# XXI Century Education and its contribution to the employment rate of romanian labour market<sup>i</sup>

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# ,, Education is the most important weapon you have in order to change the world " Nelson Mandela

### Abstract

The reason for choosing this theme is that the employers show a lack of interest in the workforce that has benefited from the educational process, a lack of interest which begun to intensify lately, educational process meaning formal education, namely that obtained in universities. The development in the modern society in terms of information and communication technology makes employers modify their preferences.

If up to the intensification of the financial crisis the university graduates were the ones being employed, now less educated people are sought. The central idea of the article is that young people show a skeptical attitude on further education after high school, and the fact that they do not want to surpass themselves and not focus on lifelong learning, poses a threat to society, an education that does not end once the individual no longer has the status of pupil or student.

To support the argument over the scientific approach, we're using linear regression, experiments, and opinion surveys using a questionnaire. The importance of this scientific endeavor is that it is a warning for the entrepreneurs, emphasizing the fact that labor resources with limited knowledge cannot perform tasks at the work place, practically do not perform well, and this is reflected in the company's financial data.

Keywords: education, self-education, teaching skills, employment rate, unemployment rate.

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#### **1. Introduction**

Education and employment rate were and continue to be the focus of the experts in this field. European policies and strategies are aimed at supporting these two pillars of contemporary society. If according to the Lisbon 2020 strategy that aims to reach the 70% employment rate, in the education area it's aimed to improve the situation focusing on preparing young people for the labor market and helping them to pursue studies abroad. If Nelson Mandela sees the education as a way to change the world, Immanuel Kant emphasizes the fact that man acquires human traits, it humanizes himself and projects personality traits through education, while Aristotle mentions that the road is long, but the results are sweet, regarding education.

The education does not have the desired effect without work, it's like a flame that's slowly burning out, and work without education doesn't bring satisfying results. Education is what makes labor's role change in our society. If in the past work was associated only with supporting one's self, like buying food and clothes, now things are changing, the individual wants to satisfy his needs of knowledge rather than the daily existence needs.

The academy member Augustin Doinaş was an advocate of education all through his life, saying that no one died due to long-term exposure to education. Since information today might be novelty, but over time it will no longer be valid.

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### 2. Theoretical aspects of education and employment concepts

Education lowers the health problems, reduces mortality and results in increased life expectancy. If health education would be a part of general education, this would reduce the costs involved, (insertion of concepts into existing materials, concepts that empower young people). In our century education plays an essential role. There is a social institution of higher rank, which can help increase democracy and equality, facilitating the relationship between man and nature (Pargaru I, Gherghina R, Duca I, 2009).

The strategic framework for European cooperation in education and training is aimed at supporting EU Member States in the development of national education and training, including initiatives regarding lifelong learning for all members of society and the means to reach their potential. This framework establishes a benchmark, namely that by 2020, an average of at least 15% of adults aged between 25 and 64 years old have to participate in the process of lifelong learning. (http://epp.eurostat.ec.europa.eu/ statistics\_explained/ index.php/Education\_statistics\_at\_regional\_level/ro#.C3.8Env.C4.83.C8.9Barea\_pe\_tot\_parcursul\_vie.C8.9Bii).

Getting an lifelong education is as important if not more important than ever, simply "getting an education" is not enough. What matters the most is the quality of education defined by the level of knowledge and skills acquired by the pupil or student (Craig D, 2009).

Parents will be encouraged to support learning by (Jardin D, 1996):

- Taking an active role in their children's learning,
- Engaging in a cooperative relationship with their children and the teachers,
- Assisting school in establishing a common set of values and expectations,
- Strengthening school's goals,
- Opportunities to get involved in school activities,
- Opportunities to participate in school decision-making.

Students in our society focus not only on traditional forms of education (formal, informal and non-formal) but also on educating on their own (self-education). This capacity for independent learning is essential for their future because it brings wealth (Brown S, 2006). There are eight critical factors that, according to the researchers, should generate educational success (Lombardi M, 2007): content, instructional design, student tasks, trainers roles, the roles of beneficiaries, equipment, technology, assessment.

The key to understanding education is to recognize the fact that it is not an isolated phenomenon or a dependent one; lifelong education is received and contributes to the success of the individual; it creates character (Singh R, 1991). Self-education may be the most important especially now in our ever changing world, when people can acquire skills to manage their own life, to be independent, but this doesn't mean that it can be done without help.

Effective teaching focuses on student involvement in deep thinking about the subject matter. College graduates working in a laboratory, focusing intensively on solving real physics problems after several years of working in that environment they become experts, not because there is something magical in the air of the research laboratory, but because they are engaged in cognitive processes needed to develop specialized skills (Levy F, Murnane R, 2005). Most entrepreneurs and college graduates think college should provide a balance between education, knowledge and well-rounded skills in a specific field (Peter D, 2006).

Teacher education focuses on a series of key skills that are not well developed through traditional training programs. These include: student discipline, student motivation, dealing with individual differences / or inadequate resources. organization insufficient and of classwork parents (http://www.ascilite.org.au/conferences/perth04/procs/ferry.html). Learning to teach is the ability to pursue and persist in learning, to organize your own learning process through effective management of time and information, both individually and in a group. This means obtaining, processing and assimilating new knowledge and skills, searching guidance. (http://www.alfa-trall.eu/wp-content/uploads/2012/01/EU2007and also for keyCompetencesL3-brochure.pdf).

The labor market is the meeting between labor demand and labor supply. Labor demand is the need for employment and labor supply are available jobs. In this labor market, the labor resources play a key role. Schuele and Madison (2010) mentioned that in order to find a job, human resources must be able to convince the employers that they will bring value to an organization (Kay A, Lear J, 2011).

Hard work was and still is performed in today's society, although prohibited by law, especially regarding children. ILO Convention defining hard work focuses on coercion measures. But does this mean that there's a link between the concept of hard work and slavery Kaye M, 2007). The employee is any individual who works under the supervision of the employer and receives a salary. Employee - people in the labor market that have been reported as part of this structure. (http://www.nscb.gov.ph/ru12/DEFINE/DEF-LABO.HTM):

At the workplace - those who have done some work, even for one hour during the reference period. b) At a job or a business but not at the work place - those who have a job or a business, but not at the work place during the reference period due to temporary illness / injury, vacation or other holidays, bad weather or strike / labor dispute or other reasons.Flexible working arrangements (FWAs) generate a greater flexibility at the workplace, hours worked according to the schedule and in appropriate amount. This provides the human resources a greater control and also generates greater opportunities for employees who can enjoy a greater balance between work and life responsibilities. (http://www.shrm.org/research/surveyfindings/articles/documents/ 090464\_workplace\_ flexibility\_survey\_report\_inside\_finalonline.pdf).

# 3. Study of employment rate under the impact of education

#### Education and employment rate dynamics analysis

# Relevant indicators of education are presented in Tables 1, 2, 3

Thousand people								
	2010	2011	2012	2013				
Unemployed total	627	461	494	512				
Of which : women	264	204	211	216				
Primary, secondary,	442	321	347	356				
vocational								
Of which: women	164	127	131	134				
High school and	135	101	110	120				
secondary								
Of which: women	71	53	57	60				
University	50	39	37	36				
Of which: women	29	24	23	22				

Table 1. Registered unemployed, by level of education

Analysis of unemployment in 2011-2013 in Romania highlights the existence of nonlinearity. Statistics reveal that at the university educational level, there has been a decrease in the number of unemployed people that went from 50000 to 36000.

Source: http://www.insse.ro/cms/files/pdf/ro/cap8.pdf

		2003/	2004/	2005/	2006/	2007/	2008/	2009/	2010/	2011/
		2004	2005	2006	2007	2008	2009	2010	2011	2012
18	Т	12,4	13,3	12,9	13,1	17,9	18,4	12,6	9,6	7,6
years	F	14,7	15,6	15,4	16,1	21,6	21,7	15,2	11,6	9,0
	М	10,2	11,1	10,5	10,1	14,4	15,1	10,2	7,8	6,1
19	Т	31,2	29,9	33,1	31,7	36,4	37,4	31,9	36,9	30,3
years	F	37,1	34,8	40,4	37,2	44,8	43,8	37,4	43,1	36,6
	М	25,6	25,2	26,1	26,3	28,3	31,3	26,6	31,0	24,4
20	Т	30,0	31,6	31,4	34,1	33,6	36,3	34,7	31,8	30,3
years	F	34,7	36,7	36,6	39,9	39,9	43,2	40,1	37,2	34,9
	М	25,6	26,8	26,5	28,6	27,6	29,6	29,4	26,6	25,8
21	Т	26,2	29,2	31,6	31,4	34,8	30,1	31,2	31,5	26,7
years	F	29,7	33,0	36,7	36,8	40,9	34,1	35,8	36,3	30,1

Table 2. Evolut	ion of specific rates	of enrollm	ent in high	her educat	ion (2003	-2012)

	М	22,8	25,7	26,7	26,4	28,9	26,2	26,8	23,9	23,5
22	Т	22,0	23,4	26,5	30,4	31,6	25,3	20,0	22,8	20,1
years	F	24,1	26,2	30,0	35,2	37,2	27,3	31,2	24,5	20,2
	М	20,0	20,8	23,2	25,9	26,2	23,4	18,9	21,2	20,0
23	Т	15,3	16,3	18,4	21,4	23,7	18,4	16,1	12,8	11,7
years	F	16,2	17,4	19,2	22,7	25,5	19,3	17,0	13,2	11,4
	М	14,5	15,2	17,6	20,1	22,0	17,5	15,2	12,3	12,0

Source: http://www.insse.ro/cms/files/pdf/ro/cap8.pdf

Enrolment in higher education in the table above shows that for most age groups there has been a decrease for the period 2003-2012.

			1 401	
	Number of o	out-bound Erasmu	is students p	per country
	studying o	r doing traineeship	os abroad in	2012-13*
Country	Erasmus studies	Erasmus traineeships	Total	Share of traineeships
BE	6329	1412	7741	18%
BG	1521	431	1952	22%
cz	6185	1114	7299	15%
DK	2565	1081	3646	30%
DE	28887	6004	34891	17%
EE	789	364	1153	32%
GR	3325	924	4249	22%
ES	33548	5701	39249	15%
FR	26740	8571	35311	24%
IE	1976	786	2762	28%
IT	21925	3880	25805	15%
CY	277	73	350	21%
LV	1399	750	2149	35%
LT	2470	1059	3529	30%
LU	400	5	405	1%
HU	3351	1036	4387	24%
MT	141	67	208	32%
NL.	6853	3208	10061	32%
AT	4602	1112	5714	19%
PL	11961	4260	16221	26%
PT	5449	1592	7041	23%
RO	3212	1799	5011	36%

Table 3. The number of Erasmus students
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For the 2012-2013 academic year there has been a number of 5011 students who benefited from the Erasmus program.

Sursa: http://ec.europa.eu/education/library/statistics/ay-12-13/annex-6\_en.pdf

#### The analysis of labor market indicators

The labor market is represented by statistical indicators such as: young people aged between 18 and 24 which are found neither in employment nor in the educational process or training, by NUTS 2 regions (since 2000), the number of unemployed and the unemployment rate, labor market indicators in relation to the EU.

Table 4.Young people aged between 18 and 24 which can't be found neither in employment nor in the educational process or training, by NUTS 2 regions (since 2000) - NEET% rates.

At EU level there is an increased rate of young people aged between 18-24 years of age who do not participate in the educational process or in activities which take the form of labor.

GEO/TIME	2007	2008	2009	2010	2011
European Union	14,1	13,9	16,1	16,5	16,7
Romania	16,0	13,4	16,5	20,0	20,9
Macro-region one	13,5	12,1	17,6	22,3	24,4
North- West	10,8	9,9	13,7	15,5	16,5
Center	16,4	14,3	21,9	29,8	33,5
Macro-region two	17,2	13,9	15,4	19,5	20,1
North – East	13,5	10,7	12,7	16,8	16,3
South -East	22,4	18,3	19,1	23,2	25,5
Macro-region three	16,4	14,2	17,4	21,4	22,1
South – Muntenia	20,3	16,7	21,9	26,3	27,6

Bucharest- Ilfov	10,6	10,4	10,5	13,5	13,2
Macro-region four	16,5	13,4	16,0	16,2	16,4
South-West Oltenia	18,6	15,0	18,1	18,5	17,0

Source: http://www.insse.ro/cms/files/pdf/ro/cap8.pdf

	2007	2008	2009	2010	2011
Total pop	ulation (	(20-64 ani)	%		
EU 27	69,9	70,3	69,0	68,6	68,6
Romania	64,4	64,4	63,5	63,3	62,8
Women ei	nployme	ent rate (2	0-64 ani)	%	
EU 27	62,1	62,8	62,3	62,1	62,3
Romania	57,9	57,3	56,3	55,9	55,7
Men empl	oyment	rate (20-64	ani) %		·
UE 27	77,8	77,9	75,8	75,1	75,0
Romania	71,0	71,6	70,7	70,8	69,9

At EU level the total percentage of population between the ages of 20-64 decreased by 1.3% compared to 2007. The employment rate for men within this age range has decreased by 2% at the EU level, while in the case of women it increased by 0.2%.

Source: http://media.hotnews.ro/media\_server1/document-2014-10-13-18295270-0-balanta-fortei-munca-1-ianuarie-2014.pdf

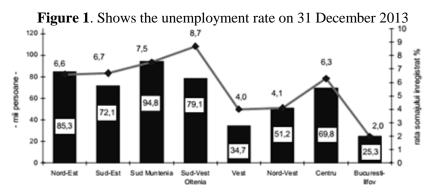


Figure 1. Number of registered unemployed people and unemployment rate Source: http://media.hotnews.ro/media\_server1/document-2014-10-13-18295270-0-balanta-fortei-munca-1-ianuarie-2014.pdf

According to the statistics the highest unemployment rate was registered in the Central region (94.8), while the lowest value was recorded in the Bucharest-Ilfov region 25.3%.

# 4. Study on education and its impact on employment rates in Romania

## 4.1. Labor market analysis based on experiment and on the regression function

#### **Research Methodology**

#### **Research Objectives:**

- Knowing the effect of employment rate on the labor market,
- Identifying the link between internal migration intensity and rate of vacancies,
- Observing the extent to which the Romanian educational system forms young people's skills in order to be fit for the labor market.

# **Research hypotheses**

- 1. Employment rate influences the labor market,
- 2. Between internal migration and vacancy rate there is a strong direct link.
- **3.** The majority of respondents approves that university-level education is more important for men than for women,

**4.** Respondents at a rate of over 50% believe that Romanian educational system is a good trainer making the individual suit for the labor market.

In this research the survey and the regression function are used. The sample for the two cases consists of Romanian citizens. The period in which research was conducted is 2000 to 2012.

# The results

#### 1. The effect of employment rate on the labor market

Through the experiment with one experimental factor we try to determine the effect of the employment rate on the labor market in three developing regions. The experiment takes place over three years: 2000, 2005, 2010, within the three development regions: South Muntenia, South West and North West, the employment rate after those three years of reference is presented in the table below. Table 4 presents the data for calculation.

	Table 4: Calculating data								
Years	Region								
	South	South East	North West						
	Muntenia								
2000	64,7%	60,8%	63,4%						
2005	58,1%	54,7%	56,0%						
2010	59,7%	55,5%	57,7						

In conclusion, as a result of the experiment we notice that the employment rate affects the labor market.

#### 2. Analysis of the impact of internal migration on the rate of vacancies

Through quantitative methods which are based on simple linear regression we can calculate the correlation between internal migration in terms of percentage and rate of vacancies. The data to which the simple linear regression is applied can be seen in the table below.

Table 5: Calculating data								
Internal								
migration-	Rate of							
percentage	vacancies							
Х	у	ху	X <sup>2</sup>	y <sup>2</sup>				
22,7	0,59	13,393	515,29	0,3481				
16,1	0,64	10,304	259,21	0,4096				
18,6	0,59	10,974	345,96	0,3481				
17,5	0,72	12,6	306,25	0,5184				
74,9	2,54	47,271	1426,71	1,6242				

Calculations reveal a medium connection.

# The analysis of Romanian citizen's perception on education and its role in the labor market.

Marketing research based on the analysis of secondary sources, the instrument used for the research being the questionnaire. Information was retrieved and processed from a website specializing in the analysis of living standards- World Value Survey. From the questionnaire only the questions related to education and the labor market were selected.

The following tables show the responses of Romanian respondents.

1. What is your level of education?

Table 6. Level of education of respondents			
	Number	%	
No answer	13	0.9%	
No school	19	1.2%	
Incomplete primary	36	2.4%	
Complete primary	100	6.7%	
Incomplete gymnasium	47	3.1%	
Complete gymnasium	149	9.9%	
Upper secondary: lower level of vocational training (apprentice school)	39	2.6%	
Vocational upper secondary	244	16.2%	
Incomplete highschool	73	4.9%	
Highschool	369	24.6%	
Post highschool	77	5.1%	
Complete secondary school: technical/ vocational type	42	2.8%	
Incomplete university degree	54	3.6%	
University: short term formation	11	0.7%	
University: long term BA	186	12.3%	
MA	41	2.8%	
PhD	2	0.1%	
(N)	(1,503)	100%	

Table 6. Level of education of respondents

Source:http://www.worldvaluessurvey.org/WVSOnline.jsp

2. How old were you when you completed your studies?

Answer	%
4	0.3%
816	54.3%
541	36.0%
56	3.8%
85	5.7%
(1,503)	100%
	4 816 541 56 85

Source:http://www.worldvaluessurvey.org/WVSOnline.jsp

3. What is your level of trust in the university education?

Table 8. Level of trust in Universities	
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Number	%)		
264	17.6%		
660	43.9%		
348	23.2%		
104	6.9%		
11	0.8%		
115	7.6%		
(1,503)	100%		
	Number       264       660       348       104       11       115		

Source:http://www.worldvaluessurvey.org/WVSOnline.jsp

4. Is the university education more important for a boy than for a girl?

	Number of cases	%/
Agree strongly	106	7.0%
Agree	205	13.6%
Disagree	462	30.8%
Strongly disagree	647	43.0%
No answer	12	0.8%
Don't know	71	4.7%
(N)	(1,503)	100%

Source:http://www.worldvaluessurvey.org/WVSOnline.jsp

5. Does your country's educational system give people abilities / skills to find a job?

	%
Yes	55,4
No	27,7
Not applicable (DZ,IQ,JO,LB,TN,YE: No formal Education)	10,5
No answer	0
Don't know	6,4
(N)	1,2

Source: http://www.worldvaluessurvey.org/WVSOnline.jsp

6. Does your country's educational system give people skills / competencies consistent with the specific workplace?

Yes	No	(DZ,IQ,JO,LB,TN,YE:	No answer	Don't know
52,9	27,7	<b>No formal Education</b> ) 10,5	0,2	8,7

Table 11. Education as a trainer in dealing with the job requirements

Source: http://www.worldvaluessurvey.org/WVSOnline.jsp

# Discussions

#### The experiment

In the experiment above there is only one experimental factor- the employment rate. Through the one-factorial analysis of variance, we can determine whether the employment rate as experimental factor has a strong influence on the resulting variable- the labor market. From the table we can see that the highest rate of employment is in South Muntenia. In order to see if the differences between the three regions are statistically significant, we have to define the experimental factor influence from the random factors.

# <sup>-</sup>x=530,6/12, <sup>-</sup>x=44,21

We have to calculate the variance between groups, total deviation variation and variation within groups.

We have to calculate this phenomenon's explained error by absolute deviation.

#### **Absolute deviation:**

 $(64,7-44,21)^2 + (58,1-44,21)^2 + (59,7-44,21)^2 + (60,8-44,21)^2 + (54,7-44,21)^2 + (55,5-44,21)^2 + (63,4-44,21)^2 + (56,4,21)^2 + (57,7-4$ 

The influence of the causal variable is determined by calculating the deviation explained which is also known as the variation between groups.

#### The variation between groups:

 $3*[(182,5/3-44,21)^2+(171/3-44,21)^2+(177,1/3-44,21)^2]$ 

3\*(276,27+163,58+219,68)

3\*659,53=1978,59

The influence of random variation is determined by variation within groups.

Variation within groups = 2054.66 to 1978.59;

Vig = 76.07

# Testing the method

In order to verify the statistical significance of the results, we're using the F test.

Calculated F = Vig / NK, calc F = (1978.59 /) / 76.07 / 7), calc F = 989.29 / 10.86 calc F = 91.04

The null hypothesis argues that the employment rate does not influence the labor market

Theoretical F is 4.26 for a 95% probability.

For theoretical F <F calc, the null hypothesis is rejected.

#### Linear regression

The analysis of the impact of internal migration on the number of job vacancies by economic activity was achieved through simple linear regression. As a first degree function we can calculate the correlation coefficient. The calculation reveals a correlation coefficient of - 0.55. This result shows that between the two variables there is an average reverse link, meaning that when the internal migration rate increases, the rate of vacancies decreases.

# The survey

This survey was taken by Romanians during 2012 to observe their perception regarding the contribution of education as an important factor in the labor market in terms of providing a high quality of life. Most people that took part in this research have a high school education (24%), have completed their studies at a rate of over 50% in a period exceeding 30 years. 43% of respondents have a fairly high confidence in the university education. The majority (43%) rejects the claim that the university level education is more important for a boy than for a girl. 55% of Romanian citizens who participated in the research think that the Romanian educational system prepares the individual for finding a job. 27% of respondents do not see the educational system as a key factor in the development of the individual regarding his competence at the job.

# Conclusions

This paper brings added value with a dynamic analysis of education and employment rate in Romania, besides the research conducted by the three methods. Not all assumptions made at the beginning of the research were checked. The first hypothesis is verified(Employment rate influences the labor market). Between internal migration and vacancy rate there is not a strong direct link( The hypothesis two is not verified). The next assumption is not substantiated, because the majority of respondents not approves that university-level education is more important for men than for women. Also the last hypothesis is not substantiated (Respondents at a rate of over 50% not believe that Romanian educational system is a good trainer making the individual suit for the labor market).

This research highlights as a main conclusion that the Romanian educational system has the resources needed to prepare the individual to search for a job, but also to deal with workplace tasks.

### References

- [1] Brown S, Exploring the edge, September/October, (London: 2006),155;
- [2] Craig D, Def ining a 21stcentury education, Department for Education and Children's Services, July, (London:2009), 28;
- [3] JardineD, 21st Century Learning and Learners Sharon Friesen, Educational Network, (Alberta: University of Calgary: 2007), 65;
- [4] Kay A, Lear J, Employment Skills for 21st Century Workplace: The Gap Between Faculty and Student Perceptions, Journal of Career and Technical Education, Vol. 26, No. 2, Winter(London:2011), 55;
- [5] Kaze M, Forced Labour in the 21st century, International Confederation of Free Trade Unions (ICFTU), (London: 2007), 49;
- [6] Levy F, Murnane R, The new division of labor: How computers are creating the next job market. Princeton, NJ: Princeton University Press How Should Colleges Prepare Students To Succeed In Today's Global Economy? Based On Surveys Among Employers And Recent College Graduates Conducted On Behalf Of: The Association Of American Colleges And Universities (Princeton University: 2005), 98;
- [7] Lombardi M Authentic Learning for the 21st Century: An Overview, EDUCAUSE, (WASHINGTON DC: 2007), 45;
- [8] Pârgaru I, Gherghina R, Duca I, The role of education in the knowledge-based society during the economic crisis, (Annales Universitatis Apulensis Series Oeconomica, 11(2):2009), 33;
- [9] Peter D, Hart Research Associates, Inc. December 28, (London:2006),48;
- [10] Singh R, Education for the twenty-first century: Asia-Pacific perspective, (Bangko:2007),63;
- [11] http://epp.eurostat.ec.europa.eu/statistics\_explained/index.php/Education\_statistics\_at\_regional\_level/ro#.C3.8Env.C4.83.C8.9Barea\_pe\_tot\_par cursul\_vie.C8.9Bii;
- [12] http://www.insse.ro/cms/files/pdf/ro/cap8.pdf;
- [13] http://www.worldvaluessurvey.org/WVSOnline.jsp;
- $[14] \ http://www.shrm.org/research/surveyfindings/articles/documents/090464\_workplace\_flexibility\_survey\_report\_inside\_finalonline.pdf; and the survey indication of the$
- [15] http://media.hotnews.ro/media\_server1/document-2014-10-13-18295270-0-balanta-fortei-munca-1-ianuarie-2014.pdf;
- [16] http://ec.europa.eu/education/library/statistics/ay-12-13/annex-6\_en.pdf;
- [17] http://www.ascilite.org.au/conferences/perth04/procs/ferry.html;
- [18] http://www.alfa-trall.eu/wp-content/uploads/2012/01/EU2007-keyCompetencesL3-brochure.pdf;
- [19] http://www.nscb.gov.ph/ru12/DEFINE/DEF-LABO.HTM.

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