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Comments on “The Pioneer Anomaly: an inconvenient reality or NASA’s 12 year misconception”

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Abstract

Paul ten Boom (arXiv:1307.0537[physics.gen-ph]) suggested the recent publications of the thermal recoil force causing the Pioneer Anomaly (PA) are questionable. Only one model presented to date is consistent with all 12 PA characteristics (Hodge http://arxiv.org/abs/astro-ph/0612567). This proposed model supports a reductive philosophy. Paul ten Boom did not discuss this model but did conclude the PA should remain an open issue. All other proposed models are inconsistent with some PA data. The PA is a case where conservatism should yield to observation and a reductive model that explains the observation.

KEYWORDS Pioneer Anomaly; fundamental physics

1 INTRODUCTION

Anderson et al. (2002) reported on the analysis of recovered Pioneer 10 (P10) and Pioneer 11 (P11) flight data. There are 12 characteristics of the Pioneer Anomaly (PA) that must be explained by a candidate model (Hodge 2009).

Turyshev and Toth (2012) supported a model suggesting a thermal recoil force caused the P10 anomalous acceleration. However, Turyshev and Toth (2012) dealt with only the P10 and only the “acceleration” value. Much of the data used to calculate the forces are less well known or supported by other data. Although unlikely, a currently unknown other systematics effect is not entirely ruled out. Although incomplete, the thermal recoil force hypothesis has become a strongly preferred option by conservative science (ten Boom 2013, and references therein).

Paul ten Boom (ten Boom 2013) suggested the recent publications of the thermal recoil force causing the Pioneer Anomaly are questionable, suggested

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2 COMMENTS

a non-systematic effect is unlikely, and concluded the dismissal of the PA as a physical observation that physics should explain is unwise. ten Boom (2013) noted John D. Anderson in a recent interview argued “...that the new analysis has mis-modelled the solar radiation pressure.” Paul ten Boom failed to discuss the only model presented to date that is consistent with all the characteristics (Hodge 2006b, 2013).

This paper expands ten Boom (2013) and notes a model has been proposed that describes the PA. The comments are in Section 2. The conclusion is in Section 3.

2 COMMENTS

A lower anomaly occurred during the Saturn encounter of P11. Also, the P11 values were slightly different than the P10 data. The P10 data at the furthest distance flattened and increased (but within experimental uncertainty) which is inconsistent with a declining thermal cause. The cosmological connection is unexplained by the thermal model. The solar and sidereal diurnal periodicities are unexplained by a thermal model also, Turyshev and Toth (2012) shows the early data point recently calculated.

ten Boom (2013) stated “A non-heat based approach is unconventional and (to date) its supporters have failed to deliver a fully viable and/or well-received hypothesis.” An unconventional model has been presented in Hodge (2006b) and some of its predictions later confirmed by Turyshev and Toth (2009) and by Turyshev et al. (2011) (Hodge 2013). Bertolami and Páramos (2004) concluded a scalar field is able to explain the PA. A scalar potential model (Hodge 2006b) is consistent with all the PA characteristics including a cosmological connection and variable measured values. This model was omitted from the analysis. All models considered conventional today were unconventional when first introduced.

That the PA is an acceleration of the spacecraft is unproven. The PA is measured by an unexplained frequency blueshift in the radio signal. The “acceleration” nomenclature is based on the unsupported hypothesis that the frequency shift is a Doppler effect and on an analysis showing lack of a conventional physics explanation for a frequency blueshift (Anderson et al. 2002). Other phenomena cause frequency shifts of electromagnetic signals (light) such as gravity using the Weak Equivalence Principle as shown in the Pound-Rebka experiment (Pound & Rebka 1960) and the galaxy redshift \( z \) of cosmology (Hodge 2006a, an unconventional model).

The greater number of pioneer maneuvers, the greater solar pressure on the spacecraft closer to the Sun, and the age of the earlier PA data cause the earlier data that resulted in the thermal model and confirmation of the predictions of the new physics model to be of low quality (ten Boom 2013). However, this is more than compensated by the reductionist philosophy of the proposed model. The PA is only one of three sets of different types of observations suggesting the same new physics model. The PA is the galaxy redshift model without the
galaxies influence. It has the influence of only the masses of the planets and Sun. The Pound–Rebka experiment is the galaxy redshift model with the influence of only the Earth’s mass. Therefore, instead of questioning the viability of the reductive agenda, the proposed model supports a reductive philosophy.

3 CONCLUSION

As ten Boom (2013) stated “...but ultimately, hard won observational evidence should be a physicist’s first priority.” The PA is a case where conservatism should yield to observation and a reductive model that explains the observation.

References

Crystal spheres and a geometric concept of the world.

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Abstract: A geometric concept of the world (W) is considered where the manifold W is identified with a locally trivial fibre bundle \( pr: W \rightarrow U \) of so–called crystal spheres over a manifold \( U \) called the universal time. For every point \( p \in U \), \( M^n = pr^{-1}(p) \) is a \( n \)–dimensional crystal sphere and close crystal spheres are called the parallel universes. There exists a geometric black hole on the smooth manifold \( M^n \). Tensor fields, fibre bundles, operators (physical structures and equations) can be deformed towards the black hole into continuous and sectionally smooth those, further, they can be retracted together with the black hole into a small black ball to initiate the Big Bang.

Keywords: Crystal spheres, Riemannian metric, smooth triangulation, homotopies, deformations of tensor fields and fiber bundles.

MSC(2000): 53C21, 57M20, 57M40, 57M50

The celestial spheres were the fundamental entities of the cosmological models developed by Plato, Eudoxus, Aristotle, Ptolemy and others, [1]. Our concept of the world can be considered as a modern interpretation of ideas of ancient greeks or, perhaps, of more old sources which we do not know.

Example. A sphere bundle is a fiber bundle whose fiber is a \( n \)–sphere. Given a vector bundle \( E \) with a metric (such as the tangent bundle to a Riemannian manifold) one can construct the associated unit sphere bundle for which the fiber over a point \( x \) is the set of all unit vectors in \( E_x \). When the vector bundle is the tangent bundle \( T(M) \), the unit sphere bundle is known as the unit tangent bundle, and is denoted \( UT(M) \).

It is well known that a \( n \)–sphere is identified by the stereographic projection with \( \mathbb{R}^n \cup \{\infty\} \) where \( \{\infty\} \) is a singular point.

Definition A \( n \)–dimensional, connected, simply connected, compact, closed, smooth manifold \( M^n \) is called a crystal sphere if there exists such a finite smooth triangulation on \( M^n \) which is coordinated with the smoothness structure of the manifold \( M^n \) i.e. every simplex (crystal) of the triangulation is an embedded smooth submanifold of \( M^n \) with a boundary.

Theorem [2]. A crystal sphere \( M^n \) is homeomorphic to the \( n \)–sphere.
Further, we consider only one crystal sphere $M^n \subset W$ with a smooth triangulation considered above. We can fix some Riemannian metric $g$ on the manifold $M^n$ which defines the length of arc of a piecewise smooth curve and the continuous function $\rho(x; y)$ of the distance between two points $x, y \in M^n$. The topology defined by the function of distance (metric) $\rho$ is the same as the topology of the manifold $M^n$, [3].

For any $n$–simpex $\delta^n$ the diameter $d(\delta^n)$ is defined by the formula $d(\delta^n) = \max \rho(x; y), \ x, y \in \delta^n$. The diameter of the triangulation is called the maximal value among the diameters of the $n$–simplexes. It seems that the diameter of the triangulation can be very small (subatomic).

In section 1 from [5], using a smooth triangulation above and the function of distance we consider an algorithm of extension of coordinate neighborhood (inner part of the canonical polyhedron) constructed in [2], [4]. The beginning of the algorithm we call the geometric Big Bang. The inner part of the canonical polyhedron is painted white and the boundary of the canonical polyhedron is painted black every step, the other part of the manifold which has not been still painted assumes to be grey (three kinds of matter from a physical point of view). A small closed neighborhood of the boundary of the canonical polyhedron we repaint black and call a geometric black hole, [4].

In section 2 from [5], we consider deformation of tensor fields, fiber bundles and operators (physical structures and equations) towards the black hole. These deformations are continuous and sectionally smooth and they have a very simple constructions on a white neighborhood where a parameter $t(\gamma)$ of the deformations of structures can be considered as a local time along every piecewise smooth broken line $\gamma$. We have got only one black point $x_0 \in M^n$ at the end of all considered algorithms (other part of the manifold is white). Let $\overline{B}(x_0)$ be a small black closed ball with the center $x_0$. All the resulting parts of the deformed structures have been concentrated into $\overline{B}(x_0)$. We consider an inversion (Big Bang) painting inner part of $\overline{B}(x_0)$ white and other points of $M^n$ grey and begin again the process above where the initial simplex is a subset of $\overline{B}(x_0)$. Thus, Big Bangs have a cyclical nature.

We remark that all the algorithms considered in the article are based on the mathematical methodology «step by step». From a physical point of view the processes must have explosive characters i.e. a big number of the steps of the algorithms must be produced almost simultaneously.

One can find the full version of the paper in [5].
Conclusion

We consider a crystal sphere as a geometric model of an universe where the world is identified with a fibre bundle of crystal spheres. The following mathematical notions are considered which are close to those studied in physics.  
1) Extension of white coordinate neighborhood – extension of the universe.  
2) Three paintings – three kinds of matter.  
3) The set of piecewise smooth broken lines – strings.  
4) A parameter of deformations along a line – a local time along the line.  
5) Geometric black hole – black holes (It seems that black holes observed in astronomy are presentations of one big black object).  
6) Deformations of tensor fields, operators, fibre bundle towards the geometric black hole – corresponding situations in physics.  
7) Geometric Big Bang – Big Bang.

References

УДК: 621.383.5

IMAGE DETECTOR WITH A SHOTTKY BARRIER BASED ON A CONTACT IRSİ - SI

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ПРИЕМНИКИ ИЗОБРАЖЕНИЯ С БАРЬЕРАМИ ШОТТКИ НА ОСНОВЕ КОНТАКТА IRSİ – Sİ

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Keywords: Schottky barrier, iridium silicide, geometric noise, photosensitivity, Schottky-matrixes, annealing, diode structures.

Ключевые слова: Барьер Шоттки, силицид иридия, геометрический шум, фоточувствительность, Шоттки – матрицы, отжиг, диодные структуры.

Abstract

Essential increasing of Schottky-matrixes filling coefficient is reached by charge readout, stored in Schottky-diode, not with help DCC (devices with charge coupling) – registers, but by its injection in to signal wire, by analogy with DCI (devices with charge injection) – to structures on narrow-bandgap semiconductors. In this case multielement matrix contains horizontal wires for inquiry elements choosed line, vertical signal wires, MOS (metal- oxide-semiconductor) – key for connection interrogated column and matrix of photosensitive elements, every of them consist of photosensitive Schottky-diode and MOS- key.

Аннотация

Существенное увеличение коэффициента заполнения Шоттки – матриц достигается считыванием заряда, накопленного в Шоттки – диоде, не с помощью ПЗС (приборы с зарядовой связью) – регистров, а путем его инжекции в сигнальную шину, аналогично ПЗИ (приборы с зарядовой инжекцией) – структурам на узкозонных полупроводниками. В этом случае многоэлементная матрица содержит горизонтальные шины для опроса элементов выбранной строки, вертикальные сигнальные шины, МОП
(метал – оксид - полупроводник) – ключ для подключения опрашиваемого столба и матрицы фоточувствительных элементов, каждый из которых состоит из фоточувствительного Шоттки диода и МОП – ключа.

**Введение**

Чувствительность приемных устройств, использующих многоэлементные матрицы Шоттки - диодов, как и других многоэлементных приемников, зависит от отношения площади, занимаемой непосредственно фоточувствительной поверхностью ко всей площади приемника, включая и считающую структуру. При использовании в качестве считающей системы ПЗС - регистров, в состав многоэлементного приемника должны входить электроды передачи зарядов и сигнальные шины сдвигаового регистра, стоп – канальные области, электроды считающих затворов и т.д. По этой причине, относительная доля фоточувствительной площади в многоэлементных Шоттки – матрицах (иногда ее называют коэффициентом заполнения), мала. Например, в одной из первых двухкоординатных матриц Шоттки диодов, она составляла лишь 16,4%. Путем уменьшения размеров элементов считающей структуры, стоп – каналов и других нефоточувствительных областей, удалось повысить коэффициент заполнения, при сохранении достаточно большого динамического диапазона считающей структуры. Так, в одной из последних разработок фирмы RCA, в матрице PtSi Шоттки – диодов, состоящей из 160 x 244 элементов, коэффициент заполнения составил 39%. Предполагается дальнейшее уменьшение размеров нефоточувствительных областей матрицы, что согласно предположениям, должно увеличить коэффициент заполнения до максимальной величины, равной 83%.

Для увеличения коэффициента заполнения матрицы, можно также использовать оптическую преломляющую пластинку из прозрачного в ИК – области материала (кремния, германия), которую устанавливают в
непосредственном контакте с той поверхностью матрицы, через которую происходит освещение приемных элементов. Эта пластинка должна изменять ход лучей таким образом, чтобы излучение фокусировалось только на фоточувствительные участки матрицы.

В последние годы разработан ряд новых фотоприемников: диодов Шоттки, МОП (металл-оксид-полупроводник) и МДП (металл-диэлектрик-полупроводник) структуры. Основными недостатками известных фотоприемников являются их низкая фоточувствительность и узкая область спектральной чувствительности. По сравнению с ДШ (диод Шоттки) и МДП – структур, фототранзистор одновременно выполняет роль предусилительного каскада.

Эксперимент

Изготовлен фототранзистор (ПТШ - полевой транзистор Шоттки) с барьёром Шоттки на основе контакта IrSi-Si индуцированного и р -канальный встроенного типа (рис.1). Канал был сформирован внедрением ионов бора с энергией 50 кэВ и дозой $2 \times 10^{12}$ см$^{-2}$. Истоки и стоки полевых транзисторов сформированы диффузией фосфора с поверхностным сопротивлением 8 Ом/□ и диффузией бора 6 Ом/□ на глубину 1,5 мкм. Затвор из IrSi получен ранее описанным методом. При работе ПТШ (полевой транзистор Шоттки) подложка 1 и исток 2 заземляются, а сток 3 соединяется через нагрузочное сопротивление с положительным полюсом источника. Таким образом, контакт Шоттки образованный методу пленками IrSi и кремнием 5, становится обратносмещенным. Поэтому пленка IrSi удерживает положительный заряд так, что полевой транзистор находится в открытом состоянии. При этом течет канальный ток, величина которого определяется нагрузочным сопротивлением и сопротивлением канала.
Исследованы вольт - амперные характеристики затвора полевого транзистора, управляемого барьером Шоттки, на основе контакта IrSi - Si. Зависимость токов затвора от напряжения показаны на рисунке 2.

**Обсуждение результатов**

При увеличении напряжения ток затвора увеличивается, что, объясняется действием сил зеркального изображения темновой ток барьера Шоттки, описывается формулой:

Рис. 1. Структура полевого транзистора с барьерами Шоттки.
Рис. 2. Зависимость токов затвора от напряжения на стоке: 1 – при 800 К, 2 – при 3000 К.

\[ I = SAT^2 \exp\left(-\left(\varphi_B - \Delta \varphi_B\right) / kT\right) \]  \hspace{1cm} (1)

где, \( S \) – площадь, \( A \) – эффективная постоянная Ричардсона, \( T \) – температура, \( \varphi_B \) – высота потенциального барьера. Согласно [1,2] в режиме насыщения тока стока напряженность электрического поля в стоковой части канала на границе металл (IrSi) – полупроводник пропорциональна напряжению затвор – сток, поэтому изменение барьера равно:

\[ \varphi_B = \alpha \sqrt{U_{3c}} = \sqrt{qE/\epsilon} \]  \hspace{1cm} (2)

а ток обратносмещенного барьера

\[ I = SAT^2 \frac{\exp(\alpha \epsilon \sqrt{U_{3c} + \varphi_B})}{\kappa T} \]  \hspace{1cm} (3)
или

\[
\ln \tau = \ln(SAT^2) - \frac{\phi_B}{kT} + 2\sqrt{\frac{U_{sc}}{kT}}
\]  \hspace{1cm} (4)

Зависимость тока затвора ПТШ с индуцированным каналом показывает, что напряжения ИК - излучением транзисторной структуры, положительный заряд, удерживаемый в пленке IrSi, разряжается в кремниевую пленку, образуя фототок в цели затвора. Поэтому наблюдается падения напряжения на затворе в виде:

\[
\Phi V_3 = I_{\Phi} R_{I3}
\]  \hspace{1cm} (5)

где, \(I_{\Phi}\) – фототок, \(R_{I3}\) - сопротивление канала исток – затвор.

Изменение напряжения на затворе:

\[
g = -\frac{dI_c}{dV_3}
\]  \hspace{1cm} (6)

(где \(g\) – крутизна, \(I_c\) – ток проходящая через канал) вызывает изменение тока через канал на

\[
\Phi I_c = g \Phi V_3 = gR_{I3} I_{\Phi}
\]  \hspace{1cm} (7)

Чувствительность к излучению фототранзистора определяется:

\[
\Phi I_c / \Phi = gR_{I3} I / \Phi
\]  \hspace{1cm} (8)

где \(\Phi\) – мощность ИК – излучению.

На рис.3 приведена зависимость фототока в области насыщения от напряжения на полевом электроде.
Рис. 3. Зависимость фототока от напряжения смещения.

Разработанный фотоприемник имеет следующие параметры:
- область спектральной чувствительности: 7,5 ÷ 14,1 мкм;
- абсолютная токовая чувствительность при $\lambda = 9$ мкм; $S_{\lambda} = 6$ мА/ Вм;
- рабочая температура: 50 – 55 К;
- обнаружительная способность: $D = 10^{11}$ см·Гц$^{-1/2}$·Вт$^{-1}$;
- инерционность: $\tau \leq 5 \cdot 10^{-9}$ сек.

Рассмотренный ИК – детектор может быть совмещен с элементами интегральных схем, что открывает широкие перспективы для его использования в многоэлементных инфракрасных фотоприемниках большой степени интеграции.

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ABSTRACT

The article traced the dynamics of the number of certified organizations in the world by the international standard ISO 14001 and the dynamics of the number of certificates for environmental management system, which registered in the register and canceled UkrSEPRO. The aim is to analyze the implementation of a series of international standards ISO 14001 in companies, in the world and in Ukraine. The object of the study enterprises are certified according to international standards ISO 14001. During preparation of this research uses general scientific and special research methods, including observation, comparison, synthesis, classification and generalization.

Keywords: ISO 14001, ISO 14001, environmental management system, environmental management, ISO 14001, environmental safety.
**Introduction**

Environmental problems that accompany modern development led to the emergence of environmental and economic problems of modern enterprises. Manufacturing sector is the most influential factor on the environment. Environmental activities as one of the components of sustainable development have become increasingly economically justified. Businesses around the world are more aware that the present status of production and consumption is unstable, so becomes important consideration of environmental requirements in the formation of the mission, goals and strategy.

The current situation with regard to the environment and the universal recognition of ecological principles led to the fact that environmental factors in recent years started to gain importance in ensuring a positive image, reputation, competitiveness and "market forces" enterprise.

At this stage of development of enterprises an important point is the introduction of environmental management systems in production and promotion of their own environmental activities, dissemination of information about the readiness of the enterprise to solve existing environmental problems and prevent them from occurring. It was- in the last decade of the last century it became clear that it is necessary to create and implement an environmental management system in enterprises. In the process of addressing this issue appeared the international environmental standard ISO 14000.

**Methods**

The article uses the general scientific and special research methods, including observation, comparison, synthesis, classification and generalization. The bases of the study are the works of local and foreign scientists.

The article is based on materials of the International Organization for Standardization The ISO Survey of Certifications and Ukrainian national certification, and literature that reflect the subject matter of the study.

**Results and discussion**

The main concept in ISO 14000 is the concept of "environmental management system" in the organization, as the main document can be considered standard ISO 14001 "Specification and guidance on the use of environmental management systems." The requirements of this standard are audits that can be objectively verified. ISO 14001 is the subject of a formal environmental certification. Standards related to environmental auditing, life cycle assessment and environmental labeling can be seen as supporting with
prospective nature, creating additional institutional constraints to effective according to modern concepts, the operation of environmental management systems.

The purpose of ISO 14001 - support for measures in the field of environmental protection while maintaining a balance with socio-economic needs. This standard contains requirements for mandatory compliance with the existing rules of national environmental legislation of the country where the enterprise is located.

In accordance with the international standards adopted in the definition of "environmental management system" is a part of the overall management system and includes organizational structure, planning activities, responsibilities, practical work, as well as procedures, processes and resources for developing, implementation and evaluation of progress and improvement environmental policy. According to the International Organization for Standardization ISO in 2010 250,972 organizations in 155 countries were accredited with ISO 14001 [6]. In table. 1. provides information about the number of companies certified to ISO 14001 in the world for 1999 and 2010.

**Table 1**

The Number of certified organizations in the world according to ISO 14001 according to The ISO Survey of Certifications – 2010

<table>
<thead>
<tr>
<th>Standard name and date</th>
<th>Number of certificates issued</th>
<th>Growth for the year</th>
<th>Number of countries where the organization placed on the certification</th>
</tr>
</thead>
<tbody>
<tr>
<td>December,2010</td>
<td>250 972</td>
<td>27 823</td>
<td>155</td>
</tr>
<tr>
<td>Standard ISO 14001:2004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>December, 2009</td>
<td>223 149</td>
<td>34 334</td>
<td>159</td>
</tr>
<tr>
<td>Standard ISO 14001:2004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>December, 2008</td>
<td>188 815</td>
<td>34 243</td>
<td>155</td>
</tr>
<tr>
<td>Standard ISO 14001:2004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>December, 2007</td>
<td>154 572</td>
<td>26 361</td>
<td>148</td>
</tr>
<tr>
<td>Standard ISO 14001:2004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>December, 2006</td>
<td>128 211</td>
<td>17 049</td>
<td>140</td>
</tr>
<tr>
<td>Standard ISO 14001:2004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>December, 2005</td>
<td>111,162</td>
<td>20,608</td>
<td>138</td>
</tr>
<tr>
<td>December, 2004</td>
<td>90,554</td>
<td>25,558</td>
<td>127</td>
</tr>
<tr>
<td>December, 2003</td>
<td>64,996</td>
<td>15,556</td>
<td>113</td>
</tr>
<tr>
<td>December, 2002</td>
<td>49,440</td>
<td>12,976</td>
<td>116</td>
</tr>
<tr>
<td>December, 2001</td>
<td>36,464</td>
<td>13,617</td>
<td>112</td>
</tr>
<tr>
<td>December, 2000</td>
<td>22,847</td>
<td>8,853</td>
<td>98</td>
</tr>
<tr>
<td>December, 1999</td>
<td>13,994</td>
<td>6,107</td>
<td>84</td>
</tr>
<tr>
<td>December, 1998</td>
<td>7,887</td>
<td>3,454</td>
<td>72</td>
</tr>
<tr>
<td>December, 1997</td>
<td>4,433</td>
<td>2,942</td>
<td>55</td>
</tr>
<tr>
<td>December, 1996</td>
<td>1,491</td>
<td>1,491</td>
<td>45</td>
</tr>
</tbody>
</table>

*Source:* compiled by the author based on [6]

In Fig. 1 can track changes in the number of certified organizations in the world according to ISO 14001 according to The ISO Survey of Certifications - 2010.
Number of certified companies in the world with ISO 14001 1999-2010 biennium

Fig. 1. - Dynamics of the number of organizations certified to ISO 14001 in the world

Source: Developed by the author according to [6]

Number of companies with "green" certification is growing rapidly, comparing 2010 and 1999 an increase of about 1693%. In Fig. 2. shows the dynamics of the number of countries implementing ISO 14001 in the world for the period 1996 to 2010. In this picture you can see that in 2010, 155 countries have implemented ISO 14001, which indicates that most countries consider the introduction of environmental management systems based on the ISO14000 series of standards most effective way of ensuring environmental safety. In Figure 3. shows the number of organizations in different parts of the world are ISO 14001 according to [6].
Fig. 2. - Dynamics of the number of countries vprovadzhuyuyuchykh ISO 14001 in the world for the period 1996 to 2010.

Source: Developed by the author according to [6]

ISO 14001 can be applied to those environmental aspects that the organization can control and it can largely influence. Standard does not establish specific criteria for environmental performance and can be used at all - an organization that seeks to:

1. implement, maintain and improve an environmental management system;
2. ensure compliance with its environmental policy formulated;
3. achieve certification (registration) of their system this standard and independently announce this line [3, p. 29].

Analyzing Figure 3. can be argued, that more attention is paid to obtaining "green" certificate in the Far East, 50% (124,922 of) the total number of certified companies, 41% (103,126 organizations) - Europe and only 3% (8557 organizations) - Africa and West Asian, 3% (6423 organizations) - Central and South America, 2% (6302 organizations) - North America and only 1% (1642 organization) - The Australian and New Zealand. In Table. 2. provides information on the ranking of countries that occupy the first places in the world to gain ISO 14001 certification.
In Table. 2. provides information on the ranking of countries that occupy the first places in the world to gain ISO 14001 certification.

Analyzing Table 2. Note that most companies are ISO 14001 is in China and Japan, it is not surprising that 50% (124922 companies) the total number of certified companies are located in the Far East, leaders are also nine European countries that is a confirmation of the information shown in Figure 2. For Ukraine, the development and implementation of environmental management systems is in its infancy, although the environmental management system in Ukraine gaining distribution.

![Chart showing distribution of ISO 14001 certifications by region](image)

Fig. 3. - Number of organizations (in percentage) in different parts of the world certified to ISO 14001

*Source:* Developed by the author according to [6]
Table 2

Countries that took first place in the biggest gain ISO 14001 certification according to The ISO Survey of Certifications - 2010

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>55 316</td>
<td>69 784</td>
<td>14 468</td>
</tr>
<tr>
<td>2</td>
<td>Japan</td>
<td>39 556</td>
<td>35 016</td>
<td>- 4 540</td>
</tr>
<tr>
<td>3</td>
<td>Spain</td>
<td>16 527</td>
<td>18 347</td>
<td>1 820</td>
</tr>
<tr>
<td>4</td>
<td>Italy</td>
<td>14 542</td>
<td>17 064</td>
<td>2 522</td>
</tr>
<tr>
<td>5</td>
<td>United Kingdom</td>
<td>10 912</td>
<td>14 346</td>
<td>3 434</td>
</tr>
<tr>
<td>6</td>
<td>Republic of Korea</td>
<td>7 843</td>
<td>9 681</td>
<td>1 838</td>
</tr>
<tr>
<td>7</td>
<td>Romania</td>
<td>6 863</td>
<td>7 418</td>
<td>555</td>
</tr>
<tr>
<td>8</td>
<td>Czech Republic</td>
<td>4 684</td>
<td>6 629</td>
<td>1 945</td>
</tr>
<tr>
<td>9</td>
<td>Germany</td>
<td>5 865</td>
<td>6 001</td>
<td>136</td>
</tr>
</tbody>
</table>

Source: compiled by the author based on [6]

In Table 3, provides information on the number of certificates of quality management system and environmental management system, which is registered in the Register and canceled UkrCEPRO (as of December 31, 2010)

Consequently, the number of companies that have been certified to the environmental management system for EN ISO 14001-2006 in 2010 was only 18, in fact 33 certificates revoked in total for all years of the environmental management system certification according to EN ISO 14001-2006 by only 103 of [3]. By implementing ISO 14000, we believe that companies will have obvious advantages. The main benefits for the companies implementing ISO 14000 standards are shown in Figure 4. One of the important merits of standards is their flexibility, as data standards are voluntary and are advisory in nature. Properly designed environmental management system can effectively find opportunities to reduce costs, which will reduce the total cost of production or increase its value. These improvements will help the company more effectively use resources that compensate for the costs of reducing emissions to the environment. Implementing ISO 14000 company enhances its competitiveness as a whole, because it will help increase production, reduce downtime, reduce resource consumption, reduce the cost of packaging, reduce costs associated with waste management and so on.
Table 3

Number of certificates for environmental management systems that are registered and canceled in the Register UkrCEPRO (as of December 31, 2010)

<table>
<thead>
<tr>
<th>Name of the system</th>
<th>Registered certificates, number, pc.</th>
<th>Revoked certificates, number, pc.</th>
<th>Existing certificates at 31.12.2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>the same as 2010</td>
<td>Total</td>
</tr>
<tr>
<td>Certificates for the environmental management system ISO for ISO 14001-2006</td>
<td>136</td>
<td>18</td>
<td>33</td>
</tr>
</tbody>
</table>

Source: compiled by the author based on [7]

Despite the many advantages that the company receives from the implementation of standards ISO 14000, there are some drawbacks.

Among the shortcomings can be identified lack of clear, specific requirements, emissions, effluents, and implementation of international standards in this series needs a lot of investment.
Fig. 4. - Benefits for the company from the introduction of the ISO 14000.

Source: Developed by the author

Conclusions

Number of companies in the world with "green" certification is growing rapidly in 2010. 155 countries have implemented ISO 14001, which indicates that most countries consider the introduction of environmental management systems based on the ISO14000 series of standards most effective way of ensuring environmental safety.

The primary focus is the implementation of environmental management systems in the Far East and Europe. Implementation of environmental management in Ukraine is at an early stage, but every year the number of companies that have implemented environmental management system according to EN ISO 14001-2006.

Ukrainian enterprises should implement an environmental management system, companies that have implemented environmental management system
have certain advantages, including an opportunity to enter international markets, strengthening competitive advantages, improving relations with the government and growing confidence on the part of investors, creditors, insurance companies, because a certificate of ISO 14001 allows the company to belong to the category of least risk. The presence of "green" certification allow to confirm the environmental safety of the company and its products to consumers and the environment in general.

References


The causes of unprofitable activities of the milk processing factories in Kyiv region

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Abstract
The specific features of milk processing factories in Kyiv region and current trends manage their financial results is considered, the key reasons of loss of local dairies as the corporate level, or in the relationship with the primary producers of raw milk, state government authorities and in the context of European integration are probed.

Keywords: milk processing factory, financial results, unprofitability, dairy product, revenue, costs, raw milk.

1. Introduction
Dairy industry at present is one of the leading industries in the structure of the food industry in Ukraine. The domestic dairy market accumulates almost a quarter of food spending, and dairy products are not only one of the staple food, but associated components in the production of many food products, such as mayonnaise, sauces, confectionery.

However, over the last decade milk business activity is determined by several critical trends related primarily to the increasing shortage of raw materials and noncompliance with European standards, higher prices for dairy products while reducing effective demand, reduced production of export, the formation of unfavorable conjuncture on the world market dairy, imperfect mechanism of taxation and subsidies for agricultural producers, the lack of strategic programs of the market in milk and milk products with a high degree of state regulation of milk processing sector and other. Therefore, the article discussed in detail the negative trends in the development of secondary producers of dairy products and identified which ones are the causes of their loss-making operation.
2. Formulation of the problem

Due to official statistics, the majority share in the dairy industry of Kyiv region continue 2007 – 2010 years have been unprofitable producers. Only in 2011 the proportion of profitable dairy enterprises are prevailed, reaching 60%. However, this occurred at a time of maximum for the period reduced their number in the region of 38 to 15 in 2010 – 2011 years, because of the inability to overcome the loss-making state and (or) consolidation processes of regional dairy market, resulting in the five years he lost 66.6% of enterprises. This situation is traditional for local milk processing factories are actively absorbed by large companies, including those with foreign capital. As a result, small dairy producers become points of pasteurization and storage of raw milk is transferred into the sphere of milk collection, or used for the production and marketing of monoproducst locally.

The real state of losses of the milk processing plants in Kyiv region duplicates the national trend of economic stagnation in Ukraine, including in industrial sectors which are causal factors in excess of the growth rate of imports over exports, inflation over salaries, loans over savings, investment over trade in the finally – companies costs over their income. The aim of further research is to identify the prerequisites of forming long-term imbalance between revenues to the costs by operating activities, including basic activities, of dairies and, consequently, the formation of their negative values of financial results. Because unprofitable of dairy industry as a leading food ingredients affects the performance of the industrial complex of Kyiv region as a whole.

3. Results

Unprofitable of regional producers of dairy products can be explained by several factors:

1) As in the Kyiv region there are several large dairy companies (for example, the companies «Galakton», «WBD Ukraine», «Yagotinsky
Creamery»), they try to subdue the local resource base areas and neighboring regions. In this regard, local dairy factories in the background of a nationwide reduction in the number of cows even more lack of raw materials and forced to curtail (reduce) production capacity, or operate on the verge of profitability, especially in the context of enterprise-leading aggressive sales policy.

2) The small milk processing factories of the region can not buy raw materials from farms at high ex-factory prices. Using the population to produce milk, they make payments on fact and subsequent sale of finished products in the retail system (distribution network) provides for the payment of deferred payment. Because of this, there is a constant shortage of working capital, which can be covered only by bank loans. Poor collateral most local milk plants makes loans available on the source of funding, so most of them periodically suffer losses.

3) International experience shows that the dairy industry is directly related to the production of milk in large-scale farms. Today in Ukraine there is the opposite situation. In particular, the regional market milk facto monopoly continue 2000 – 2011 years the private sector. Produced in farms milk meets the second grade, while large farms it is implemented extra, higher and first grade that shows the problem as a resource base. According to the State Statistics Service of Ukraine [1, p. 20] in 2011 farms just eight regions, including the Kyiv region and Kyiv, milk producers supplying extra category (5,7% of the total). Share of sold milk extra, higher and first grade in the Kyiv region is respectively 8,7%, 37,4% and 44,4%, including in the capital – 45,1% (dominant share among the regions), 21,2% and 33,5%. Milk-class in the region produce only «Ukrainian Milk Company» (Zgurovsky District), Obukhov farm «Nina», PJSC «Terezin» and OOO FC «Agro-Leader-Ukraine» Bilotserkivskiy area. For the production of dairy products from low-quality milk supplied by individual peasant farms, dairy
factories carry out additional manufacturing operations, such as double pasteurization, cleaning, cooling. All this leads to unnecessary expenditure of energy and labor costs. To check the quality of private milk producers and their compliance with microbiological standards and safety regulations businesses have to keep the lab or use the services of specialized laboratories, which also contributes to unjustified cost increases.

4) The unstable price situation in the domestic market of raw milk causes dynamic scale value of the local milk plants’ financial results. Note that the specific feature of the dairy industry is a seasonal nature of raw materials and, therefore, significant fluctuations in production and average farm-gate prices for milk furthering year. Recently, however, the domestic price of the milk market in Ukraine fall under the increasing influence of global pricing as narrowing of its resource base state compensates import ready-made dairy products. As a result, even minor price increases for dairy products in international markets contributes to a progressive increase in purchase prices for milk farms in all regions of Ukraine.

Besides worsening global energy crisis contributes to periodic price increases for fuel and energy resources and forage crops, which are laid in the cost of raw milk. In this way, there is an increase costs of the secondary milk production is in the initial stages of its financial results, which is difficult to predict.

5) Lower income regional milk processing factories, particularly due to falling purchasing power makes them minimize costs at all stages of collection and delivery of raw materials, production and marketing of finished products. The negative trend of milk processing complex is the rapid growth of logistics costs, share in some dairy products reaches 40 %. This situation is influenced by a number of problems in the management of commodity flows on the milk plants disclosed by us in [2, p. 122 – 124, 3, p. 15]. At the farm level, such problems related to inefficient collection schemes
milk farms, increased transportation costs due to low capacity vehicles and extension of routes for delivery of raw milk, increasing the level of production costs on the distribution of finished products, prevalence within the supply chain management (SCM) approach molzavod push. At the state level logistic problems due to low quality of domestic transportation companies, including those transferred him to outsource the actual lack of specialized storage facilities for the processing and storage of dairy products, poor fixed network of milk collection points in households, as well as logistics centers at regional and national levels, disorganization wholesale market for dairy products and the like. All this creates excessive costly burden on small and medium-sized dairy companies in the area.

4. Conclusions

The author believes that the elimination of the aforementioned reasons, prevents loss of interest imbalance primary producers of raw milk and dairy factories in Kyiv region due to lack of protectionist policies by government agencies in the development of the dairy industry at both the domestic level and in the context of Ukraine's integration into the global European space. In particular, the country's membership in the World Trade Organization and in view of the possible accession to the Customs Union, the Common Economic Area or Free Trade Area with the European Union.

We assume that the real situation of the financial performance of the milk processing factories could be more optimistic, as some of them could indicate the financial reporting false information about the size of profits, deliberately understating them for tax evasion. On the other hand, excessive tax burden on profits in Ukraine and inadequate mechanisms for administration, is conducive to the formation of losses in the manufacturing sector of the national economy, particularly in the dairy. In general, the domestic dairy market remains competitive and attractive to investors, given
the physiological value of dairy products as essential components of the diet
for Ukrainian relatively short production cycle, fast and goods movement.

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enterprises in modern conditions»], (Kyiv, 19 – 20 March., 2009)/ National University of
DEVELOPMENT OF PROFESSIONAL EDUCATION OF MARGINAL GROUPS AS A PART OF THE VENEZUELAN EDUCATION SYSTEM

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Abstract

In this article is analyzed the development of the professional education of marginal groups as a part of the Venezuelan education system. The author detected that the development of the professional education of marginals, flows in an integral connection with the formation of the national education system of Venezuela, which begin in the colonial era and continue in the present. Its development is uneven, spasmodic and flows in unison with abnormal, irregular and inconsistent social, political and economic Venezuelan growth. One of the main objectives of the professional education of marginals, is to reach that all poor people of the country, like other sectors of society, have equal opportunities to received basic, secondary and elementary professional education.

Key words: professional education of marginal groups; Venezuelan education system; historic-pedagogical analysis


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The history of the Venezuelan national education system started in colony period when education in the church`s and aristocratic elite`s hands was and used as a tool to achieve interests of the ruling strata of society. The teaching was impositive, dominant, violent, selective, slavish, racist. In the early years of the colony (early sixteenth century), Spanish crown not worried about starting schools in the lands belonging to a modern Venezuela, because it was the poorest province in the New Spain (Fermín, 1991).

Formation of the education system of Venezuela is an integral part of missionary work in lands of the New World. The first primary schools (church schools) in Venezuela opened missionaries in the second half of the sixteenth century. The beginning of the formal schooling may be called the foundation in 1560 of the first primary school by second Bishop of Coro Pedro de Agreda. While in the monastery and church parishes education was free. Example of Bishop de Agreda was followed by other religious officials who sporadically opened Christian church schools. Only in the late sixteenth century, Simon Bolivar, governor of the monarch in Caracas, has made the Kings of Spain permission to open the secular school for Castile grammar teaching, led by Don Juan de Arteaga (Fermín, 1991).

In 1592 by order of Spanish King Philip II, was founded Seminary College “Cheapta Rosa”, which was opened in 1696. In 1721 college was transformed into the University (now National University of Venezuela), which later became the organizational core of the national educational system.

During the XVII century continue to open primary schools, religious (Dominican, Franciscan) and secular. But in these education institutions were attended only conquistadors` children. Conquerors were not interested in education of poor peasant Indians, neither their alfabetization or new crafts` teaching. Only in the second half of XVIII century begins a marked increase of primary schools. During this period started schools in Caracas (1788 - School

At this period, were also opened the following high schools: the College of the Jesuits in Maracaibo (El colegio de Jesuitas en Maracaibo - 1755) Department of Philosophy and Grammar in Kumano (Cátedras de Filosofía y Gramática en Cumaná 1759-1782), the Jesuit College in Caracas (Solegio de Jesuitas en Caracas - 1760), College for girls in Caracas (El Colegio de Niñas de Caracas - 1768), Roman chair in Victoria (Cátedras de Latinidad en la Victoria - in 1798) and in Guanara (1803), Real college in Barinas (El Colegio Real de Barinas - 1792), Seminary in Mérida (El Seminario de Mérida - 1785)² (Márquez Rodríguez, 1964).

In the colonial era, can not reveal clear features of the national education system, at that time did not exist administrative apparatus that education led. Most schools were church schools because their management carried out by religious orders, who developed curricula and programs in accordance with their own philosophical and theological concepts. The teaching was given without adapting of contents for different age groups of students, the teaching method was “to read, interpret, repeat” (“magister dixi”: lectio, explicatio, repetitio); research skills and critical attitude were not inculcate. As for university education, it was built in scholastic philosophy and based on the deductive method. Biology and chemistry are not taught and mathematics and physics were not included a long time to the list of courses of the Faculty of Philosophy. Theology was the main subject and

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² Future University of Merida, founded in 1810
was considered a tool and knowledge base of any cognitive reflection (Беляев, 1984).

When the Spanish colonized America, they tried to transplant all economic, political and social structures on a new continent, however, from the beginning of the conquest, started to form the own original character of “American” society. The necessity of adapting to new geographical, climatic, cultural (new foods, new life forms, etc.) conditions, will require that conquerors change their habits. The Spanish who came to America, were most county representatives, the poor clergy, small officials. Also came a small number of peasants, workers, miners. However, these representatives of the poor segments of society of Spain felt in the colonies at the top of the social hierarchy, they were “Hidalgo”, owners of the conquered lands. Classify the social strata of the colony can be by different criteria: race, legal, economic, educational. Therefore includes such groups (see Table 1):

<table>
<thead>
<tr>
<th>Race</th>
<th>Legal criteria</th>
<th>Educational criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Europeans, white Creoles (children of Spanish)</td>
<td>Had all rights, including the right of governing provinces of colonies</td>
<td>Could be taught in all schools and form the intellectual and ruling elite of the colonies</td>
</tr>
<tr>
<td>Creoles, Pardos, Mixed</td>
<td>Had some rights</td>
<td>Could be taught in elementary schools and craft schools, had no right to study in universities</td>
</tr>
<tr>
<td>The Indians, Mulattoes, Negroes</td>
<td>Had no rights</td>
<td>Were unable to obtain education</td>
</tr>
</tbody>
</table>

The formal systematic education was the exclusive privilege of the ruling aristocratic strata, belonging to which was measured by racial, legal, economic and educational criteria. A young elites were taught in the tradition of the classical European medieval university and prepared to continue the conquer affairs. Public education as such in the colony did not exist except in missionary schools for Indians evangelization. In other schools, and especially universities, representatives of the “lower races” was not available. For example, elementary school in the city of Mérida (1782), announcing a new set of boys, explained that was welcome everyone, except “Mulattoes and other lower races”. Caracas City Council declared in 1786 that “cauliflower people” should not be educated, and in 1796 expressed its protest to the King of Spain, because he approved the law under which Pardos` children can learn in schools (Fermín, 1991).

Thus, during the colony (XVI - beginning of XIX century), public authorities paid little attention to education, it is completely housed under the jurisdiction of the church and served only to the interests of the conquistadors, increasing the already large gap between social strata provinces of New Spain. This situation began to change in the early XIX century. the growing social consciousness of the progressive community and liberation warrior.

In 1809 in Venezuela, there were 13 schools, including 11 private. During the liberation war of 1810-1830, had a great influence the idea of S. Bolivar about the distribution of the education, who regarded education as the responsibilities of the state. In 1821 was founded the Congress of Colombia, which belonged to the province of Venezuela and New Grenada. It adopted a decree on compulsory education for children 6-12 years, in the capitals of both provinces. So, the community colleges and elementary schools in towns with a population of at least 100 people, started. In addition to college course of primary schooling, was introduced teaching of Spanish grammar, Latin, Rhetoric and the bases of Philosophy, Mathematics, offered courses for women (Fermín, 1991).
In the first third of the nineteenth century, Venezuelan education developed under the influence of ideas of A. Bello (1781-1865), philosopher, teacher, political and educational figure, one of the leaders and statesmen of independent Venezuela, freedom fighter of young Latin American countries. It is important to note that the range of A. Bello was very wide: it is difficult to call the branch of culture or science, in which he don`t contribute, enriching the spiritual life of the peoples of Latin America. His works have become classics: “A short sketch of the history of Venezuela” (1809), “Principles of International Law” (1832), “Philosophy of understanding” (1843), “The grammar of the language of Castile for spanish-americans” (1847), “A short course of literary history” (1850) and many others (Шульговский, 1984).

A. Bello is known also as an outstanding teacher and theorist of education, whose innovative ideas of public education ahead of its time. He became the first rector of the first Chilean University (1843). Educational activities were a matter of his life. A. Bello brought a galaxy of personalities of Chilean culture and science: J. Lastarria, V. Macquenna, D. Barros-Arana, M. De Amunategui and many others. In education A. Bello was not only an innovator but also a great humanist. He urged his students to continue with the study of reality, not restricted to rigid schemes of abstract “truth” and stereotypes, and the most importantly, to think independently, historically and scale (Шульговский, 1984).

In 1826 with the participation of A. Bello, passed a law on the organization and order management of national educational institutions of Venezuela, and in 1843, the first Code of Education of the country. However, the long period of civil wars, anarchy, the struggle for land ownership between the feudal elite, detained projects of progressive Venezuelan figures. One of the outstanding pedagogical ideas of A. Bello is a harmonious and whole education system. He advocated the development of all three inseparable components of education: primary, secondary and higher. He considered the special importance of primary
education, saw in it an effective means for people`s education and foundation of modern civilization. In his works A. Bello substantiated the need for a network of primary schools across the country and the importance of education to all children, including the poor (Шульговский, 1984).

High goals which are set A. Bello for primary school, demanded new teaching methods, the qualified professional teaching staff. On his initiative created special schools for teachers training (Escuelas Normales). A. Bello promoted the carefully preparation of teachers training`s curricula and emphasized that teachers training is very important, because they are called to bring knowledge to people. Is characteristically, that addressing the problems of the university sector, A. Bello constantly spoke of their inextricable link with primary schools, because only by the high development of science and culture is possible to spread the primary education (Шульговский, 1984).

It should be noted that the ideas of A. Bello have not lost its relevance in our time, we can menshion two of them which are characteristic of modern educational systems of Latin American countries, including Venezuela: a real people's right to education regardless of social status; orientation of education to promote such economic development, in which would have improved the living conditions of people.

So, thanks to A. Bello and other progressive patriots of Venezuela in 1870 was adopted a decree about the general free education, and in 1893 a decree about the obligatory primary education. However, after a period of enlightenment and important achievements in the construction of a democratic system of education, the country was expecting a real era of obscurantism and dictatorship (Márquez Rodríguez, 1964).

Turn of XIX and XX century was a difficult, transitional period in the history of Latin American countries. A characteristic feature of its social and political life was the patriarchal vitality of landowner leader`s traditions,
clannishness, inherited from the era of colonialism and strengthened during the civil wars of the XIX century. The economic backwardness, the saving of the precapitalist forms of management and slow development of capitalism, were exacerbated by dependence on conjuncture of world capitalist market, where the vast majority of these countries played the role of raw materials appendage of the world's leading countries (Медведева, 2003).

Therefore, in an environment where major trends in the development of capitalism was the formation of monopoly capital, the economic expansion of the great powers led to the strengthening of economic and political dependence of Latin America, undermining its sovereignty. One way to resist this expansion in the region was the strengthening of Latin American countries, public authorities, able to strike a balance between protecting national interests and the need to attract foreign capital.

The development of this process can be traced to the example of Venezuela, where the first third of XX century ruled dictatorship of General Juan Vicente Gomez (1908-1935). During these years, Venezuela has been a difficult path from a country which was teared and fragmented by civil war in order to preservate the regional landowner leader`s traditions, into a independent centralized state, which foundation was a base for its further modernization.

J. Gomez` regime is often called one of the most odious dictatorships in Latin America because of the brutal repression that were used against the opposition. At the same time, with the name of J. Gomez, there is linking the Venezuelan economy transformation from an agrarian into an industrial: his reign coincided with a turning point in the development of Venezuela, the discovery of huge oil fields and the start of oil production. This fact led to important social and economic changes, accelerating of the development of capitalist tendencies in the
The influx of the “oil rent” also reflected on the nature of the Gomez’ regime, facilitating strengthening of its position (Медведева, 2003).

J. Gomez himself some of his compatriots find “the last great landowner leader” (owner) of Venezuela (spanish – caudillo). Having dealt with the regional landowner leaders, he provided a long-term preservation of his own one-man power. Marxists define the character of J. Gomez’ regime as a “feudal dictatorship”, the social base of which were latifundists trade and intermediary bourgeoisie. Leading role in Gomez’ coming to power played the U.S., which sought to gain control over the Venezuelan economy. The role of J. Gomez in the history of the country’s estimated abhorrence: his rule was accompanied by severe political repression and economic repression led, on the one hand, to the conservation of retardation due, to the preservation and further strengthening of latifundists and on the other, to the wide penetration of foreigners in the economy under the conditions that infringe Venezuela’s national interests. Gomez’ regime was named the tragic period of Venezuelan history (Брито-Фигероа, 1969).

During the dictatorship of J. Gomez, education system was in a catastrophic state: 70% of the adult population remained illiterate, educational institutions of all types attended only 11% of young people aged 7-24 years. The general condition of education began to improve only in the late 50-ies of XX century. During 1958-1969 it was the total number of students increased from 846,000 to 2.6 million. In 1959, the Ministry of Education of Venezuela was created Bureau of integrated planning, through which were developed the first plans for the state system of education in the country, was revised curriculum and new teaching methods were introduced (Венесуэла: тенденции экономического и социально-политического развития, 1984).

The Constitution of 1961 provided to all citizens the right to education. Education in public schools was free at all levels except higher education. The state pledged to support private schools. In 1980 came into force the Organic Law
on Education, which confirmed free of charge the education in all public educational institutions (except universities) and introduced changes in the structure of public education, proclaiming obligatory nine-year study (Políticas Educativas del Ministerio del Poder Popular para la Educación, 2008).

At the present stage of development of the education system, the government of Venezuela aims to improve quality, increase the number of educational institutions and covered by secondary education all population; modernization of the administrative structure of the education system by reforming of all levels and modules; decentralization, increased autonomy and self-education, improvement of process of teacher training and transformation of pedagogical practice.

The current education system includes preschool for children 3-6 years, nine-years obligatory school (7-15 years), secondary and special schools, higher education. In the late 80-ies of XX century, state budget for education amounted to 6.8% of GDP. More than 90% of the population over 15 years is literate (Políticas Educativas del Ministerio del Poder Popular para la Educación, 2008).

The general management of the education system is realized by the Ministry of Education of Venezuela, consisting of the following departments: elementary and secondary education, higher education, adult education. In developing of the plans and bills of Education take active role the National Council of Universities. The management of nursing associations is made by the Institute of the child. According to the 1989-1990 school year, 1.4 thousand preschools visited 549 thousand children, who were attended by 23000 teachers (about half of the kindergartens are private) (Políticas Educativas del Ministerio del Poder Popular para la Educación, 2008).

According to the Law of 1980, was reorganized obligatory education: nine-years schools included a six-years primary school and three-years basic cycle of junior secondary school. At the end of its, students receive a certificate of
completion of the full, while training for only 6 years part-time primary school. In the 2006-2007 school year, pre-school visited 1 080 650 children, basic school - 4 984 453 persons and secondary school – 711 305 yung people, universal education was 86% (Políticas Educativas del Ministerio del Poder Popular para la Educación, 2008).

Preschool education is the first level of formal education in Venezuela, which enrolled children 3-6 years. This age is a very important stage for future human development, in this period laid the basis for the formation of human personality and provides basic knowledge and skills for further study. The Constitution of Venezuela establishes that in pre-school starts social life of the individual, based on moral and ethical values that allow for such values as national identity, living under the laws of democracy, justice and independence. One of the basic principles of pre-school education is the belief that in the socialization process must take into account the needs and interests of the child, such as the need to express their emotions, the need to play more. It is also important to put the child at the center of the educational process and to consider the teacher student`s leader to new knowledge, a training facilitator (Rodríguez, 1989).

The next level of education in the educational system of Venezuela is a basic education, which involves nine steps, which lasts one year each and is combined into three stages: the first covers three years, the second – 4-th, 5-th and 6-th years, and the third – 7-th, 8-th and 9-th grades. Formal basic education in state schools is free and obligatory for all citizens in school age, which approved the Constitution of Venezuela (Rodríguez, 1989).

In 2007 the Ministry of Education of Venezuela introduced new curriculum model that aims at achieving a coherent articulation of educational programs not only pre-school, basic and general secondary and professional education, but also special education and adult education. This model includes also involvement in
the education department leadership states to more rational planning of educational activities and study programs (Políticas Educativas del Ministerio del Poder Popular para la Educación, 2008).

With regard to secondary and professional education - the next educational level in the education system of Venezuela – it gives two-year humanitarian schools, after which students receive a bachelor's degree; two-year commercial or three-year normal schools (college diploma gives the right for entry to university); three-year professional engineering industrial agricultural schools (Políticas Educativas del Ministerio del Poder Popular para la Educación, 2008). In the 2010-2011 school year, the preparatory (propaedeutic) educational institutions of all types, enrolled 1058 million students and employed 62 000 teachers.

Complete secondary and professional education lasts three years and aims to deepen knowledge and skills acquired in previous education levels, continue ethical and civic education of students, introduce them to the acquisition of professional knowledge and prepare for future professional activities, or study in higher education. Graduates of secondary or professional schools received the bachelor's degree or professional-technician degree. The education of adolescents 13-18 years who did not continue their education in secondary schools, carried out in two-year professional schools where they receive comprehensive knowledge and practical skills needed to work in manufacturing (Políticas Educativas del Ministerio del Poder Popular para la Educación, 2008).

The system of adult education is part of the educational system of Venezuela, and is under the jurisdiction of the state. It serves citizens 15 years and over who were unable to obtain basic, secondary or professional education, by offering specialized courses, courses for professional qualifications, professional certification, courses for university admission (Rivero, Posada, Blandón, Regnault, 2007). Institutions of Adult Education provides its students the basic competence for working life, using flexible teaching methods which provide
personal, social, cultural, economic development of adults, thereby, contribute to social progress (Ministerio de Educación. Documento Dirección Educación de Adultos, 1996).

The management of adult education, development of plans, programs and measures aimed at ensuring the education for adult population, carries Directorate of Adult Education. Administration and evaluation of study programs is based on principles of flexibility and participatory to align with the educational needs of the population. Thus, training in adult education system of Venezuela can be daily, by correspondence, distance, obtained by means of radio or television. Adults can also pass examinations and obtain external Professional certificate (Evaluación Libre de Escolaridad) (Subsistema de Educación de Adultos del Ministerio del Poder Popular para la Educación de la República Bolivariana de Venezuela, 2008).

To eliminate illiteracy and provide the professional education for marginalized sections of the adult population, in 1959 the Ministry of Education opened the National Institute of Cooperative Learning, which has several thousand short courses for adults. It organize and conduct specialized education institutions, enterprises and municipalities. For two years they give students knowledge of the extent of primary school and professional skills. In the late 80-ies of XX century they dealt with about 400 000 people. In addition, since 1976 in Caracas exists the Open University, which in 1989-1990 school year atendes 29 000 students (Ministerio de Educación. Documento Dirección Educación de Adultos, 1996).

The higher education system includes public and private universities, institutes and colleges. The major universities are following: Central University of Venezuela in Caracas (founded in 1725, has 11 faculties, more than 50 000 students, research institutes), University of Carabobo in Valencia (founded in 1852, has five departments, about 45 thousand students), Andean University
Merida (founded in 1785, received university status in 1810; 10 faculties, more than 35 300 students), Catholic University “Andres Bello” in Caracas (founded in 1953, 4 faculties, 9 thousands of students, 12 schools, research institutes). In the 2007-2008 academic year in the 168 higher education institutions (73 public and 95 private) studied 1 074 350 students (Políticas Educativas del Ministerio del Poder Popular para la Educación, 2008).

The universities of Venezuela, play a crucial role in the preparation of highly educated professionals of different specialties, as well as the development of science, technology, culture, and its are one of the main instruments of economic growth and improve the quality of life. Thus, universities have the strategic importance for national development. The higher education institutions have no easy task to adapt itself to modern social and economic realities in which production systems are in a constant state of transformation, in which new communication system radically changed the way to percept the time and the distance and, at the same time, opened new opportunities for teaching and conducting research (Políticas Educativas del Ministerio del Poder Popular para la Educación, 2008).

Thus, the development of professional education of marginals, flows in an integral connection with the formation of the national education system of Venezuela, which beginn in the colonial era and continue in the present. Its development is uneven, spasmodic and flows in unison with abnormal, irregular and inconsistent social, political and economic Venezuelan growth. Therefore, one fact could be argue: as the country in general, its educational system is original, unique and fully express the essence of the “American” character of Venezuelan people: to achieve their goals as quickly as possible and “with one blow”.

The history of the education system of Venezuela, is part of the history of education in American colonies of Spain, which is an integral part of the
missionary work in lands of the New World. It should be noted that the colonial period of the education system of Venezuela, is particularly known through the inattention of the Spanish monarchy to education in this province, because it was the poorest and least promising economically. Several schools were opened by Catholic missionaries, completely subordinated to the church, which not only led education, but was also an arbiter of all social and cultural life of the colony since the XVI century and ending of XIX century. Thus, the church dictated its rules in the field of education, pursuing their own interests, which scattered with the interests of the Spanish crown, and so with the interests of the population of the colony. This situation caused a merciless criticism of the progressively minded educated population of New Spain. Under the influence of protest against the dominance of the Catholic Church and the Spanish monarchy, were educated many Latin American fighters for liberation: S. Brolivar, A. Bello, L. Lopez-Mendez, J. Lastarria, V. Macquenna, J. Barros-Arana, M. De Amunategui and many others.

Since the first half of the nineteenth century, with the independence movement, the education system of Venezuela is undergoing qualitative changes and develops under the influence of humanistic ideas advanced by A. Bello, a prominent Venezuelan politician, philosopher, writer, teacher. It was the beginning of the formation of public education and professional education of marginalized populations. Across the country, opened schools for poor children, evening schools for adults, courses of trades and professional development.

The beginning of the twentieth century designated establishment of J. Gomez’ dictatorship, symptoms of which, on the one hand, was the economic growth of Venezuela, establishing of independent politic life, and on the other, the decline of the educational sector, an increase of illiteracy, lack of schools. Only in the late 50's of XX century, with the abolition of the dictatorship, the educational situation began to change: schools were built, new high schools were opened, the
attention to the alfabetization and professional education of poor peasants and Indians were paid.

In the second half of the twentieth century, the progressive educational community of Venezuela, is particularly concerned about gender equality and equal rights for men and women as subjects of education. At the beginning of the XXI century, one of the main objectives of the education system of Venezuela is reaching to all the women of the country, the equal opportunities with mens to received secondary and elementary professional education.

By considering the education of Venezuela in the historical plane, could be argue that it always acted as a core of social development and transformation. After all, the goal of education is to provide core moral and ethical values, knowledge, skills, preservation of national cultural identity, education and formation of new generation, new professionals, such as the professional training of poor people.

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INTERACTION BETWEEN THE SCHOOL AND THE COMMUNITY IN THE PROCESS OF SOCIALIZATION SCHOOL CHILDREN

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Abstract

The authors disclose the nature and content of partnership and co-operation of social institutions of education in the processes of socialization of children and youth, reveal the potential of social structures, their participation in the educational work of the school.

Key words: Interaction, school, community, education, socialization, school

The effectiveness of the educational process in engaging students to the social experience of previous generations depends largely on the establishment of close contacts of teachers and public involvement in solving urgent problems.

In teaching, the word "public" refers to the various organizations and groups of people and individuals, leading volunteer educational work with students and their parents [1-3].

Specifying this definition, the famous explorer of the problem D.I.Perfilevskaya believes that the term "public" includes parent groups and school classes, tips facilitate family and school, created in enterprises; representatives of public organizations, patronage of the school enterprise, institution, tips public, created by the community, representatives of voluntary associations and creative unions, individual enthusiasts in social work [4].

In addition, a number of scientists I.S.Marenko, A.G.Hripkova and others, offering to allocate when the representatives of the family are representatives of public organizations, as their "parent community."

L.S.Grinyuk noting that the key to improving education is the "all-round expansion of patronage of the labor collectives of the public schools and family,
the revitalization of civil society organizations, improving the efficiency of the media'', said: "Modern society - is not only voluntary activists is a public organization, the whole production teams; activists aimed at neighborhoods, patronage of their labor collectives, institutions, educational institutions, institutional asset residents of neighborhoods, houses, parent public''.

Based on the specific problems caused by the need to solve specific problems - legal, aesthetic and physical education, and so forth, some researchers consider it necessary to engage as public educators: law enforcement, inspection of the juvenile at the police stations, the commission to work with educationally neglected children (A.N. Abbasov), theaters, cinemas, clubs, creative unions directly associated with schools and children through mentoring work (L.Y. Sadykova), sports associations (A.D. Dubogay, C. V. Kalashnikov) etc.

All of the above shows the diversity of the microenvironment that enables a person to include a variety of activities to be coordinated by the school.

Especially, today, most of the institutions of public education, many state and local organizations, previously taken an active part in the education of the younger generation have ceased to exist or have changed the status line of work. There are new organizations, informal self-initiated, self-governing associations, movements that are now becoming one of the institutions of socialization along with the family and the school. Emphasizing the main features and characteristics of these associations - amateur character and self-governing organization - the number of researchers have isolated them as "voluntary associations."

Since the activities of the vast majority of them focused on the development and implementation of a wide range of interests of children and adults, the impact of recent increases today, and is comparable to the influence of traditional formal organizations.
For example, there were associations of social initiatives (political, environmental, national, cultural) that have set themselves ambitious goals and try to achieve a solution to the pressing problems of society.

As one of the most pressing problems of our time is the revival of the cultural and historical heritage of the past, belonging to the national traditions, customs and identities of ethnic groups, and at the same time, the development of values and standards of other cultures in order to solve these problems today are national-cultural centers that are educational work in the field of leisure with children, adolescents, the entire adult population in the family and domestic microenvironment and its environment.

This fact requires the registration and use of the potential of these social structures as teachers in the educational process of the school.

To solve these problems: attracting students to the national-cultural values, initiation to the progressive traditions of the people, the formation of national identity, a number of schools are functioning RK clubs such as: "School grandmothers", "Council of Elders", "School of the Fathers" (witness the research N.Sh.Almetov, K.Zh.Kozhahmetova, etc.). It should be noted that it is effectively adapt this experience to bring to the process of education of the elders (elders), grandparents as parents' community.

In addition, today there are such independent amateur associations or service clubs (sports, health preservation, mastering oriental martial arts, yoga, the solution of psychological problems, poetic, artistic, art song, passion brands, technology, video, movie, etc) family, of different ages groups, collectives, groups, businesses and neighborhood associations, etc. These are mostly on a territorial basis and are one of the important factors of socialization modern student.

It should also be noted that the school should take into account the fact that, along with the amateur associations and clubs, the community and others, the
youth associations exist independent demonstrative nature or "non-traditional" groups (football fans, hippies, punks, rockers, majors, pitching, cultists, etc.).

Such an association is a way for young people to express themselves freely, unrestricted manifestation of initiative and independent, uncontrolled, by adults communicate. They may take longer or shorter quantitative dimensions, have the character of an epidemic of unhealthy, to have a socially meaningful and antisocial goals.

Hence the need for the control of the school and the family of the activities of such groups, neutralizing the activity of groups with a negative impact by organizing study groups, social groups, bringing valuable content, establishing close contacts with groups of neutrality, through the inclusion of children in a variety of species, socially useful and spiritually -valuable activities, to promote the merger of non-traditional groups with associations.

In addition, the organization of joint work on the education and socialization of young school should consider the possibility of national-cultural centers that are more educational activities, including the promotion of international experience, methods of health promotion with a population that generally contributes to the development of such important aspects of life as uzologichesky, personal and spiritual.

In terms of the formation of personal, social and spiritual aspects of school life may well use the opportunity of independent amateur associations, clubs, family ravnovozrastnyh teams, clubs, groups and other informal associations of a positive nature, representing a wide range of children's activities that contribute to the development of abilities of the individual and its creative expression in a variety of activities.

These facts require that accounting records, the above official amateur public structures as public educators to work together on education and successful socialization of students.
So the public with its official and amateur organizations, associations promotes more complete, versatile formation of personality.

Evidence of this is the diversity of types of social structures, requiring mandatory registration, the control of the schools and families in the process of formation of the individual student, which leads to the consistency of their actions. Given that the amateur community structures can be both positive and neutral, and negative nature, it requires their mandatory registration in the educational process of the school, the use of the family's capacity to neutralize the negative effects.

Thus, we can conclude the following: the public as part of the micro student has great educational potential, which requires mandatory registration and purposeful management of the school these processes in the context of successful socialization of students.

References
Professional development of the police officer personality
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Abstract
The subject of our research is professional development of personality of students in higher educational institutions of the Ministry of Internal Affairs of Ukraine (Kiev, Lviv, Kirovograd) using indirect method. Investigated were such points as: the dynamics of existing cadets’ ideas about the behavior of police officers in acute conflict situations professionally significant; the dynamics of perception and assessment of the students of the features of professional activity; professional plans of cadets and emotional attitude to the profession of police officer

Keywords: synergetic, the professional activity of policemen, attitude of cadet’s to future profession, motivation, cadets’ professional intentions

The research is relevant due to the effect of law enforcement to the legal, moral and psychological condition of society. In theory, there are two ways of becoming a professional identity: either the person’s potential in their profession activity (self-fulfillment), or its destruction and degradation. The complexity of the research was to study for a professional identity in the context of “society – profession – personality”. During the education for a particular profession, a person learns certain requirements or standards of professional conduct that exist in the society. At discrepancy social mission and the profession of real informal rules and norms of behavior of a professional it goes about “eroding” professional values and professional marginalization, which is subject to the emerging profession that is a given [1]. The synergetic point of view of the development of personality in the profession can be represented as due to the interaction of "outside" factors (the perception and evaluation of human conditions of professional self-realization) and the “internal” (needs, inclinations, beliefs, etc.). Negative perception of the professional fulfillment’s conditions (social, psychosocial, psychological), even with the love of the profession can lead to direct and indirect rejection of the occupation (“internal dismissal” or “service by order” [2, p. 64].) and professional destruction of personality. State of maximum instability
professional personality due to the internal conflict caused by mismatch “due” and “existing”, the desired and the actual analogous to the “bifurcation point” in synergy and nature of the solution of the conflict, further defining the trajectory of professional development, similar to the concept of “falling on the attractor”.

The subject of our research is professional development of personality of students in higher educational institutions of the Ministry of Internal Affairs of Ukraine (Kiev, Lviv, Kirovograd). Investigated were such points as: the dynamics of existing cadets’ ideas about the behavior of police officers in acute conflict situations professionally significant (the description of critical situations provided the police force were used as method of research), the dynamics of perception and assessment of the students of the features of professional activity (as a result of the content analysis of anonymous responses of police employees the “positive” and “negative” of operational activity has been allocated 40 such features); professional plans of cadets and emotional attitude to the profession of police officer (used a method of incomplete sentences). The cross sections were explored as an organizational method. The research was conducted during the years 2001-2012, a total of 2898 attending police officers and students of 1-4 year of studies [3].

Statistically significant differences in the views of students (1-4 year) about the behavior of police officers in conflict situations have been identified in relation to 10 (out of 20) of situations, but in 8 of them, these differences were quantitative rather than qualitative. As a result, content analysis of 24,832 students’ responses of 1-4 years of studies (quantity 937 Kiev) the generalized portrait of a police officer was compiled, due to the students vision. Thus in conflict situations, a police officer is guided by his understanding of the situation and behaves in accordance with it (even if, in some situations, the behavior does not meet the requirements of the law or morality). The police officer perceives each situation as unique, so his behavior is quite flexible. In situations that have
conflict between professional duty and a sense of desire for self-preservation (physical or social), a police officer can take risks when it comes to the prevention of crime or the apprehension of criminals. If you need to apprehend a criminal juggles with facts, falsification is possible. The promises that could be given to criminals under the pressure of circumstances that threaten his life, a police officer would rather not fulfill, as well as the promise of having to investigate a crime (only students-graduates tend to believe that the latter should be done). Under certain circumstances, a police officer is able to show kindness, even if his behavior does not meet the requirements of the law, while he can neglect mercantile interests and a sense of corporate solidarity. However, it is difficult to resist the temptation of a material nature. Police employees have a high sense of corporate solidarity, especially in situations that are not associated with personal responsibility. If there is a conflict with a sense of friendly obligation and professional duty the first is more important. Police officer will not come into open conflict with the authorities even if his feelings are humiliated, but the illegal orders are not to perform, if the responsibility for implementation will lie on him. In such situations, when it is possible or even necessary to use physical force or special devices, police officer is not inclined to use them (he will seek to resolve the conflict of using the psychological impact). In situations of erroneous application of physical force he will try to protect himself (to justify his actions) by legal means.

Thus, in the views of the students of the real behavior of a police officer, there are signs that the E.P. Yermolayeva [1] calls marginalization (this is an inversion of social purpose of profession due to social factors). In such a case, it is secondary. Given the somewhat projective character of this technique, it could be assumed that in such situations in the future, police officers will conduct themselves in accordance with their existing ideas about standards of conduct of a police officer.
The students’ perception of the operational activities of police officers is changing. They are especially noticeable in the 2nd year of studies. There is also the tendency to the domination of the “negative”. Outlined were the features which importance for the perception of students of certain years of studies was similar. So, it is equally important for third year students in Kirovograd and Lviv, such the features like: poor work organization, the absence of social and legal safety, need to adhere to the business hierarchy (the majority of students were rated as pronounced), corruption of the authority, the availability of free time, the presence of work-related positive emotions (graded as mild or absent), the possibility of extending the life experience, the opportunity to work with real professionals; conflicting nature of performance, and love for his work, the ability to self-realization, management competence, poor relationships militia with authorities and the prosecution (some trends in the estimates of these features are absent). Also found was that the place of learning affects the perception of the features of police officers’ activity more than students’ specialization.

Analysis of students’ representations about the features of the police in the context of theories of motivation suggests that the needs of police officers, according to the students’ opinion, are not satisfied in their profession or satisfied partially [4-7]. Thus, the majority of graduate students underline that the most unsatisfactory hygiene factors of work (F. Herzberg), are: unsatisfactory salary, uncertainty about the future, poor work organization, the absence of social and legal safety, lack of social benefits and opportunities for higher education in the free of charge or concessional conditions, the negative impact of performance on family relationships; shortcomings in the leadership of people, a great physical and psychological stress, threat of professional deformation, lack of financial and technical support, negative public attitudes towards the police. None of the positive hygiene factors of work have been evaluated as presented in the work of
police officers at good or high levels (with the exception of treatment for women employees).

As a rule, the negative students’ attitude to work in the police is connected with the dominance of the shortcomings in operational performance of police officers in students’ perception. However, the positive attitude of students to work in the police can take place with the predominance of its shortcomings, rather than merits. In general, professional intentions of students are more concerned with their emotional attitude to the work of the police than a rational assessment of its strengths and weaknesses. However, based on our data research, we can hardly expect that there are a lot of police officers who are loyal to their profession despite “no matter what” (i.e. poor conditions of professional self-realization, the so-called “fans” of business).

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Musical memory in the professional activity of the future music teacher

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Musical memory should be attributed to a complex multi-level system of memorizing and reconstruction of music information. «Memory of a professional musician is the ability to memorize, keep in mind, and then playback the music material»¹. The value of musical memory in professional work of the future music teacher is of great importance. Basically, any kind of musical activity would not be possible without certain functional manifestations of musical memory.

Analysis of the research, as well as work experience led to the conclusion that musical memory lends itself to a considerable development under special pedagogical influences. Playing by rote, of course, extends the performance capabilities of the student - the future music teacher. «the chord played with notes as freely as you like, does not sound half as freely as played by rote» - considered by R. Schumann². The teacher of the main musical instrument is often confronted with the fact that most of the time allowed to work on a piece of music has to be spend on analysis and memorization, and there is not enough time for the final creation of the musical image in preparation for the exam.

The reason for that in most cases is that the student does not know how to speed up the process of learning new material.

High requirements for the quality of memorization are also shown by the current practice of public performances in all forms, both in training and in

extracurricular work of the musical-pedagogical faculties of universities. Not thorough enough learned by rote piece of music significantly reduce the quality of performance. This fact actualizes the problem of finding effective techniques for the development of musical memory of students, while avoiding the rote learning of musical material by it's repeated playing. According to R. Sokolov, stubborn repetition of page provides its automatic assimilation, but this is a – «lazy decision questionable by loyalty and, moreover, wasting precious time»\(^3\). When working on a piece of music, the student has the task to as quickly as possible learn and as long as possible keep music material in memory. This is possible by using appropriate methods and also by creating conditions for effectiveness of this process.

Analysis of the scientific literature on the problem and work experience in the class of the main musical instrument based on Zhetysu State University named after I.Zhansugurov made is possible to identify the conditions for the development of musical memory, as follows:

1. **Qualitative preliminary analysis of the piece of music.** Effective preliminary analysis of the work will speed up the process of its remembering. «the work on the music material must be entirely «rational» and should be facilitated by auxiliary elements in accordance with the characteristic features of the piece of music, its structure and expressive qualities»\(^4\). Practice has shown that for the implementation of an analysis of music material it's effective to use method of «notional grouping» proposed by A.A. Smirnov\(^5\). Notional grouping is a division of music into logical parts (periods, sentences, phrases) which

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\(^4\) Mutsmakher V. Sovershenstvovaniye muzikalnoy pamyati v protsesse obucheniya igre na fortepiano. [Improvement of musical memory in the process of learning to play the piano]. Textbook. – M., 2001.  
promotes memorization of the text of a music material. Strong points for remembering stand out in this process: a visual representation of the musical text, motional representation of the melody performance on the instrument, understanding of structure of music material. However, in all cases, auditory memorization should play a leading role, as the sound nature of music determines the learning process, including listening, understanding and memorizing of music material. The degree of professionalism of the teacher-musician depends on how consciously the music is memorized.

2. The development of musical memory must be integrated with other skills (development of perception, musical thinking, imagination, etc.) as musical memory is the basis of all kinds of musical activity. Its development contributes to the improvement of perception, imagination, musical thinking is a prerequisite to understanding the music in the process of listening. According to B.V. Asafiev «without a gymnastics of remembering there is no progress of music perception and there is no evolution of musical culture»\(^6\). The problem of memorizing music material without understanding should not exist at all. Methods of development of musical memory of the future teacher in a large extent depends on the characteristics of its functions in the music activity. Thus, an active and conscious perception of musical material has an important role in this process.

3. Using a variety of types and forms of musical cognitive activity. The development of musical memory is more efficient in the process of active cognitive activity. The more meaningful and varied this activity the more active the process of development of musical abilities will be, including musical memory.

4. Creating a motivational sphere for memorizing. This above all is the complex of incentives for remembering of music material to which we refer:

\(^6\) Asafiev B.V. Muzykalnaya forma kak protsess [Musical form as a process], - L.: Muzyka, 1971, p. 21
stimulation of maximum interest in music, specialty, piece of music, setting of artistic and performing goal.

Musical memory is composed of different types of memory - general and specific musical. Depending on individual characteristics of musical memory of students, for some of them the speed of remembering increases with visual and auditory memorization, while for others with motional and auditory memorization. Thus, the more types of memory involved in the music memorization, the more effective this process is. According to L. McKinnon, What is usually meant by the musical memory, in fact, is a collaboration of the different types of memory possessed by every normal person - memory of the ear, eye, touch and movement, a skilled musician usually makes use of all types of memory\(^7\).

Musical memory - is primarily imaginative, auditory memory, including memorization, preservation and playback of musical material. Quality of memory is most clearly detected during playback, which is the result of memorization and preservation. Playback - is not a mere mechanical repetition of seen material. With monotonous repetition there is no mental activity, interest in memorizing decreases, and thus it does not create the conditions for lasting remembering. When piece of music has already been learned by rote, it needs regular repetitions to keep it in the memory. At repetition it's important to include something new in sensations, or in associations, or in psychological methods every time, only then the process will be much more effective.

Playing at a slow pace when repeating bring great benefits, according to G. Kogan: «only what was played over and over again slowly and carefully can be substantially kept in memory»\(^8\). Only with this kind of work you can find out how

\(^8\) Kogan G. U vrat masterstva [At the Gate of Excellence].- M.: Klassika, 2004.
well a piece of music «settled down» in the memory. If for a pianist it's more difficult to play by rote when asked to play slower, it's the first sign that he does not know by rote the music being played.

Along with this, you can achieve a lasting memorization by alternating between mental playback without an instrument and a real playing. In the process of such way of work, what psychologists call a simultaneous image is formed in the mind, therefore allowing imagination to catch a fragment of even the whole piece of music not sequentially but all at once. In conclusion I want to say the words of S. Savshinsky: «the best way to learn how to remember is to remember»

It's proved that memory depends on the intensity of exercise. Student exercise memory before the end of the period of study in the university, and then memory deteriorates over time, if the student does not continue active work on its development. Thus, in order to keep the potential of memory, the student as a future music teacher must constantly replenish their musical repertoire and regularly repeat previously learned pieces of music.

References


