

1 We provide our employees the opportunity to enhance
2 qualification: Occasionally Regularly We don't provide any
3 opportunity to enhance qualification Employee educate oneself in
4 form of study hour

5 Roman Sip¹

6 ¹ University of Economics in Bratislava

7 *Received: 6 December 2016 Accepted: 1 January 2017 Published: 15 January 2017*

8

9 **Abstract**

10 Labor market development in the printing industry reflects the errors that have occurred in
11 education in 90's of the last century. The education system based on the needs of print and
12 publish complex, where students are bound by contract with a future employer is liberalized.
13 Employers stopped promoting education, headquarters of industry disappeared, the Ministry
14 was reoriented to knowledge-based society, where school leaving examination should be fully
15 accessible and preparation of blue collar workers ceased to be attractive. So called,
16 informative values were not required and the breakdown in education, which occurred in its
17 whole nature manifested after twenty years. Centralized nationwide education in Bratislava
18 started to have problems. Meantime the functioning system of education, providing qualified
19 workforce began to shake in its existence. Dominant printing company in Slovakia prefers
20 local education at the nearest high school, with students without any long-term perspective,
21 backgrounds or insufficient educational qualifications.

22

23 **Index terms**— system of education, providing qualified workforce began to shake in its existence.

24 **1 Problems of Education and Preparation of Human Resources
25 for Print and Publish Complex in the Conditions of the
26 Central European Region**

27 Roman Sip I.

28 Present State OF THE Problem at Home and Abroad Theoretical Definition of the Problem labor market
29 development in the printing industry reflects the errors that have occurred in education in 90's of the last
30 century. The education system based on the needs of print and publish complex, where students are bound by
31 contract with a future employer is liberalized. Employers stopped promoting education, headquarters of industry
32 disappeared, the Ministry was reoriented to knowledge-based society, where school leaving examination should be
33 fully accessible and preparation of blue collar workers ceased to be attractive. So called, informative values were
34 not required and the breakdown in education, which occurred in its whole nature manifested after twenty years.
35 Centralized nationwide education in Bratislava started to have problems. Meantime the functioning system of
36 education, providing qualified workforce began to shake in its existence. Dominant printing company in Slovakia
37 prefers local education at the nearest high school, with students without any long-term perspective, backgrounds
38 or insufficient educational qualifications. It is noticeable nowadays that two generations of the professionals
39 needed for natural reproduction of the print and publish complex are missing. There is a lack of skilled workforce

1 PROBLEMS OF EDUCATION AND PREPARATION OF HUMAN RESOURCES FOR PRINT AND PUBLISH COMPLEX IN THE CONDITIONS OF THE CENTRAL EUROPEAN REGION

40 at all job positions. This deficiency can't be filled from day to day. The process of systematic preparation of the
41 future qualified graduate takes at least four years.

42 The planned system of education and preparation of the workforce in collaboration with personnel department
43 of the employer is unknown. The priority of the human resources nowadays is to contract unskilled workforce and
44 temporary workers for afternoon and night shifts. It was caused by all those who did not accept the importance
45 of education for the needs of printing industry as the significant investment for the future. While education was
46 and still is the foundation for growth of the prosperity and creation of opportunities. Managers at all levels of
47 print and publish complex were aware that investment into poor local communities with denial for the value
48 of education did not have long-term rational basis. At the end of their productive age, employees of printing
49 companies often became teachers of students. Machinery equipment was limited to the printing machine, which
50 was eliminated in production destined for scrapping. This development went even further, in the form of severe
51 degradation of education. Slovakia has currently around 30 schools offering education in the field of study 3447
52 digital media graphic designer. Leaders in printing industry are responsible for poor state of education of the
53 workforce in the printing industry. Decisions of management control of employers in the field of human resources
54 were wrong in the early 90's. Decisions did not take into consideration the needs in terms of filling short term
55 performance of companies and it led to an alarming shortage of skilled labour in terms of long term needs. In
56 the short term the lack of workforce at labour market were solved with higher wage by the employers. Because
57 of this it comes to migration of employees in 2000. An absence in the structure of the training and education of
58 employees and discord between the future need and reserves in personnel policy has appeared.

59 Overall the planning of human resources in line with the fulfillment of production targets has failed. It lacks
60 any planning for needs or eventually for surplus of workforce that would achieve the necessary labour potential. In
61 this case the control of requirements and basic planning of human resources in print and publish complex failed.
62 The absence of planning of human resources and determining the needs of employers do not reflect changes in
63 the transition from analog to digital technology. Company headquarters failed to predict the requirements for
64 the future reproduction of the workforce in accordance with the organization of work and introduction of new
65 technologies. The amount of performed work was not enough oriented on qualification of employees.

66 There is no planning of the needs of human resources for this field because of the dissolution of the directorate
67 -General VHJ of Slovak printing in the early 90's without existence of any full-value successional organization
68 within the printing industry. Today, after 25 years we reveal that market did not solve the problem of qualified
69 workforce. Employers were neither willing nor forced to solve the problem of qualified workforce for positions
70 of offset printing machine operator (printer), bookbinder, process engineer, cost clerk and marketing employee.
71 The lack of company students in the last twenty years is the consequence (Table 7).

72 Analysis of the age structure of employees warns us about the employment of older generation with the
73 expectation of retirement. We observe this state in the field of vocational education as well. The professional
74 teaching employee needs to have a certificate of apprenticeship in a relevant field, university degree and must
75 have a supplementary pedagogical study to fulfill the qualification requirements. There was always lack of people
76 willing to undergo this process of self-long education within the fields of No.34 Printing Arts & Media. The
77 current age limit of teachers is fifty without succession of the younger generation. The teachers qualified to teach
78 are retiring and there is no replacement for them in teaching staff. The missing personnel policy of employees in
79 the field of print and publish complex causes following consequences:

80 The missing personnel policy of employees in the field of print and publish complex causes following
81 consequences:

82 -The lack of systemic management approach, -Failure to take account of the transformation process of change of
83 inputs and outputs, -Downfall of control of all activities taking place in the organization, -Lack of personnel policy
84 which causes the failure of two generations of professionals who would be able for the vacant jobs, -The reluctance
85 of employers to participate in vocational education and to consider educated workforce to be a competitive
86 advantage, -Accept the dual system of education as an alternative to long-term solution of reproduction of the
87 workforce. We reveal in accordance with the results of research (Graph 3), that employers don't provide their
88 employees with sufficient opportunities to: This implies that in the field of development of the workforce there
89 isn't sufficient emphasis on developing knowledge and skills that would lead to systematic education. Employers
90 don't provide their employees the career growth, which would lead to future decrease of work performance in
91 the company's potential. Some companies will have to reduce production capacity and reject the orders due to
92 labour shortage. The employers will face a shortage of skilled workforce in the near future. If the employers
93 will not fulfil the need for radical changes in the system of work of personnel department in the short period,
94 jeopardize the fulfillment of their manufacturing objectives. The plan of educational activities must reflect the
95 real long-term needs and not to be limited to compulsory training only (Graph 3). Research reveals that the
96 14% of respondents don't provide their employees any training and 25% of employers leave the up skilling in the
97 hands of their employees. Only 14% respondents of research claim that they provide regular training for their
98 employees. It is assumed that these trainings are systematic and planned.? Upgrading skills, ? Retraining, ?
99 Acquisition of new technologies.

100 **2 II.**

101 **3 Research Results and Their Interpretation**

102 The problems associated with systemic management of human resources within the print and publish complex
103 is not possible to describe only by one basic method. Issues related to workforce together with the results of
104 the research give enough space for opportunity of reflection and training of new employees. The requirements of
105 employers in the print and publish complex for human resources forced top management to formulate hypotheses
106 of urgent solution of their shortage.

107 **4 a) Implementation and methodology of research**

108 The research was conducted through a questionnaire with a focus on finding facts influencing human resources,
109 preferences of management behavior and process management in the print and publish complex (178 print and
110 publishing organizations, 2 750 e-mail address).

111 The questionnaire contains 11 questions. 1 The respondent fills the field of business, number of employees
112 according to the classification of European Union, head office by the regions in Slovakia. Likert scale was used
113 according to themes for drawing up the scales of the questionnaire. 2 Requirements of employers we investigated to
114 find skilled workforce educated at the secondary school To obtain the greatest number of employers, questionnaire
115 was conducted using the Google Form. The questionnaire was sent out in the between July and December 2016.
116 Pivot tables, frequency tables and graphs were used for the processing of all responses in our questionnaire.
117 Quantitative analysis is done in order to acquaint employers with current issues. Solution to reduce labour
118 shortage for the next 10 years is drawn as well.

119 The complete questionnaire is stored in electronic form on the server: https://docs.google.com/forms/d/1PDbwspjwWoGCYpjWb4otLs7LXHa71ZEX9AdsZ3F_rs/prefill and at the same time its current disposable
120 status through the question focused on the needs of the labour market in the next three years. The result is
121 a finding of lack of human resources preparing for the labour market needs. From demands for workforce in
122 different region of Slovakia Bratislava Region represents more than 1/3 in all professions. The requirement
123 correlates with the distribution of employers in Slovakia. This implies that the largest grouping of employers
124 in the print and publish complex is concentrated exactly in this region. Graph 4 highlights the fact of uneven
125 intensity of allocation of human resources. Almost in all regions is the dominant requirement for the position of
126 printer on the first place.

127 The requirements of employers for employees in key positions working in Slovakia are the same as in the Czech
128 Republic. This results from the meeting of the executive committee of the Association of printing industry in
129 Slovakia and the Union of Printing Entrepreneurs in Hodonin (Czech Republic) in the autumn of 2016. The
130 advantage of the educational system in the Czech Republic is that the bookbinder of finishing production can be
131 educated in the field of study ended with school leaving examination, on the other hand in Slovakia is possible
132 only the education in the field of study ended with certificate of apprenticeship. Such possibility of the three-years
133 vocational study is in current situation unattractive in Slovakia. To create a class in accordance with § 33 of Act
134 245/2008, par. 7 point. a) minimum of 17 students is for this field of study impossible. Resource: Own research.

135 Printing companies will have the biggest shortage of required workforce in the next 3 years (Graph 5). The
136 situation is caused by the breakdown of students in the education system who would be prepared for position
137 of bookbinder and printer. The profession is not attractive for pupils and parents. Employers did not have
138 motivation to systematically support the education and to ensure the reproduction of workforce as in the 90's
139 was relatively sufficient with workforce. The training of young people was for employers expensive item, which
140 was at that time abolished (Graph 2) and there was no company student preparing for their future profession
141 at the beginning of the millennium (Table 7). There is currently negligible number of students at the secondary
142 vocational schools who are preparing in the field of studies required by the employers or students are not preparing
143 already several following years at all. The state of reproduction of workforce is alarming.

144 This acute shortage of skilled workforce refers to graduates in the field of study 3457 K offset printing machine
145 operator and 3473 H 08 bookbinder. Both fields were neglected in terms of marketing activities and educational
146 system in collaboration with parents failed to ensure future vacancies for students.

147 Partial success is the training of students for the preparation of production (marketing staff, cost clerk,
148 technologist, scheduler norm). There has succeeded in the field of study 3431 M 01 printing technology
149 (preparation of production) to preserve the continuity of eighty years and to systematically educate and fill
150 mentioned job positions for the need of labour market (Graph 5). Lack of qualified workforce for job positions
151 in the preparation of production is not as significant as in other job positions. It may be caused by technological
152 change in the last twenty years when those positions were filled by graduates of other related fields of study, such
153 as a group 34 printing and media (engineering, informatics).

155 **5 Graph 5:**

156 The application of secondary vocational schools within print and publish complex in the next 3 years
157 Resource: Own research.

7 MAP OF SLOVAK REPUBLIC AND REGIONS B) SUGGESTION OF THE SOLUTION OF THE SITUATION AND FINAL RECOMMENDATIONS

158 From the perspective of the current preparation of students the expected requirement of employers for vacant
159 place for job positions in the preparation of production in the next 3 years will be filled. Graduates will be
160 effectual ready for publishers, advertising and graphic studios, agencies and copy shops. From references of
161 suppliers of consumables and machines we have information about application of graduates of the field of study
162 3431 M 01 printing technology (preparation of production) at the positions business man as well. Problems
163 of education in relation to the reproduction of the workforce did not avoid the International Bill 12 seminar
164 focusing on screen printing and digital printing at October 8, 2016 in ?eský Krumlov (Czech Republic). The
165 contribution of Iveta Ochrankova under the name the teacher's view of preparation of a student of graphics
166 design 3 Companies operating outside print and publish complex are already limiting investments due to lack of
167 workforce. To fill vacant positions would take ten years.

168 described the current state. The question of workforce resonates at international level and is highly actual for
169 professional unions. 4 Employers in the Czech Republic want after model of Germany and Austria to introduce
170 system of dual education (SDV) which should adapt the plan of production of schools to labour market's
171 requirements. Poland has similar problems with qualified workforce.

172 In the Czech Republic 86% of companies have problem to find workers with vocational certificate.

173 6 5

174 In Slovakia there became an important legislative assumption for adjusting of principled and systematic bases
175 of dual education the Act. 61/2015 about vocational education and training. It operatively responded to labour
176 market's requirements and recruited foreign workers. But this step doesn't solve reproduction of workforce but
177 commonly saves an acute shortage of workforce which was not solved a long time.

178 7 Map of Slovak Republic and Regions b) Suggestion of the 179 solution of the situation and final recommendations

180 There is 2 935 kindergartens, 2 113 primary schools and 868 secondary schools in Slovakia with cca 89 000
181 pedagogical employees. Primary schools educate 450 000 pupils which is about 210 pupils per school. 270 000
182 pupils study at secondary schools which is cca 300 pupils per school. There are about 150 primary schools where
183 study from 10 to 50 pupils and about 50 secondary schools with the number of students under 150. About 500
184 schools are so called "small classes". There are 36 public universities and high schools in Slovakia as well where
185 study 135 000 students. If the employers will not approach education of the workforce constructively, they won't
186 be capable of redeveloping the current changes in the labour market. Ageing population is a problem in the
187 European Union. There will be more people retired in the next ten years and there won't be sufficient number of
188 qualified workforce for positions of printer and bookbinder. The soon to be retired employees need to be replaced
189 in a relatively short time. The transmission of knowledge and experiences between the outgoing and incoming
190 generation will be important. More and more employers replace qualified workforce in the production with the
191 unqualified in time bypassing of the actual situation. Unsystematic solution of staff assurance creates situation
192 in which unqualified workforce of production line train future operation of the line. The solution is immediate
193 investment in education.

194 Even cooperation with primary school in the field of preparation for future perspective employment can be
195 carried out in various informal projects. There is a long-term incentive of employers to have a connection among
196 pupils, parents and employers. It is preferentially necessary to make profession attractive that has future in the
197 field of education for studies 34 printing and media. The result of this collaboration is marketing oriented at
198 pupil and parent which leads to the contract with the employer. It becomes a springboard for study at secondary
199 school.

200 There are following forms of study available at the secondary school today: ? State, ? Private, ? Dual system
201 of education.

202 Collective education of staff can be regarded as extension of the whole system. The need of education of
203 employees should be for employers the periodically repeated certainty.

204 The Secondary Vocational Print and Publishing School/SO?P/ www.polygraficka.sk as the only school in
205 Slovakia offers specialized comprehensive education in the fields of study 34 printing and media. Graduates cover
206 job positions from middle to top management of companies. The school continues in this tradition and provides
207 well secondary education as well as vocational post-secondary studies and lifelong education.

208 In the creation of school educational programs the school prefers such educational processes where graduates
209 of the fields of study 34 printing and media fulfil standards for versatility in the whole European Union. The
210 main objective of Secondary Vocational Print and Publishing School for the next period is to insure preparation
211 of vocational staff for all printing occupations and occupations dealing with processing of digital information for
212 media and at the same time to act as a center of vocational education and training in area of print and media.
213 Vocational education and training of students tend to gain such knowledge which will be in conformity with the
214 requirements of labour market and requirements of employers. Constantly increase of qualification of vocational
215 pedagogical employees need to be connect with suppliers of technology and materials.

216 The tradition of schools to direct vocational education and training of area of printing and media is also
217 reflected in close connection with employers in the field of printing industry.

218 The school has remained part of the employers' associations of the printing industry and the Association of
219 printing industry in Slovakia, where the school is a member since its establishment to the present day, also after
220 1991 when the founding function has passed toward the school from print and publishing company on the resort
221 of industry and subsequently on the Bratislava Self-Governing Region. At the same time it is member of the
222 Slovak Chamber of Commerce and the Association Union of Employers of the Slovak Republic. These institutions
223 are the guarantor of expertise by school leaving examinations where they carry out direct supervision. There are
224 operating other 28 schools in Slovakia in addition to this secondary vocational school whose documentation are
225 based on the state educational program but don't provide a comprehensive education for all fields of study.

226 The disadvantage of these schools is that their overall orientation is for other fields of study and don't educate
227 the students comprehensively for the area 34 printing and media. An effective solution for the future seems
228 to be the introduction of dual education (SDE) in the issue of the lack of human resources in terms of print
229 and publish complex. The legislative requirement for the application of SDE describes Act. 61/2015 Z.z. of
230 vocational education and training and about the change and complement of some laws. Employers and company
231 management have the experience with this system from the past and for many of them was till 1983 a natural
232 source of reproduction of the workforce. In some of the form of the vocational education it is applied in the form
233 of an external experience by an employer for the fields of study 34 printing and media. The advantage is that
234 the student is prepared for the job position under real conditions by the employer. So they obtain work habits
235 and skills during their studies and they are naturally integrate into the team of the future employer.

236 The advantage of the employer is to have the opportunity to actively enter into the process of training and
237 the creation of school educational programs. Education and development enable to involve students under the
238 guidance of instructors already in the second class into the productive work. At the same time the employer is
239 heading a financial and motivational evaluation for the future qualified workforce already during the education.

240 With the introduction of SDE occurs a fundamental change in the view of obtaining the students. Employers
241 have to concentrate on cooperation with counselors at primary schools. Activities should be directed to: ? Career
242 counseling, ? Awareness within the regional labour market, ? Importance of technical fields for versatility in the
243 future, ? Engaging the students in technical works.

244 For the future of the fields of study 34 printing and media is necessary that employers will realize within their
245 scope activities related to the promotion of vocational education. Promotion has to be oriented to the students
246 and parents already in the primary schools. The current request becomes a project of promotion of trade unions
247 and orientation for future employment. The main task of the Association of printing industry in Slovakia, as a
248 professional body, is still the monitoring and creation of a database of vacancies and requirements for human
249 resources in order to clarify the labour market

250 8 Resources

9. Svojim zamestnancom poskytujeme možnosť zvyšovania kvalifikácie: (178 responses)



2

Figure 1: Graph 2 :

8 RESOURCES

1

	2009	2010	2011	2012	2013	2014	2015
Profit (million ?)	279	297	298	263	263	255	247
Added value (million ?)	78	79	77	71	63	62	70
After-tax profit (million ?)	1	2	5	5	-5	-2	3
Average number of employees	4 244	4 013	3 747	3 013	3 291	3 012	3 045
Average monthly salary (?)	752	797	839	854	844	863	910
4,000 5,000	4,244	4,013	3,747	3,397	3,291	3,012	3,011
3,000							
2,000							
1,000	752	797	839	854	844	863	914
0							
	2009	2010	2011	2012	2013	2014	2015
	Average number of employees			Average monthly salary (?)			

[Note: Resource: Statistical office of the Slovak Republic, <https://slovak.statistics.sk/> Graph 1: Correlation between the number of employees and wages Resource: Statistical office of the Slovak Republic, <https://slovak.statistics.sk/> L]

Figure 2: Table 1 :

2

Year	1994	1995	1996	1997	1998	1999
Number of students	524	532	519	487	426	385
Company students	122	123	112	113	105	100

Resource: Ková?, L.: The Secondary Vocational Print and Publishing School, Bratislava.

Figure 3: Table 2 :

3

Profession	Preparation of production	Graphic designer	Printer	Bookbinder
Banská Bystrica Region	9%	9%	7%	9%
Bratislava Region	38%	37%	38%	42%
Ko?ice Region	6%	11%	6%	6%
Nitra Region	11%	14%	11%	8%
Pre?ov Region	11%	11%	12%	10%
Tren?ín Region	2%	4%	6%	3%
Trnava Region	8%	2%	10%	9%
?ilina Region	15%	12%	10%	14%
Total sum	100%	100%	100%	100%

Figure 4: Table 3 :

4

Tag Lines	Preparation of production	Graphic designer	Printer	Bookbinder
Copy shop	2%	5%	2%	1%
Supplier of machinery and materials for the printing industry	2%	2%	1%	1%
Advertising and graphic studio	13%	22%	9%	13%
Printer industry	77%	65%	88%	82%
Publishing company	6%	5%	-	2%
Total sum	100%	100%	100%	100%
				Resource: Own research.

Figure 5: Table 4 :

5

Profession	Preparation of production	Graphic designer	Printer	Bookbinder
Banská Bystrica Region	85	35	90	105
Bratislava Region	190	210	325	305
Ko?ice Region	30	50	35	25
Nitra Region	50	55	65	30
Pre?ov Region	55	50	80	55
Tren?ín Region	10	15	30	10
Trnava Region	35	15	55	35
?ilina Region	65	55	100	80
Total sum	520	485	780	645
				Resource: Own research.

Figure 6: Table 5 :

6

	Number of schools	Number of pupils	Average
Nursery school	2 935	-	-
Primary school	2 113	450 000	210
Secondary school	868	270 000	300

[Note: Resource: Statistical office of the Slovak Republic, <https://slovak.statistics.sk/>]

Figure 7: Table 6 :

8 RESOURCES

7

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total number of students	444				525	570				450	430
Company students	-				-	-				-	-
										-	-

Resource: ?íp, R.: The Secondary Vocational Print and Publishing Sector in Slovakia

Figure 8: Table 7 :

251 1 2 3 4

¹Richterová, K. a kol. 2013. Úvod do výskumu trhu. Bratislava: Sprint 2 s.r.o. 2013. 316 p. ISBN 978-80-89393-95-4. 2 Gavora, P. 2012. Tvorba výskumného nástroja. Bratislava: SPN. ISBN 978-80-10-02353-0.

²() 2017 © 2017 Global Journals Inc. (US) 1

³Ochránková, I.: The teacher's view of preparation of a student of graphics design, Medzinárodný seminár Bill 12, 8th October 2016.4 Weikert, P.: Ordnung muss sein. Mladá fronta a.s. Euro 50, 12.12.2016.5 Weikert, P.: Ukrajinci, vítejte. Mladá fronta a.s. Euro 49, 5.12.2016 .© 2017 Global Journals Inc. (US)

⁴© 2017 Global Journals Inc. (US) 1

252 [Strá?ovská and Kol ()] *Bratislava: Sprint 2 s.r.o. 2016. 324 p, H Strá?ovská , Kol . 2016. (Malé a strené*
253 *podnikanie)*

254 [Samuelson and Nordhaus ()] *Economics. 19th Edition, P A Samuelson , W D Nordhaus . 2009. 2009. New York*
255 *McGraw.*

256 [Majtán and Kol ()] *Mana?ment. Bratislava: Sprint 2 s.r.o. 2016, 408 p, M Majtán , Kol . 2016.*

257 [Ministry of Education, science, research and sport of the Slovak Republic: Správa M? k SDV: Vyhodnotenie skúseností 1. roka za

258 *Ministry of Education, science, research and sport of the Slovak Republic: Správa M? k SDV: Vyhodnotenie*
259 *skúseností 1. roka zavádzania systému duálneho vzdelávania a prípravy, 2016.*

260 [Majtán and Kol ()] *Podnikové hospodárstvo. Bratislava: Sprint 2 s.r.o. 2014. 324 p, ? Majtán , Kol . 2014.*

261 [Majtán ()] *Projektový mana?ment. Bratislava: Sprint dva, M Majtán . 2009. 2009. 300.*

262 [Kacha?áková ()] *Riadenie ?udských zdrojov. Bratislava Sprint vfra, A Kacha?áková . 2007. 2007. 208.*

263 [Blubla ()] ‘Sú ?asný stav a výh?ad ?al?ieho rozvoja polygrafie’ P Blubla . *Zväz polygrafie na Slovensku. Martin,*
264 *4. apríl, 2012. 2012.*

265 [Gavora ()] *Tvorba výskumného nástroja, P Gavora . 2012. Bratislava.*