, що забезпечують інтенсивне засвоєння української мови як іноземної, є, перш за все, додержання принципів полікультурного підходу, багатоканального сприйняття інформації.

Останнім часом помітно зросла увага науковців до проблеми інтенсифікації процесу підготовки фахівців шляхом створення і впровадження різноманітних педагогічних програмних засобів: мультимедійні навчальні програми, електронні словники, довідники, навчальні й автентичні матеріали Інтернету тощо.

Лінгвокраїнознавчий підхід у формуванні комунікативної компетенції забезпечує знання про культуру, історію, соціально-політичний устрій, реалії, традиції і звичаї України, знання мовних одиниць з національно-культурним компонентом семантики, розвиває здатність сприймати українську мову в її культуроносній функції, сприяє залученню до діалогу культур, усвідомленню сутності мовних явищ, ролі мовних одиниць у комунікативних процесах.

Знання іноземними студентами норм і цінностей, традицій і звичаїв, властивих культурі українського народу, позитивно впливає на формування особистісних якостей поведінки, естетичної культури, культури усного і писемного мовлення, необхідних для продуктивного спілкування у міжкультурному середовищі.

У науково-методичній літературі загальновизнаним є той факт, що лінгвокраїнознавчий і комунікативний підходи взаємозв'язані й взаємообумовлені, а їх роль у формуванні комунікативної компетенції студентів незаперечна. Одним із ефективних засобів формування лінгвокраїнознавчої, а відповідно й комунікативної компетенцій, на думку вчених, є автентичний пісенний матеріал. Саме українська пісня – один із основних, досить ефективних засобів навчання усіх видів мовленнєвої діяльності іноземною мовою, засвоєння мови й культурного фону країни, розвитку естетичних смаків

Значний інтерес у студентів різних національностей до пісенної творчості українського народу: вони із задоволення слухають, вивчають і співають українські пісні. Тому робота над українською піснею як невичерпним джерелом культурологічної інформації, духовного долучення іноземних громадян до української культури, мови українського народу має надзвичайно велике значення, а розробка сучасних технологій навчання комунікативно доцільного мовлення на текстах і мелодіях пісень з використанням сучасних програмно-педагогічних засобів – одне з найважливіших завдань сучасної лінгводидактики.

Використання цього жанру народної творчості стимулює мотивацію засвоєння української мови як іноземної і сприяє кращому засвоєнню навчального матеріалу завдяки дії механізмів мимовільного запам'ятовування. Ці механізми дозволяють збільшити обсяг і міцність засвоюваного матеріалу, який легко запам'ятовується, оскільки він не нав'язується, а викладається емоційно, нетрадиційно, часто в урочистій обстановці.

Мовна і мовленнєва діяльність на фоні музики, зазначають дослідники, більш ефективно впливає на якість засвоюваного матеріалу, а також знімає втому, напруження в процесі навчання, урізноманітнює навчальну діяльність.

Пісні – це й засіб відпрацювання вимовних (артикуляційних, акцентологічних, орфоепічних, інтонаційних) і аудитивних навичок, розширення лексичного й фразеологічного запасу, засвоєння стилістичних норм і синтаксичних структур української мови, її усної й писемної форм. Пісня – це й засіб розвитку продуктивних умінь і навичок. Вона може виступати як основа для розгортання діалогічного й монологічного підготовленого й непідготовленого мовлення усної й писемної форм.

Оскільки інтенсивність уваги підсилюється завдяки використанню зорового і слухового каналів надходження інформації (а це, в свою чергу, позитивно впливає на процес засвоєння знань з мови), відпрацювання необхідних умінь і навичок сприяє міцному запам'ятовуванню лінгвокраїнознавчого матеріалу.

Студенти-іноземці усвідомлюють, що українські пісні – вагомий внесок України в загальнослов'янську й світову художню творчість. Це допомагає формувати позитивне ставлення до мови й культури українського народу, розвивати пізнавальну діяльність, яка спрямована на вдосконалення мовної, мовленнєвої й комунікативної компетенцій.

РОЗВИТОК НАВИЧОК ДІАЛОГІЧНОГО МОВЛЕННЯ НА ПОЧАТКОВОМУ ЕТАПІ НАВЧАННЯ УКРАЇНСЬКОЇ МОВИ ЯК ІНОЗЕМНОЇ

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Діалогічне мовлення найяскравіше виражає функцію мови як засобу безпосереднього спілкування, тож формування відповідних навичок – надзвичайно важливе завдання, особливо на початковому етапі, коли студент-іноземець мусить якомога швидше засвоїти моделі мовної поведінки в різних комунікативних ситуаціях.

Робота з розвитку діалогічного мовлення складається з трьох основних моментів: 1) робота над конструкціями «запитання-відповідь»; 2) робота над власне діалогічними висловлюваннями; 3) робота над стереотипними фразами, які використовують у різних ситуаціях спілкування.

Ці три складники є взаємопов'язаними і реалізуються в комплексі.

Роботу над запитаннями і відповідями потрібно вести з перших уроків української мови як іноземної. Після вивчення елементарної фрази "Це студент" потрібно працювати над запитаннями до неї і структурою повних і коротких відповідей. На спеціально дібраних питальних конструкціях тренується використання певних лексико-граматичних форм. На початковому етапі не варто ускладнювати завдання синонімічними запитаннями, які можуть заплутати студентів. Але з поступовим оволодінням новим граматичним матеріалом синонімічні питальні конструкції стають необхідними для розвитку діалогічного мовлення і вивчення граматики. Починати роботу над конструкціями «запитання-відповідь» потрібно із запитань, які максимально містять у собі відповідь. Альтернативні запитання – теж матеріал для початкового етапу. Такі вправи сприяють автоматизації мовлення, тренують пам'ять. Пізніше увагу варто приділяти розвитку вміння свідомо будувати відповідь, а не автоматично повторювати лексико-граматичний матеріал запитання. Студенти також вчаться варіативності формулювання відповіді, як позитивної, так і негативної. Ефективною є робота у формі запитань і відповідей на основі тексту.

Одиницею навчання діалогічного мовлення має бути діалогічна єдність – поєднання реплік, для якої характерна структурна,

семантична та інтонаційна завершеність. Для початкового навчання діалогу доцільно поєднувати три його типи: 1) діалог-обмін інформацією, 2) діалог-планування і здійснення певних дій, 3) діалог-обмін враженнями.

Діалог-обмін інформацією треба пропонувати студентам як у вигляді розповідного, так і питально-розповідного висловлювання. Діалог-планування варто розіграти з позитивною і негативною відповіддю, додавши пояснення причини у разі відмови. Діалог-обмін враженнями теж потрібно подавати для вивчення у варіантах згоди і полеміки.

Очевидно, що навчання діалогічного мовлення треба проводити через створення комунікативних ситуацій, соціально значущих для студентів-іноземців.

Можна презентувати ситуації спілкування у вигляді сценаріїв, які визначають, що студент повинен робити і говорити.

Виокремлюються дві групи завдань: 1) на розвиток сприйняття і 2) на розвиток продукування діалогічного мовлення. Для розвитку сприйняття діалогу студенти мусять мати можливість слухати зразки діалогічних текстів не лише від викладача, а й в аудіозаписі, бажано різними голосами.

Для навчання продукування діалогу виділяють підготовчі вправи (на імітацію мовленнєвого зразка, його інтенсивний повтор, видозміну, комбінування запропонованих структур) і мовленнєві (навчають підготовленому і непідготовленому діалогічному висловлюванню).

Важливим методичним завданням у навчанні діалогу вважають як оволодіння мовленнєвою реакцією на опорну репліку відповідно до ситуації, так і навчання подавати її, тобто починати діалог, спираючись на навчально-мовленнєву ситуацію. Необхідно звернути особливу увагу на стимуляцію у студентів потреби поставити запитання. Це може бути комунікативне завдання до тексту, комунікативне завдання для студентів у парах, робота з розповідними конструкціями, які потребують уточнення, пояснення.

Необхідною умовою вільного володіння діалогічним мовленням є знання стереотипних фраз. Значну роль в роботі над цими конструкціями відіграють підготовчі вправи, що навчають реакції на мовленнєвий стимул.

Така комплексна робота над розвитком навичок діалогічного мовлення на початковому етапі сприяє адаптації студентів-іноземців до нового мовного середовища та спілкування українською мовою.

ПРАКТИЧНІ ПИТАННЯ ВИКОРИСТАННЯ ІНТЕРНЕТУ ПРИ ВИКЛАДАННІ УКРАЇНСЬКОЇ МОВИ ЯК ІНОЗЕМНОЇ

Завгородній В.А., *ст.викладач*

В рамках обговорення питань про застосування інформаційних технологій в освіті все більше уваги приділяється використанню Інтернету при навчанні іноземної мови. При цьому Інтернет розглядається і як унікальний постачальник контенту, і як нове комунікативне середовище.

Темпи розвитку україномовного сегменту «всесвітньої павутини», поширення Інтернету в більшості країн світу зумовлюють актуальність постановки питання про врахування факту існування нового інформаційного середовища і про необхідність навчання іноземних студентів, які вивчають українську мову, розв'язанню різноманітних комунікативних завдань в її рамках.

Одним з таких завдань є отримання інформації. У традиційних курсах української мови для іноземців навички для вирішення цього завдання зазвичай відпрацьовуються на прикладах читання і роботи з простими діалогами типу «розмова на вулиці», «телефонна бесіда» тощо, а також текстами різних жанрів. Той факт, що для досягнення аналогічних цілей існує новий, зручний інструмент, як правило, не враховується. Досвід показує, що студенти, які приїжджають до України, у тому числі й ті, що мають достатній рівень володіння українською мовою і певні знання країнознавчого характеру, не завжди знають, де, як і яку інформацію шукати в україномовній частині Інтернету. Разом з тим знайомство з основними пошуковими машинами і каталогами, енциклопедичними ресурсами, авторитетними засобами масової інформації є не тільки важливим компонентом країнознавчих знань, не тільки допомагає вирішувати комунікативні завдання, але й служить підвищенню мотивації студентів в процесі навчання, допомагає не повністю «випадати з мовного середовища» під час перебування поза Україною.

Переваги використання Інтернету при підготовці до занять є очевидними для будь-якого викладача, що має доступ до «глобальної мережі». Інтернет - незамінне джерело для актуалізації матеріалів підручників, пошуку додаткової інформації, інструмент, що дозволяє значно заощадити час і засоби при розробленні навчальних матеріалів до занять за такими аспектами як, наприклад, країнознавство, розвиток зв'язного мовлення та ін. Проте необмежений обсяг

інформації - це далеко не все, що може надати нове інформаційне поле викладачам іноземних мов та їх студентам. У цьому легко переконатися, зокрема, на прикладі кількості інтернет-ресурсів (сайтів), адресованих тим, хто вивчає англійську, арабську чи російську мову, що постійно зростає, і активному обговоренню впровадження інтернет-технологій в навчальний процес у науковій літературі.

Сайтів, орієнтованих на іноземців, які вивчають українську мову, у зоні першого та другого рівнів домену «ua» ми не знайшли. Частково можна користуватися http://www.novamova.com.ua/ http://mova.kreschatic.kiev.ua/ Також можна використовувати ресурси Торонтського або Мічіганського університетів, але вони платні. Тому викладачі української мови як іноземної наразі майже позбавлені можливості використання унікальних можливостей Інтернету, пов'язаних з наявністю гіпертексту та реалізацією принципу інтерактивності, що дозволяє, крім іншого, здійснювати зворотний зв'язок та ефективний контроль за роботою студентів.

Незважаючи на очевидні позитивні якості Інтернету, багато фахівців, що активно використовують його в своїй викладацькій практиці і пропагують впровадження нових технологій в освітній процес, наголошують на необхідності раціонального, методично виправданого, строго дозованого, пропорційно по-різному поданого залежно від аспекту і мети навчання використання Інтернету під час аудиторних занять: якими б технічно досконалими не були програми, «штучний інтелект» навряд чи найближчим часом зможе замінити реального, живого викладача, а спілкування з комп'ютером не кращий спосіб вдосконалення навичок усного мовлення. Більшість матеріалів, адресованих тим, хто вивчає українську мову, орієнтована перш за все на позаудиторну роботу. Сказане вище, проте, у жодному випадку не зменшує ролі якихось ознайомлювальних курсів, присвячених україномовному сегменту Мережі, його інформаційним й освітнім ресурсам і методології роботи з ними. Саме таке знайомство і подальше активне використання унікальних можливостей Інтернету дозволяє зробити процес навчання більш цікавим, різноманітним, таким, що враховує інтереси, потреби та компетенцію індивідуума, а контроль за роботою студентів більш ефективним і оперативним.

ВИКОРИСТАННЯ ЛІНГВІСТИЧНИХ УНІВЕРСАЛІЙ У ПРОЦЕСІ НАВЧАННЯ ІНОЗЕМНИХ СТУДЕНТІВ УКРАЇНСЬКОЇ МОВИ

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Однією з характеристик сучасної соціокультурної ситуації є підвищення вимог до рівня професійної комунікації. Успішна професійна комунікація пов'язується, як правило, з комунікативною компетентністю фахівця.

Мовленнєва поведінка як компонент комунікативної компетентності іноземних студентів базується на "мовній матриці", закріпленій у рідній мові. Загальновідомим є той факт, що на початковому етапі навчання іноземної мови студенти постійно звертаються до рідної мови (або до мови-посередника, найчастіше англійської). Проте опора на рідну мову не завжди може бути надійним фундаментом успішної реалізації іншомовної комунікативної стратегії, що виявляється в різних видах мовленнєвої діяльності, внаслідок різних причин. Однією з найбільш поширених можна вважати недостатню або надмірну диференціацію мовних явищ.

Необхідність звернення до лінгвістичних універсалій у процесі навчання іноземної мови пояснюється, на нашу думку, декількома обставинами. Дослідження мовних контрастів та подібностей дозволяє краще зрозуміти особливості кожної з аналізованих мов завдяки посереднику – мовній категорії, закону тощо. Проте найбільша увага приділяється лінгвістичним відмінностям парадигматичного типу, у той час як набагато більше розбіжностей міститься у сфері "мовленнєвих жанрів" (М. Бахтін). Саме цей, прагматичний аспект є найбільш актуальним для реалізації цілей навчання іноземної мови.

Крім безперечної прагматичної цінності такого підходу слід вказати і на додатковий ефект від його використання – розвиток теоретичного мислення студентів.

Методичні аспекти проблеми використання мовних універсалій для підвищення ефективності навчання іноземної мови досліджені досить глибоко і повно. Проте залишається недостатньо вивченим питання про роль універсалій, їхні функції у процесі комунікації тощо.

СКЛАДОВІ КРОСКУЛЬТУРНОЇ КОМПЕТЕНЦІЇ ТА ЕТАПИ ЇЇ ФОРМУВАННЯ В ПРОЦЕСІ ОВОЛОДІННЯ ІНОЗЕМНОЮ МОВОЮ

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Створення кроскультурної компетенції особистості, тобто здатності оперувати системою міжкультурних знань та умінь при здійсненні спілкування в полікультурному просторі, є значущою складовою в інтегративному цілому завдань навчання іноземної мови.

Кроскультурна компетенція має багатокомпонентний склад. Вона містить: соціокультурні знання (відомості про країну мови навчання, про духовні цінності, традиції, особливості ментальної поведінки народу, у тому числі різних етнічних меншин); досвід спілкування (вибір адекватного стилю спілкування, правильне розуміння явищ іномовної культури); особистісне ставлення до реалій іншої культури, здатність розв'язувати міжкультурні конфлікти при спілкуванні; володіння засобами застосування іноземної мови, адекватне вживання національно-маркованих одиниць у різноманітних сферах міжкультурного спілкування; сприйнятливість до відмінностей у міжнародному та іномовному соціокультурних полях.

У процесі оволодіння мовою навчання іноземець засвоює кроскультурний зміст поступово та може здійснювати спілкування іноземною мовою на різних рівнях соціальної адаптації. Формування першого, базового рівня відбувається на початковому етапі викладання іноземної мови і передбачає надання студентові знань про особливості культури країни його навчання. На основі цих знань моделюється адекватна поведінка іноземця, реалізуються набуті уміння мовного та екстрамовного спілкування в кроскультурному середовищі. На наступному рівні виникає усвідомлення та оцінка особистого емоційного сприйняття ментальності народу, мова якого вивчається, порівнюються тотожні та відмінні риси рідної та іншої культур.

Таким чином, кроскультурна компетенція має три рівні сформованості – когнітивний, поведінковий та афективний. Першочергове завдання викладача мови навчання – формування в студентів уявлення про національні особливості типових поведінкових моделей та на основі цих уявлень – умінь адекватно спілкуватися у різних сферах повсякденної комунікації.

ОРГАНІЗАЦІЯ САМОСТІЙНОЇ РОБОТИ В ІНОЗЕМНІЙ АУДИТОРІЇ

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Епоха становлення інформаційного суспільства вносить значні корективи до змісту вищої освіти. Перш за все істотно змінюється роль студентів у навчальному процесі, акцент зміщується на залучення їх до активної діяльності. Важливу роль у вирішенні цього завдання відіграє самостійна робота.

Існують різні підходи до визначення змісту поняття «самостійна робота». Одні науковці вважають, що самостійна робота – це цілеспрямована діяльність студента з метою отримання інформації та трансформації її в знання. Інші розуміють під самостійною роботою різновид занять, під час яких студент здобуває та удосконалює свої знання, користуючись методичною літературою або вказівками викладача. На нашу думку, самостійна робота – це різновид діяльності в навчальних умовах.

Модель самостійної навчальної діяльності студента містить такі елементи: взаємодія студента, викладача і предмета вивчення, оволодіння навичками й уміннями в різних умовах (в аудиторії та поза аудиторією), характер управління, зовнішній і внутрішній контроль (самоконтроль) за навчальною діяльністю, виконаний з різним ступенем самостійності.

Специфіка організації самостійної діяльності в іноземній аудиторії пов'язана перш за все з такими чинниками, як рівень мовної підготовки студентів, наявність адаптованої науково-методичної літератури, сформованість навичок роботи з науковою інформацією, фонові знання студентів тощо. Саме тому на початковому етапі навчання іноземних студентів ефективність самостійної роботи значною мірою залежить від знань, набутих під час аудиторних занять, а також умінь компресії інформації в навчальному тексті. На цьому етапі важливими виявляються самостійні завдання лексико-граматичного характеру, які передбачають відпрацювання граматичних форм й активізацію лексики.

Засвоївши лексико-граматичні особливості мови, студенти-іноземці навчаються самостійно скорочувати інформацію, наведену в науковому тексті, визначаючи мікротеми тексту, складаючи номінативні, питальні та тезові плани.

На наступних етапах роботи з текстом в найбільш ефективним прийомом є складання схем тексту, що дозволяє сформувати в студентів загальне уявлення про внутрішню логіку текстів певного типу та вміння свідомої їх репродукції. Студенти дістають також можливість свідомо оцінювати кожен новий текст з погляду його відповідності тій чи іншій структурній схемі (текст-дефініція, текст-опис, текст-характеристика, текст-роздум), виявляти щораз загальні особливості теми, самостійно продукувати тексти за відомими моделями.

За характером управління самостійну навчальну діяльність поділяють на безпосередньо і повністю керовану викладачем, повністю опосередковано-керовану, частково опосередковано-керовану, повністю самостійну.

Аудиторному етапу роботи відповідає перший варіант моделі. На цьому етапі іноземним студентам пропонуються завдання переважно репродуктивного характеру. Для позааудиторного етапу характерне засвоєння теоретичного матеріалу, виконання репродуктивних вправ на формування мовних умінь. На третьому етапі відбувається перехід до вправ, які передбачають формування мовленнєвих навичок. І, нарешті, завершальним етапом є повністю самостійна навчальна діяльність студентів з використанням різних видів мовленнєвої діяльності.

Структура самостійної роботи як діяльності містить мотив, мету, способи і зовнішні умови. Як показує досвід викладання, пізнавальні й професійні мотиви далеко не завжди є провідними в самостійній роботі іноземних студентів. Тому виникає завдання вдосконалення мотиваційної сфери, перш за все створення передумов для переходу пізнавальних мотивів з рангу додаткових в ранг провідних.

Мотив звичайно реалізується шляхом досягнення певної мети. У практиці викладання іноземної мови поширеним явищем є «перевизначення» мети студентами. Перевизначається, як правило, та мета, яку студент не може досягти, якщо способи, необхідні для досягнення цієї мети, недостатньо розвинені.

Кожне самостійне завдання має бути перевірене. На початковому етапі навчання іноземців основною формою контролю є порівняння з еталоном, на просунутому етапі більш оптимальним виявляється рефлексивний контроль у формі обміну думками між студентом і викладачем в рівноправному діалозі. Контроль рефлексії акцентує увагу студентів на способах діяльності, а отже, сприяє формуванню в них навичок самоконтролю.

КОММУНИКАТИВНАЯ ИНТЕНЦИЯ И РЕЧЕВАЯ ДЕЯТЕЛЬНОСТЬ

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Начало любого действия определяет сознание: цель, средства, способ и результат. Таким образом, деятельность имеет три стороны: мотивационную, целевую и исполнительную. Она рождается из потребности. Единичный акт деятельности есть единство всех трех сторон. Он начинается мотивом и планом и завершается результатом. Мышление работает на понимание и определение каждого структурного компонента деятельности. Речевая деятельность, наряду с перцептивной деятельностью, является средством познания окружающего мира и взаимодействия с ним.

Построение речи – сознательный процесс, деятельность. Структурность и целенаправленность – две важнейшие характеристики всякой речевой деятельности. Сама речевая деятельность строго организована и подчинена иерархии целей. Целью речевой деятельности является процесс созидания, осознанного конструирования мысли посредством слов и предложений.

Речь - исторически сложившаяся форма общения, опосредованная языком. Речевая деятельность человека теснейшим образом связана со всеми сторонами человеческого сознания. Речь - фактор психического развития человека, формирования его как личности. Все психические процессы с помощью речи становятся произвольными, управляемыми. Речь является реализацией языка, который обнаруживает себя только через речь. Человеческая речь возникает в ответ на необходимость вступить в общение с кем-либо или сообщить что-либо. Для того, чтобы состоялась речь, необходимо наличие интенции.

Интенция (лат. *intentio* «стремление») — направленность сознания, мышления на какой-либо предмет, в основе которой лежит желание, замысел. В отличие от желания, которое представляет собой стремление к осуществлению чего-нибудь, замысел понимается как задуманный план действий, поэтому интенция прежде всего связана с замыслом.

Интенция – коммуникативное намерение – может появиться в виде замысла строить высказывание в том или ином стиле речи, в монологической или диалогической форме. Разновидностью интенции

является речевая (коммуникативная) интенция – намерение осуществить речевой акт. В лингвистику понятие интенции было введено последователями английского логика Джона Остина, одного из создателей классической теории речевых актов.

Интенция может рассматриваться как первый этап порождения высказывания, за нею следуют мотив, внутреннее проговаривание и реализация. В определенной степени интенция отождествляется с целью высказывания. Каждую из таких целей можно соотнести с обобщенной интенцией говорящего: сообщить, осведомиться о чем-либо, или побудить к чему-либо. Интенция так же может означать бессознательное намерение. От того, чем была вызвана интенция (желанием или определенным замыслом), будет зависеть сама речевая деятельность, ее структура, организация, использование лексических средств.

Коммуникативная интенция охватывает более широкий круг явлений, чем выражение намерения. Если интенция как акт направленности сознания не предназначена говорящим для речевого выражения, то она не является коммуникативной интенцией и, соответственно, предметом лингвистического анализа. Из этого не следует, что выраженная коммуникативная интенция обязательно должна совпадать с действительной интенцией говорящего. В случаях коммуникативных неудач или сознательного введения слушающего в заблуждение часто имеет место несовпадение действительной интенции говорящего и коммуникативной интенции, предоставляемой говорящим в высказывании для распознавания слушающему.

Коммуникативная интенция представляет конкретную цель высказывания, отражающую потребности и мотивы говорящего. Она мотивирует речевой акт, лежит в его основе, воплощается в интенциональном смысле, который имеет разнообразные способы языкового выражения в высказываниях.

Можно сделать вывод, что интенция как важнейший компонент речевой деятельности влияет на успешность или неуспешность коммуникации, эффективную реализацию практических целей участников общения.

Исследование коммуникативных интенций имеет прикладное значение в обучении иностранным языкам, переводческой деятельности и при решении задач по моделированию человеческого интеллекта.

ФОРМИРОВАНИЕ МОТИВАЦИИ ИЗУЧЕНИЯ РУССКОГО ЯЗЫКА КАК ИНОСТРАННОГО У СТУДЕНТОВ-ИНОСТРАНЦЕВ МЕДИЦИНСКОГО ИНСТИТУТА

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Эффективность обучения прямо зависит от мотивации учения. Среди основных задач, стоящих в настоящее время перед каждым педагогом, нет другой более важной и в то же время более сложной, чем задача формирования у студентов положительной, устойчивой мотивации, которая побуждала бы к эффективной систематической учебной работе.

Для студентов медицинского института мотивация учения имеет свою специфику, т. к. профессиональная мотивация влияет на мотивацию изучения всех предметов. Мотивация выполняет несколько функций: побуждает, направляет и организует учащегося, придает учебной деятельности личностный смысл и значимость. Единство этих функций обеспечивает регулирующую роль мотивации в поведении. Эффективность формирования мотивации изучения русского языка у иностранных студентов-медиков повышается, если при обучении русскому языку реализуются в сочетании следующие подходы: контекстный, «изучение русского языка в специальных целях», деятельностный и сознательно-коммуникативный и если используется комплекс педагогических средств, применяемый в условиях трёх взаимосвязанных моделей контекстного обучения: семиотической, имитационной и социальной.

Развитию мотивации способствуют следующие условия: профессиональный интерес и осознание практической и теоретической значимости получаемых знаний для будущей профессиональной деятельности; особенности будущей профессиональной деятельности. Основными средствами, обеспечивающими формирование мотивации изучения русского языка, разработанными на основе трёх моделей контекстного обучения, являются:

- в рамках семиотической модели — коммуникативные упражнения на усвоение лексики, грамматики в пределах темы; работа с основными текстами, коммуникативные упражнения к основным текстам;

- в рамках имитационной модели — отработка речевых клише и штампов, работа с текстами, имеющими профессиональную направленность, коммуникативные упражнения к ним; обучение умениям диалогического общения; освоение профессионально-речевых ситуаций ролевого поведения; заполнение анкет пациентов (историй болезней); устные доклады;

- в рамках социальной модели — ролевая игра, деловая игра, анализ конкретных ситуаций, письменные формы работы.

Одной из основных движущих сил процесса познания является внутренняя мотивация, исходящая из самой учебной деятельности. В связи с этим, очень важно продумать вопрос о содержании учебной деятельности, в которой реализуется потребность. При положительной мотивации у учащихся доминирует интерес к содержанию предмета и способам познания.

Оптимальной дидактической единицей обучения русскому языку как иностранному студентов-иностранцев на продвинутом этапе обучения является дискурс - совокупность тематически соотнесенных текстов, функционирующих главным образом в пределах одной коммуникативно-речевой сферы, порождаемых и воспринимаемых в процессе общения и деятельности.

Врач - лингвоактивная профессия. От умения врача владеть словом, от уровня его речевой культуры зависит его профессиональная компетенция. Изучение медицинского дискурса является основным фактором в формировании мотивации при обучении русского языка как иностранного иностранных студентов-медиков на продвинутом этапе обучения. Именно изучение медицинского дискурса дает возможность представить речевой облик современного врача, выявить эффективные способы речевого воздействия на пациента.

Медицинский дискурс как вербально опосредованная деятельность врача определяется особенностями медицины как социально-ответственной сферы деятельности, которой присущи специфические методы познания больного человека. Медицинский дискурс можно представить как совокупность и иерархию ситуационно-речевых сфер или типов дискурсов - образовательная сфера, профессиональная, научная. Каждый из названных типов имеет свою иерархию. Особенность их может заключаться в различиях в структуре деятельности, в специфике коммуникативно-речевых ситуаций, в параметрах коммуникантов, в собственно текстовой деятельности. Каждая из названных коммуникативно-речевых сфер конституируется совокупностью текстов, в которых языковая личность вербально опосредует свою специфическую деятельность.

ГРАМАТИЧНІ ВПРАВИ ЯК ЗАСІБ ОРГАНІЗАЦІЇ ДІЯЛЬНОСТІ СТУДЕНТІВ ПРИ ВИВЧЕННІ УКРАЇНСЬКОЇ МОВИ ЯК ІНОЗЕМНОЇ НА ПІДГОТОВЧОМУ ФАКУЛЬТЕТІ

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Оволодіти українською мовою як засобом спілкування неможливо без знання граматики української мови. У зв'язку з тим, що перед іноземними учнями стоїть завдання в стислі терміни - від 6 до 8 місяців - оволодіти українською мовою в такій мірі, щоб продовжити навчання за обраною спеціальністю українською мовою, питанню відбору ефективних і доцільних вправ на уроці викладачем приділяється велика увага.

Граматичні вправи є провідною формою навчальної роботи іноземних студентів при вивченні української мови. Граматичні навички є невід'ємними компонентами мовленнєвої діяльності, їх слід розглядати як правильне і автоматизоване використання граматичних явищ в усній і письмовій мові.

На уроці граматичний матеріал організується в систему мовних зразків. Кожен мовний зразок конкретизований і в той же час побудований на основі абстрагованої узагальнюючої моделі. За допомогою мовних зразків досліджуваний матеріал може бути представлений для учня як у відтворених у мові цілісних мовних комплексах, так і в однотипних аналогічних рядах, що дозволяють узагальнити окремі мовні факти і простежити систему мови в дії. Мовні зразки використовуються не тільки при презентації навчального матеріалу, але і при його тренуванні та автоматизації. Вибір способу подачі нового матеріалу залежить від характеру самого матеріалу, від ступеня лінгвістичної підготовки учнів.

Ознайомлення з граматичним матеріалом складається з трьох ланок: презентації матеріалу, контролю правильності розуміння, первинних вправ в розпізнаванні та відтворенні нових структур. Контроль правильності розуміння здійснюється в процесі виконання різних вправ, правильне виконання яких свідчить про адекватність сприйняття і розуміння нового матеріалу. 30% часу на уроці приділяється поясненню і первинному засвоєнню теорії, а 70% - розвитку мовних навичок і вмінь.

Під час роботи над граматикою слід розвивати всі види мовленнєвої діяльності: говоріння, аудіювання, читання і письмо. Письмові вправи сприяють кращому запам'ятовуванню матеріалу,

вправи в читанні розвивають спостережливість, розширюють пасивний словниковий запас учнів, усні вправи, в тому числі на аудіювання та читання вголос, створюють звуко-моторні образи конструкцій. Розвиток розуміння граматичних явищ на слух при читанні вимагає спеціального часу.

Вправи як основні практичні методи навчання УМІ на підготовчому факультеті забезпечують комплексну реалізацію цілей навчання в процесі оволодіння мовою як засобом спілкування. Однак це досить широке розуміння мети диференціюється в залежності від конкретних умов навчання мови.

На початковому етапі в умовах навчання на підготовчому факультеті ставиться більш вузька, проміжна мета в порівнянні з кінцевою метою навчання мови (вільне володіння): оволодіти основами мови та підготуватися до занять у ВНЗ українською мовою. Чітке уявлення про проміжну і кінцеву цілі навчання визначає вибір вправ і прийомів роботи на уроці, відбір навчального матеріалу.

Отже, типи граматичних вправ визначаються цільовою установкою. Продуктивні вправи тренують певні дії з вибору моделі речення або його структурування. Рецептивні вправи спрямовані на впізнавання форми і розуміння змісту висловлювання.

Засвоєння граматичної структури становить єдине ціле з операцією по її утворенню і вживанню, з одного боку, і з виділенням формальних ознак і синтезу змісту на їх основі - з іншого. У зв'язку з цим граматичні вправи повинні бути спрямовані на засвоєння формальної сторони граматичного явища і його функціонування в мові.

Для закріплення граматичних навичок необхідно збільшити кількість умовно-мовленнєвих і власне мовленнєвих вправ і завдань. Найбільш ефективним у даному випадку буде використання різноманітних граматичних ігор, спрямованих на відпрацьовування граматичних навичок у значимому, комунікативно-орієнтованому тексті.

Оволодіння граматикою шляхом виконання граматичних вправ передбачає не стільки знання правил, скільки вміння, не замислюючись, реалізовувати їх у процесі мовної взаємодії.

Таким чином, у процесі навчання іноземних студентів граматики української мови перед викладачем стоїть важливе завдання відбору серед різноманітних вправ саме тих, які змогли б забезпечити ефективність навчання, привести іноземця від незнання мови до високого чи достатнього рівня володіння нею.

МОТИВАЦИЯ СТУДЕНТОВ-ИНОСТРАНЦЕВ К САМОСТОЯТЕЛЬНОЙ РАБОТЕ

Н.А.Тубол, *преподаватель*

Внеаудиторная самостоятельная работа иностранных студентов является важной частью общей структуры учебного процесса, в том числе и в овладении русским языком как иностранным.

К внеаудиторным формам работы относятся как самостоятельная работа учащихся, так и мероприятия, которые проводятся во внеучебное время: экскурсии, встречи, беседы, дискуссии и т.д.. Самостоятельная работа способствует углублению и расширению знаний учащихся, формированию интереса к познавательной деятельности, активизации мыслительной деятельности студентов, развитию способностей самостоятельно решать поставленные задачи, овладению процессами познания, способности находить конструктивные решения.

Правильная организация самостоятельной работы способствует саморазвитию и самообразованию учащихся.

Для того чтобы студент активно занимался внеаудиторной самостоятельной работой, нужна сильная и устойчивая мотивация. Такой мотивацией является получение положительной оценки, приобретение культуроведческих знаний, пополнение словарного запаса, расширение и углубление познаний в языке, саморазвитие, самосовершенствование, планы на освоение выбранной специальности. Задача преподавателя – поддерживать мотивацию действий учащегося, определять характер самостоятельной работы.

Отношение к выполняемой работе зависит от понимания студентом того, где, для чего и как будут применяться результаты его работы. Преподаватель должен обучить, объяснить студенту, как работать с тем или иным источником информации. Любое задание должно быть проверено, так как контроль является одним из стимулов студентов к самостоятельной работе.

Таким образом, для развития положительного отношения студентов к самостоятельной работе, необходимо на каждом ее этапе разъяснять цели данной работы, контролировать понимание этих целей студентами, формировать у них умение самостоятельной постановки задач и целей.

К ВОПРОСУ О СЕМАНТИЧЕСКИХ ИЗМЕНЕНИЯХ В ЛЕКСИКЕ СОВРЕМЕННОГО РУССКОГО ЯЗЫКА

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В процессе создания номинативных единиц происходят лексико-семантические трансформации; сдвиги в семантике слова могут вызвать изменения в синтаксических функциях, а функциональные перемещения – семантические деривации.

Семантические изменения парадигматического характера (расширение, сужение, смещение значения), сопровождающие изменение семантической функции номинативных единиц, – один из наиболее продуктивных способов номинации, характерных для русского языка.

Расширение значения наблюдается при переходе терминов из узкоспециальной сферы в научную: *вектор, конвергентный, экстраполировать.* Социально-политические процессы ведут к расширению значений слов с их одновременной политизацией: *перестройка, прорыв, застой, оттепель, подвижка.*

Сужение значения происходит при его специализации: *маркетинг, риэлтор, папарацци, менеджмент*

Согласно современным политическим реалиям происходит смена коннотативного статуса некоторых лексических единиц: *империя* (вкуса, мыслей), *идеология* (правовая, религиозная, моральная).

В ряде случаев изменение или смещение значений слов связано с их расширением или сужением. Однако часто переосмысление слов происходит путём вторичной номинации: *холостяк* (порожний рейс), *художница* (гимнастка), *позвоночник* (человек, получивший должность по звонку), *сигнал* (донос).

Увеличение возможности сочетания слов ведёт к созданию новых метафорических единиц, отражающих современные социальные, политические и морально-нравственные понятия: *коррозия души, склероз совести, климакс системы, инфляция слов, протез дружбы, аллергия на контакты с прессой, остеохондроз мышления.*

Семантические преобразования в лексике русского языка ведут к расширению и обогащению словарного состава, в котором, как в зеркале, отражаются изменения, происходящие в жизни общества.

ЛИНГВОСТРАНОВЕДЕНИЕ В ПРОЦЕССЕ ИЗУЧЕНИЯ РУССКОГО ЯЗЫКА СТУДЕНТАМИ-ИНОСТРАНЦАМИ

Шевцова А.В., *к.ф.н., доцент*

В методике преподавания русского языка как иностранного наряду с понятиями страноведение и культуроведение сформировано понятие лингвострановедение. «Под термином «лингвострановедение» понимается такая организация процесса изучения русского языка, благодаря которой студенты-иностранцы посредством русского языка и в процессе овладения им знакомятся с современной действительностью носителей языка и его культурой».

Лингвострановедение рассматривает вопросы, связанные с речевым и неречевым поведением, характерным для носителей языка в определённых ситуациях общения.

Речевое поведение как часть лингвострановедения включает речевой этикет, использование безэквивалентной и неэквивалентной лексики, фразеологизмов, функциональных стилей речи и их отдельных элементов.

Единицей сообщения в речевом этикете выступает устойчивое выражение – коммуникативная единица, равная слову-предложению без распространителя; слову-предложению с распространителем; распространённому простому и сложному предложению. Речевой этикет реализуется в ситуациях общения: «Приветствие», «Знакомство», «Прощание», «Приглашение» и др. На начальном этапе обучения языку отбираются самые употребительные формы речевого этикета, которые органически вводятся в диалоги. Затем студенты-иностранцы учатся дифференцировать формы речевого этикета в зависимости от ситуации общения.

Под безэквивалентной лексикой понимается лексика, которая не имеет эквивалентов за пределами изучаемого языка. Удельный вес безэквивалентных понятий невелик, однако они иногда отражают важное в русской культуре и истории.

Особенность неэквивалентных слов определяется тем, что одно и то же наименование, выражающее идентичные понятия в разных языках, мотивировано по-разному.

Лексический запас студентов-иностранцев расширяет работа с фразеологизмами, которые воспроизводятся в речи как целостные лексические единицы. Студенты усваивают фразеологизмы, выполняя различные задания: учатся их разграничивать в разных ситуациях;

составляют или описывают ситуации с использованием фразеологизма.

Одним из направлений лингвострановедческой работы является работа с текстом. Этапы работы с текстом: предтекстовая работа, ознакомление с текстом, послетекстовая работа.

Для групп, занимающихся чтением специальной литературы, отбирается страноведческий материал, связанный с определённой отраслью науки или производства. Он включает в себя сведения об известных учёных, работающих в данной области науки, краткие сведения по истории этой науки или отрасли производства.

Художественный прозаический текст в силу своей эмоциональности и содержательной насыщенности способствует формированию культурной компетенции и языковой личности студентов.

В отличие от речевого поведения неречевое включает: традиционные жесты, сопровождающие высказывания в определённых ситуациях общения; особенности манер, традиций, привычек, проявляющихся в определённых ситуациях в поведении большинства носителей языка; неадекватность ситуаций общения на родном и русском языках.

Страноведческий аспект пронизывает весь процесс обучения иностранному языку. В соответствии с изучаемыми учебными темами целесообразно составлять план учебных экскурсий, дополняющих и расширяющих знания студента-иностранца страноведческой информацией. Информацию о культуре изучаемой страны, её истории необходимо соотносить с информацией о стране студента.

Лингвострановедческая работа, проводимая в аудитории, дополняется внеаудиторной (встречи с известными людьми, представителями администрации, правоохранительными органами).

Ускоряющим процессом усвоения иностранными студентами русского языка является проведение конкурсов, вечеров на русском языке.

Таким образом, лингвострановедческая работа, организованная последовательно и в системе, знакомит иностранных студентов с культурой носителей языка, современной действительностью, формирует адекватное языковому окружению речевое поведение.

СМИСЛОВІ Й КОНЦЕПТУАЛЬНІ ВИМІРИ ПОПУЛІСТСЬКОГО МІФУ В ХУДОЖНІЙ РЕЦЕПЦІЇ СОЦІУМУ СУЧАСНОЮ УКРАЇНСЬКОЮ ПРОЗОЮ

Ставнича О. М., *викладач СумДУ*

Популізм слугує однією з основ сучасних етнічних націоналізмів [Е. Сміт], тому закономірним є наявність популістських мотивів у сучасній соціально «заангажованій» прозі, у центрі зацікавлень котрої знаходяться мотиви пошуків національної ідентичності й об'єднавчої ідеї українськості [І. Лосів]. Актуальними у літературознавчому дискурсі є дослідження функцій і специфіки соціоміфічних уявлень у символічному просторі тексту, способів експлікації прозаїками соціальних елементів у художніх творах (О. Бондарева, Г. Мережинська, І. Лисенко, О. Гриценко та ін.). Однак популістський міф як цілісне смислове утворення зі своїми провідними мотивами й способами втілення у сучасній прозі не розглядався. Мета дослідження: на матеріалі прозових творів сучасних письменників-традиціоналістів розкрити сутність популістського міфу, дослідити художні засоби і прийоми концептуалізації розглядуваного соціального міфу у сучасних романах; визначити функції популістського міфу у сюжето- й смислотворенні художнього тексту.

Витоки популізму як ідеології та стратегії керування масами можна побачити ще в римській античності («Vox populi — vox dei»). В Україні популізм («хлопоманія») як соціальне явище розвинувся у 19 ст., переважно з романтичної концепції Й.-Г. Гердера, а в сучасній українській літературі має подвійно обумовлене походження: народництво 19-го століття та вплив радянської спадщини (комуністична риторика і псевдонаукові вимоги «народності» в художній творчості часів поширення «методу соцреалізму»).

Сутність міфічного уявлення полягає в сакралізації абстрактного Народу, що за означенням не поділяється на окремих індивідів, а є цілісним суб'єктом, до якого спрямовані наратії і заради якого існує держава. Аксіомами при цьому є велич народу, його пасіонарність, духовність, мудрість, безсмертність, унікальність (породжує міф месіанізму), терплячість та миролюбність (спричинює трагізм його долі). Народ є «колективним героєм» багатьох художніх творів української літератури протягом усього модерного періоду її розвитку [О. Гриценко]. Трактуємо як соціальний міф у художньому

творі за такими ознаками: нерефлективність; наявність віри в сакральний народ; апеляція до соціального підсвідомого; побудова власної каузальності; наративне оформлення. Найчастіше популістський міф виявляє себе через прямі авторські звернення до поняття Народу в соціополітичному контексті та змалювання певних рис менталітету, стосунків українців та росіян; у вигляді опінії міфічному народу, віри в його чесноти, нескоримість, історичну місію; відображення внутрішньосуспільної конфронтації різних суспільних верств. Слід відзначити також амбівалентність художнього осмислення поняття Народу, що обумовлено складністю багатовимірного феномену: колективні психологічні комплекси (які складно верифікувати на емпіричному матеріалі), етнічний базис (значною мірою уявно уніфікований до однорідного типажу), спільна пам'ять (часто формована кон'юнктурою певної епохи), — всі компоненти феномену можуть бути розглянуті і як достовірні, і як недостовірні, в залежності від початкової настанови автора.

Концептуалізація популістського міфу відбувається на підставі побудови письменниками певних моделей рецепції соціального буття за допомогою смислотвірних, суспільно-функціональних концептів історичності, ідентичності, комплексу малоросійства, національного характеру (набувають концептуальності завдяки насиченню в різних художніх творах конвенціональним смислом і згорненню до одного поняття обширної проблеми). Провідні мотиви: контраверсійне змалювання національного характеру; дихотомія «українці — росіяни» (міфологема ворога слугує структуротвірною для розкриття історичної детермінованості сучасних менталітетів цих народів: в дзеркалі Іншого інвертовано відображаються гіпертрофовані позитивні чи негативні риси); мотив месіанізму; демагогічність народних провідників; трагічність сучасного становища народу тощо. Мотиви популізму наявні у романах «У пастці» і «Морок» Ю. Мушкетика (окремі наративні і дискурсивні структури), «Інавгурація» М. Лазарука (образ філософа Лодка, який обстоює думку про несумісність екзистенцій владної та народної), «Цінь Хуань Гонь» Г. Тарасюк (влада народу є спекулятивною фікцією) та ін.

М. Лазарук («Інавгурація») творить популістський міф за допомогою сюжетотвірного використання символу народу (слугує також для композиційного обрамлення обох частин роману) і створення образу-рецепції абстрактного народу у дискурсі влади (деталі, роздуми, метафоризація). Письменник також сатирично

розкриває підсвідомі мотивації демагогізму як невід'ємної риси влади: емоційно й інформаційно позитивні наративи формують у слухачів ситуативне почуття переконаності у правдивості почутого.

Існують підстави говорити про загальну популістську тенденцію романів Ю. Мушкетика. Популістські уявлення у творах письменника оформлюються у вигляді надфразних єдностей або складних синтаксичних конструкцій, публіцистичних за стилістикою та синкретичних за характером вираженої проблематики, яка охоплює цілий комплекс соціальних проблем; основні прийоми — контраст, вербалізація підсвідомого через автодієгетичний наратив (окреслення атавізмів радянської суспільної міфології).

Сатирична експлікація «народоцентризму» наявна у романі «Цінь Хуань Ґонь» Г. Тарасюк. Популізм у письменниці виступає своєрідним художнім концептом, позаяк в ньому фокусуються: демагогізм народних провідників, розкривається сутність поняття Народ, що не збігається із поширеним уявленням, висловлюються аналітичні й прогностичні соціокультурні та політичні зауваги, формується базис для спільної національної ідеї.

Серед художніх прийомів втілення соціального популістського міфу можна назвати використання історичних і сучасних національних образів, символіки, окремих міфем, відображувані психоментальні ознаки знаходять вияви у модельованих характерах персонажів, в репліках узагальнювально-оцінного типу, розгортанні колізій. Ідеологічна фразеологія популізму має вплив на підсвідомість реципієнта завдяки позитивній емоційній забарвленості, частотності вживання, достатній неконкретизованості поняття.

Центральне місце популістського дискурсу в українській «заангажованій» літературі визначається тим, що саме явище потрактовується як вартість, яку треба активно стверджувати, також популізм несе в собі сенсотвірну образотворчу мотивацію, важливу при створенні прозових текстів, що аналізують суспільні процеси або мають настанову світоглядного впливу на читача. Отже, головна функція розглядуваного міфічного утворення — смислотвірна: формування національної ідентичності, моделювання читацького відгуку в руслі піднесення Народу до статусу мети будь-якої культурної, політичної діяльності та історичного поступу («народ» виконує роль адресату художнього повідомлення). Амбівалентність художніх способів відображення детермінувала трагічно-сатиричне забарвлення популістського міфу в сучасній традиціоналістській прозі. Також вважаємо, що художньою специфікою популістського міфу (у порівнянні з іншими соціальними міфами) є його виразно стереотипна (переважно алегорична, а не символьна) основа.

ЗМІСТ

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