

QUICKNESS AND ENDURANCE FITNESS OF PEDAGOGIC COLLEGE GIRL STUDENTS UNDER INFLUENCE OF CHEER-LEADING

Masliak I.P.

Kharkiv State Academy of Physical Culture

Abstract. *Purpose:* to determine dynamic of quickness and endurance indicators of pedagogic college girl students under influence of cheer-leading. *Material:* in the research 385 girl students participated, who composed 3 control and 3 experimental groups. Quickness fitness was registered by indicators of 60 meters' run (sec.); latent time of motor response (msec.); run on the sport during 5 sec (quantity of steps); tapping test (quantity of points). Level of endurance fitness was registered by results of 2000 meters' run (min). *Results:* the most effective cheer-leading exercises, which positively influence on girl students' endurance, have been determined. The most favorable age periods for training of quickness and endurance under influence of cheer-leading exercises have been found. The higher increment in quickness indicators was registered in 15 years old girls. The most substantial increment of endurance was registered in 16 years old girls. *Conclusions:* it is recommended to include cheer-leading exercises: basic movements, jump elements, constants, in variable components of girl students' academic training program.

Key words: physical education, students, quickness, endurance, cheer-leading.

Introduction

Physical education is an integral component of teaching, education and vocational training at higher educational establishments [10]. In process of future specialists' training significant attention shall be paid to mastering of professional knowledge and skills, development of physical qualities and formation of healthy life style [15]. Modern students endure much less physical and much higher emotional-psychological loads, stress states, hypodynamia. It results in reduction of adaptation potentials of young people's organisms and increase of morbidity. That is why the problem of increasing of students' physical education effectiveness at the account of introduction of new and non traditional motor functioning's kinds is rather topical.

A number of authors note improvement of students' health and motor fitness at the account of priority usage of volleyball [19, 23], light athletic [1], football [8], body-flex and pilates [20], swimming [17], aqua-fitness [6], futsal [22] in academic training program.

Cheer-leading is one of innovative kinds of motor functioning. Cheer-leading, as a kind of sports, has appeared comparatively not long ago and has acquired wide acclaim among USA youth, in European countries and in Ukraine. It has show character, renders different impacts; it is dynamic and can be practiced by wide age range of people [4, 16, 18]. With it cheer-leading does not require special equipment and apparatuses. It is especially important in conditions of social-economical crisis.

A number of authors note in their works positive influence of cheer-leading of pre school age children's physical condition [12]; on physical health, motor fitness and interest to physical culture of secondary schools' pupils [2, 3, 13, 14]; physical condition and physical workability of first years girl students of technical university [11]; on formation of wide arsenal of motor skills of higher educational establishments' students [5]; on development of specific physical qualities of college girl students [7, 21].

With it influence of cheer-leading exercises on complex manifestation of college girl students' motor abilities has still been studied insufficiently.

Purpose, tasks of the work, material and methods

The purpose of the research is to determine dynamic of quickness and endurance indicators of pedagogic college girl students under influence of cheer-leading.

The methods of the research: theoretical analysis and generalization of scientific-methodic literature; pedagogic experiment; pedagogic testing;; methods of mathematical statistic.

Quickness fitness was registered by indicators of 60 meters' run (sec.); latent time of motor response (msec.); run on the sport during 5 sec (quantity of steps); tapping test (quantity of points). Level of endurance fitness was registered by results of 2000 meters' run (min).

The researches were conducted on the base of pedagogic college of Kharkov humanitarian-pedagogic institute. 385 first - third years girls students of physical culture profile participated in the researches. They composed 3 control and 3 experimental groups: 1st group – 1st year girl students; 2nd group – 2nd year girl students and 3rd group – 3rd year girl students. All girl students were the members of main and preparatory health group. The research was approved by ethic committee of Kharkov humanitarian pedagogic institute.

In the course of experiment control groups' girl students were trained by traditional physical education program. In variable component of experimental groups' training process cheer-leading exercises were introduced (basic movements, jump elements, constants and so on).

Results of the researches

Analysis of the received results of quickness testing (see table 1) showed absence of confident distinctions between indicators of girl students of experimental and control groups ($p > 0.05$). Analysis of initial data permitted to detect the absence of definite system of distinctions in results ($p > 0.05$). The exclusion were indicators of motor response and run on the spot, where distinctions in results of 1st and 2nd as well as between 2nd and 3rd groups were confident ($p < 0.05 - 0.001$).

Table 1

Quickness indicators of experimental and control groups girl students before experiment

Groups	I	II	III
	Indicators $\bar{X} \pm m$		
	60 meters' run (sec.)		
<i>n</i>	75	108	95
Experimental	10.75 \pm 0.08	10.70 \pm 0.07	10.84 \pm 0.05
<i>n</i>	23	34	50
Control	10.81 \pm 0.13	10.73 \pm 0.10	10.91 \pm 0.08
t	0.38	0.24	0.71
p	>0.05	>0.05	>0.05
Latent time of motor response (msec.)			
Experimental	0.29 \pm 0.00	0.27 \pm 0.00	0.28 \pm 0.00
Control	0.29 \pm 0.01	0.27 \pm 0.00	0.28 \pm 0.00
t	0.62	0.30	0.73
p	>0.05	>0.05	>0.05
Run on the spot (quantity of steps)			
Experimental	18.25 \pm 0.35	17.95 \pm 0.18	17.59 \pm 0.19
Control	18.74 \pm 0.38	17.74 \pm 0.28	17.22 \pm 0.27
t	0.94	0.65	1.10
p	>0.05	>0.05	>0.05
Tapping test (quantity of points)			
Experimental	68.67 \pm 0.62	66.34 \pm 1.05	67.36 \pm 0.87
Control	67.39 \pm 1.63	66.74 \pm 1.29	66.54 \pm 1.34
t	0.73	0.24	0.51
p	>0.05	>0.05	>0.05

Analysis of the received data and normative [9] showed that indicators of 60 meters' run, latent period of motor response and run on the spot correspond to mark 2 points in all tested groups; tapping test corresponded to 4 points. Thus, level of quickness of 1st – 3rd year girl students in average corresponds to mark “unsatisfactory”.

Analysis of data after experiment (see fig.1) showed that all quickness indicators of experimental groups' girl students significantly and confidently improved ($p < 0.05 - 0.001$).

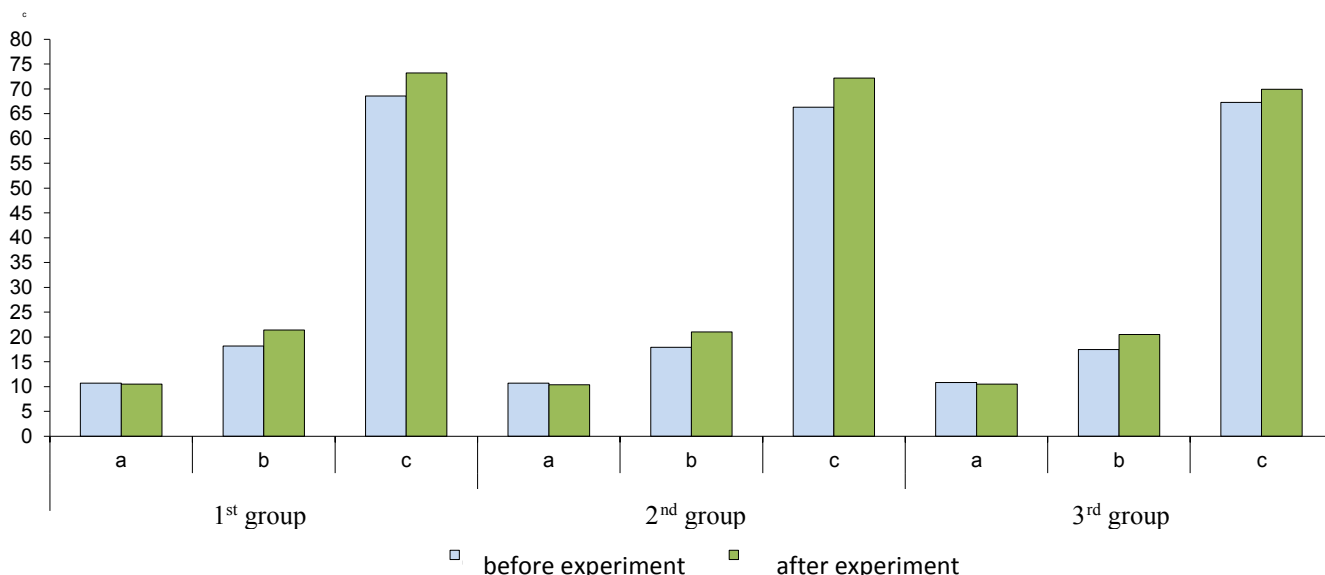


Fig 1. Indicators of quickness level in experimental groups before and after experiment: a – 30 meters' run (sec.), b – run on the spot (quantity of steps), c – tapping test (quantity of points).

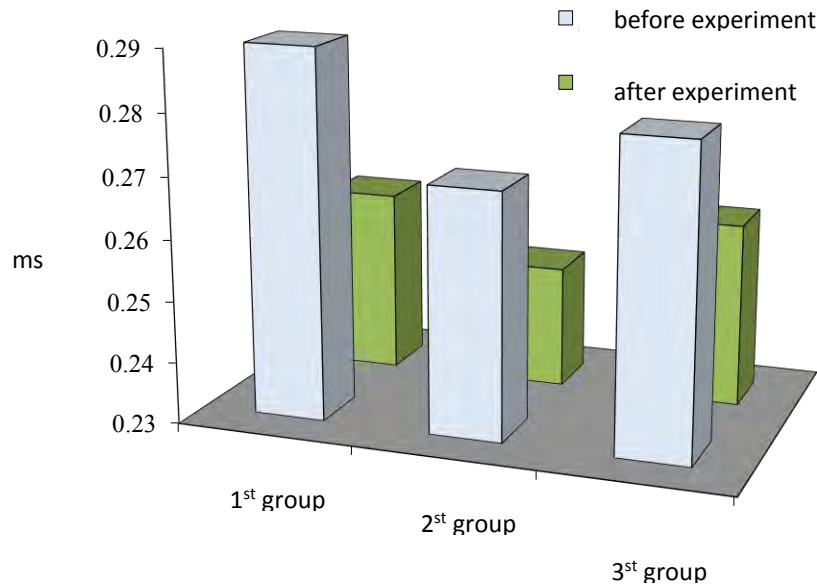


Fig. 2. Indicators of motor response in experimental groups before and after experiment

Analysis of experimental data showed that in 60 meters' run results of 1st year girl students improved by 2.32%, 2nd year girl students – by 2.33%, 3rd – by 2.39%; latent period of motor response improved by 10.34%; 7.40%; 7.14% accordingly; run on the spot – by 17.26%; 17.32%; 1.99% accordingly; tapping test – by 6.61%; 8.90%; 3.88% accordingly. Thus, substantial changes took place in frequency of legs' movements. The highest increment in quickness was observed in girls of 15 years old age.

Analysis of control groups' data after experiment showed that their results also improved to some extent. But these changes were less significant than in experimental groups and were not confident ($p > 0.05$). Results of tests were as follows: 60 meters' run of 1st group girl students – improved by 1.48%, 2nd group – by 2.05%; 3rd group – by 1.83%); latent period of motor response – by 3.44%; 3.70%; 3.57% accordingly; run on the spot – by 6.24%; 4.79%; 4.52% accordingly; tapping test – by 2.83%; 2.68%; 4.68% accordingly.

Analysis of repeated data in age aspect revealed confident difference in indicators of tapping test between 1st and 2nd as well as between 2nd and 3rd experimental groups ($p < 0.05-0.001$). The rest indicators do not significantly differ in comparison with initial data.

Comparison of repeated data of experimental groups with normative [9] showed increasing of results by 1 point of assessment scale in the following indicators: 60 meters' run and tapping test (1st group's girl students) and latent period of motor response (1st and 2nd groups' girl students). As for the other indicators we observed their significant and confident improvement. But there were no changes by assessment scale. In our opinion it is explained by imperfectness of available assessment criteria.

Comparison of control groups' results showed analogous to experimental groups' character of changes by assessment scale in the following indicators: 60 meters' run and latent period of motor response.

Thus, application of specially selected cheer-leading exercises in process of girl students' physical education rendered positive influence on quickness level. The most substantial increment of results was noted in girls of 15 years old age.

Analysis of endurance data revealed absence of confident differences between indicators of control and experimental groups ($p > 0.05$) (see table 2). In age aspect we observed worsening of results with age (but statistically not confident $p > 0.05$). Exclusion were the data of 1st and 2nd experimental groups' girl students, whose data were statistically different ($p < 0.001$).

Table 2

Endurance indicators of experimental and control groups' girl students before experiment

Groups	I	II	III
	Indicators $\bar{X} \pm m$		
	2000 meters' run (min.)		
<i>n</i>	75	108	95
Experimental	16.69±0.12	17.69±0.93	17.41±0.14
<i>n</i>	23	34	50
Control	16.89±0.21	16.70±0.17	17.03±0.19
t	0.81	1.04	1.59
p	>0.05	>0.05	>0.05

Comparison of 2000 meters' run results with normative (governmental physical education program) showed that in all tested groups they are significantly lower than standards and are far from reaching the lowest limit. That is why their mark was 0 points.

Analysis of results after application of cheer-leading (see fig.3) showed that endurance indicators in experimental groups significantly and confidently improved ($p < 0.001$). For example, results of 1st year girl students improved by 6.59%, 2nd years – by 16.05%, 3rd year – by 11.37%. The highest increment in results of endurance training was observed in 16 years' old girls.

Analysis of analogous data of control groups' girl students showed confident improvement of results in 2nd and 3rd groups ($p < 0.05 - 0.01$). For example, 1st group girl students' results improved by 2.13%; 2nd group – by 2.93%; 3rd group – by 4.46%. Percent increment of indicators in control groups was significantly lower than in experimental groups. It should be noted that in repeated results of control and experimental groups' girl students we observed significant and confident domination of experimental groups' results ($p < 0.001$).

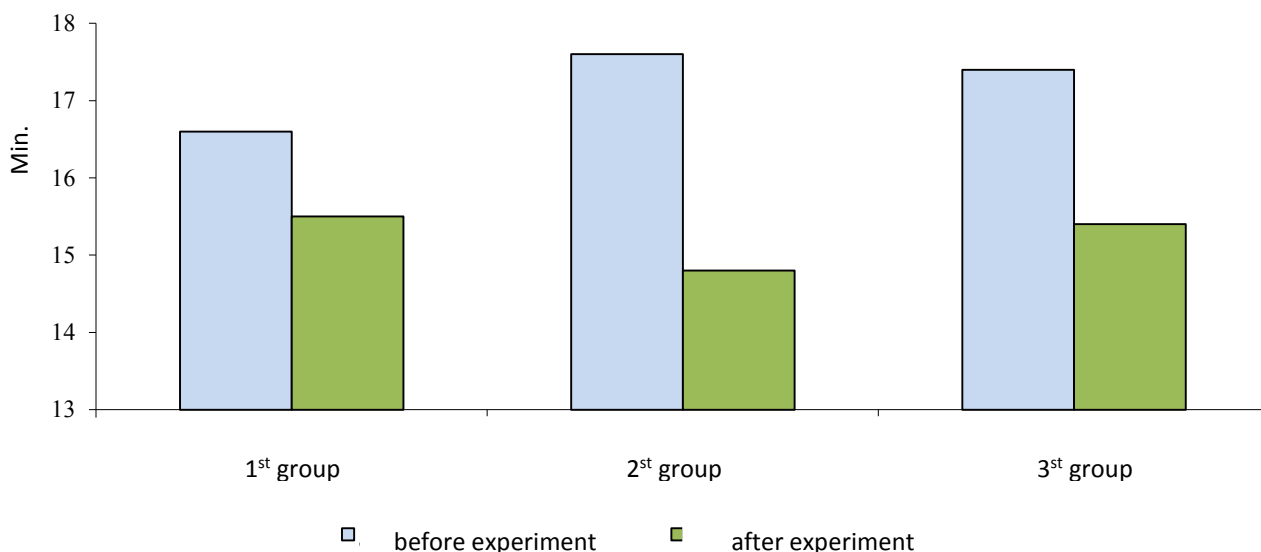


Fig.3. Indicators of endurance fitness of experimental groups' girl students before and after experiment

Analysis of repeated results in age aspect showed that character of differences changed significantly in experimental groups. For example, indicators of 1st and 3rd groups became much better and it was statistically confident ($p < 0.001$). Analysis of analogous indicators of control groups did not reveal significant changes in comparison with initial data.

Comparison of repeated results of endurance testing with normative showed absence of changes by assessment scale: they equal to zero in all tested groups.

Thus, application of specially selected cheer-leading exercises in physical training of girl students positively influenced on endurance fitness. The highest increment of results was observed in 16 years' old girl students.

Discussion

Analysis of scientific-methodic literature showed that there is quite few works, devoted to cheer-leading implementation in physical education process in different educational establishments. Also quite a few works on problems of cheer-leading's influence on different aspect of training and formation of students' motor competence was found. In available works influence of cheer-leading exercises on pre school age children's physical condition was analyzed [12]; on physical health and motor qualities' condition of secondary schools pupils [2, 3, 13, 14]; on level of physical condition and physical workability of technical university girl students [11]; on power and coordination training of college students [7, 21].

On the base of analysis and generalization of the conducted research's results we supplement the data of T.M. Bala [13] about positive influence of cheer-leading exercises on motor skills' training; expanded the data of N.V. Kryvoruchko, I.P. Masliak [7, 21] about influence of cheer-leading on students' motor abilities.

For the first time we determined: the most suitable for training by cheer-leading exercises forms of girl students' quickness; the most favorable age periods for training of quickness and endurance under influence of cheer-leading exercises.

Conclusions:

1. As a result of initial testing we detected "low" level of quickness and endurance of pedagogic college girl students.
2. Application of cheer-leading exercises in physical education influenced positively on quickness and endurance of the tested contingent.

The further researches in this direction can be realized by means of determination of cheer-leading influence on physical abilities of higher educational establishments' girl students.

Acknowledgement

The researches have been fulfilled in compliance with topical plan of scientific-research works of Kharkov State Academy of Physical Culture for 2013 - 2015 by topic 3.5.29. "Theoretical and applied principles of organization of physical training, physical fitness and physical condition of different population strata monitoring".

Conflict of interests

The author declares that there is no conflict of interests.

References:

1. Andres A, Serbo E, Festriga S. Sportivno-orientovane fizichne vikhovannia studentiv [Sport oriented physical education of students]. *Moloda sportivna nauka Ukraini*, 2015;19:6-12. (in Ukrainian)
2. Bala TM, Maslyak IP. Zmina rivnia fizichnogo zdorov'ia shkoliariv 5-6-kh klasiv pid vplivom vprav cherlidinga [Change of physical health of 5-6 forms' pupils under influence of cheer-leading exercises]. *Moloda sportivna nauka Ukraini*, 2011;15:10-15. (in Ukrainian)
3. Bala TM, Maslyak IP. Zmina rivnia fizichnogo zdorov'ia shkoliariv 7-9-kh klasiv pid vplivom vprav cherlidinga [Change of physical health of 7-9 forms' pupils under influence of cheer-leading exercises]. *Sportivnij visnik Pridniprov'ia*, 2011;2:21-23. (in Ukrainian)
4. Bala TM, Maslyak IP. *Chirliding u fizichnomu vikhovanni shkoliariv* [Cheer-leading in physical education of schoolchildren], Kharkov; 2014 (in Ukrainian)
5. Zinchenko IA. *Pobudova trenuvального procesu sportsmeniv u cherlidingu na etapi specializovanoi bazovoi pidgotovki. Cand. Diss.* [Building of sportsmen's training process in cheer-leading at stage of specialized basic training. Cand. Diss.], Kharkov; 2013 (in Ukrainian)
6. Kozina ZhL, Iermakov SS, Bazyluk TA, Voloshina EV. Innovacionnye tekhnologii akvafitnessa igrovoj napravlenosti s primeneniem tekhnicheskikh ustrojstv v fizicheskom vospitanii studentok [Aqua-fitness innovative technologies of game orientation with application of technical devices in girl students' physical education]. *Physical education of students*, 2012;1:42-46. (in Ukrainian)
7. Krivoruchko N, Maslyak I. Dinamika pokaznikov rozvitku koordinacijnikh zdbnostej studentiv VNZ pid vplivom vprav chirlidingu [Dynamic of coordination indicators of HEE students under influence of cheer-leading exercises]. *Moloda sportivna nauka Ukraini*, 2013; 7: 87-91. (in Ukrainian)
8. Malyar EI. *Rozvitok profesijno vazhlyvikh iakостей studentiv special'nosti «Opodatkuvannia» zasobami futbolu. Cand. Diss.* [Training of professionally significant qualities of students (specialization "Taxation") by means of football. Cand. Diss.], Lviv; 2008 (in Ukrainian)
9. Romanenko VA. *Diagnostika dvigatel'nykh sposobnostej* [Diagnostic of motor abilities], Donetsk: Don NU; 2005 (in Ukrainian)
10. Terenteva NM, Mameshina MA, Maslyak IP. *Teoriia ta metodika fizichnogo vikhovannia* [Theory and methodic of physical education], Kharkov, KSAPC; 2010. (in Ukrainian)
11. Timofeeva OV. Chirliding v sisteme fizicheskogo vospitannia studentok [Cheer-leading in system of girl students' physical education]. *Teoriia i praktika fizicheskoi kul'tury*, 2008;11:36-38. (in Russian)
12. Timofeeva TN, Tatarinova OO, Vladimirova SM. Cherliding dlia doskol'nikov [Cheer-leading for pre school age children]. *Detskij sad: teoriia i praktika*, 2011;10:68-75. (in Russian)
13. Bala T. Change in the level of strength and endurance development of 5-6 grades pupils under cheerleading exercises influence. *Slobozhanskyi herald of science and sport*, 2015; 3: 14-18.
14. Bala TM. The influence of cheerleading exercises on the schoolchildren's physical health of 5-9th forms. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2012; 4: 12-16.
15. Belykh S. I. Health, physical education and physical development of students in historically and personally developing paradigm. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2013; 5: 7-12. <http://dx.doi:10.6084/m9.figshare.707091>
16. Carrier Justin, McKay Donna. Complete cheerleading. Human Kinetics: USA, 2006: 240.
17. Cieślicka M. Swimming lessons in improving the health of students. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2013; 12: 101–104. <http://dx.doi:10.6084/m9.figshare.880636>
18. Chappell Linda Rae. Coaching cheerleading successfully (second edition). Human Kinetics: In Canada, 2005: 206.
19. Grutsyak N. Volleyball in unспортсmanlike university : development trends. *Slobozhanskyi herald of science and sport*, 2015; № 2(46): 59-62.
20. Ilnitskaya AS, Kozina ZhL, Korobejnik VA, Ilnickiy SV, Cieślicka Mirosława, Stankiewicz Błażej, Pilewska Wiesława. The method of application of health systems Bodyflex and Pilates in physical education of

- students. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2014; 2: 25-32. <http://dx.doi:10.6084/m9.figshare.923510>
21. Kryvoruchko NV, Masljak IP, Zhuravlyova IN. Impact on the display of power cheerleading ability of university students I-II levels of accreditation. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2013; 9: 38-42. <http://dx.doi:10.6084/m9.figshare.749696>.
 22. Temchenko V. Influence of informational technologies on physical background of students engaged futsal in sport-oriented physical education. *Slobozhanskyi herald of science and sport*, 2015; 3(47): 93-96.
 23. Salatenko IA. Direction improvements professionally-applied physical preparation of students of economic specialties. *Pedagogics, psychology, medical biological problems of physical training and sports*, 2012; 11: 90-93. <http://dx.doi:10.6084/m9.figshare.97369>.

Information about the author:
Masliak I.P.; http://orcid.org/0000-0003-1306-0849 ; ira.maslyak@mail.ru ; Kharkiv State Academy of Physical Culture; Klochkivska str. 99, Kharkiv, 61058, Ukraine.
Cite this article as: Masliak I.P. Quickness and endurance fitness of pedagogic college girl students under influence of cheer-leading. <i>Physical education of students</i> , 2015;4:24-30. http://dx.doi.org/10.15561/20755279.2015.0404
The electronic version of this article is the complete one and can be found online at: http://www.sportpedu.org.ua/html/arhive-e.html
This is an Open Access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited (http://creativecommons.org/licenses/by/3.0/deed.en).
Received: 22.08.2015 Accepted: 29.08.2015; Published: 30.08.2015