THE LUBELSKIE VOCATIONAL QUALIFICATIONS FRAMEWORK – AN INNOVATIVE APPROACH TO EFFECTIVE TEACHING OF PROFESSIONALS

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Abstract:
The article presents the working example of an innovative project The Lubelskie Vocational Qualifications Framework (Lubelskie Ramy Kwalifikacji Zawodowych) being developed in Lublin Region of Poland since 2012 to provide a better cooperation between vocational schools and employers for securing young graduates from early unemployment. The general idea of the project is described as well as the results of pilot implementation and its perception by all parties involved: teachers, pupils and employers. All groups testing project's outcomes during the pilot implementation (at 5 vocational schools and 100 companies) found the new approach to framework of teaching innovative, valuable and estimate that from that even up to 61-80% of potential target users would be interested in participation. Finally expected benefits and costs of the project's regional dissemination phase are estimated proving its economic and social effectiveness. Although the project is developed for vocational schools it can be easily adopted at every level of qualifications within the European Qualifications Framework (EQF) that require a better adoption of mass learning and training effects to a specific labour market expectations and permanent adjustments of the perfect employee's profile being defined by employers' queries.

Keywords: vocational qualifications, youth unemployment, innovation in education

1. INTRODUCTION

The framework of the education system to which the Polish system of vocational training has recently started to evolve, based on strong cooperation of vocational schools and employers, is reflected in existing dual education systems in developed economies. Such systems, set up to build knowledge and skills closely related to practice, require introducing permanent cooperation of schools representing different levels of education and businesses. The dual education system meets the needs of employers regarding qualifications of graduates, while increasing chances of graduates for employment in their profession at the same time. In dual systems, responsibility for organizing, conducting and learning outcomes does not depend only on one side (educators) but all parties interested in social and collective effects of learning. It involves development of a platform for a broad cooperation between government, education and training centres, employers and their organizations. Duality is expressed in fact that learning process takes place in schools as well as in businesses. An important issue that provides consistency of the process of education is expressed in allowing employers to design training programs and verify learning outcomes.

Effective teaching of young professionals becomes more and more important issue as youth unemployment rises worldwide, in Poland and Lublin Region. There are 139 vocational schools operating in Lublin Region of the Eastern Poland with gradually decreasing number of pupils, reaching about 10,380 persons with over 3,500 graduates in 2012 (over 11,000 pupils and 3,600 graduates in 2011). Unemployment rate in the region reached 14,4% in 2013 (14,2% in 2012), and 33,345 of 134,042 registered unemployed in December 2013 were graduates with vocational education (32,384 out of 131,125 in 2012), which stands for about 24,9% of all unemployed and 21,210 graduates with vocational education were unemployed longer than 6 months. According to The Regional Labour Office research 59.2% of vocational school graduates are employed after graduation (first 12 months), 20.7% are registered as unemployed, 4.7% are not registered but unemployed and finally 15,3% continue education or are not interested in employment. Assuming above the unemployment rate of vocational education graduates is estimated to 25.4% or 890 unemployed annually (725 registered).

Considering the need for a better adjustment of teaching professionals for Polish and regional economy development and better compliance with labour market expectations, The Polish Academy of Sciences Foundation, Branch in Lublin designed and is implementing the Innovative Project “The Lubelskie Vocational Qualifications Framework - Model of effective cooperation between vocational schools and employers” (LVQF), co-founded by the European Union under the Human Capital Operational Program, Priority IX (Human Capital Operational Program, Priority IX, 2014). The main objective of the project was the increase of Lublin Region vocational schools adaptability in reforming vocational education system and improving competences of their pupils and graduates. Achieving objectives was assumed by implementation of the local labour market requirements in teaching programs co-developed by employers, dissemination of the project in schools and employers of Lublin Region as well as the mainstreaming the system in education supervising authorities.

The article presents idea of a new complex yet flexible approach to designing vocational educational system which – assuming compliance with the European Qualifications Framework and the Polish Qualifications Framework on one hand – pays more attention to expectations and needs of the local labour market. Developed solutions allow for appropriate adjustments of vocational training programs in schools, their better cooperation with employers and continuous and immediate tracking of labour market trends. The idea of the LVQF innovative project is presented first, its main assumptions, results and feedback from pilot users. The next section presents estimates of expected effects of the widespread phase in Lublin Region.

2. FRAMEWORK OF THE LVQF INNOVATIVE PROJECT

System of dual education provides both in-school learning and in-company trainings developing vocational skills together with theoretical background and some general knowledge is promising as the idea but also demanding in practice. Participation in that system is voluntary for employers, therefore, a significant part of them will not be interested in engaging in the processes of education, which in turn does not allow to provide a reasonable scale of practical trainings. The system also reduces its effectiveness during the economic downturn. On the other hand, although remaining only in the realm of chance but not a certain effects the basic advantages of the dual system include ability to customize graduate professional qualifications to the real needs of employers; ability to customize the number of

educated students for potential jobs through the participation of employers in the local and regional demand for workforce; providing at least a partial employment opportunities for students immediately after the graduation. It also provides possibility of cooperation development between stakeholders involved in designing, implementing and supervision of vocational education system, creating jobs and supporting the process as well as possibility of student empowerment, creating responsibility for development of own career or social competences (Kivinen, Nurmi, 2009; Ahola, 1997; Perellon, 2003; Masdonati, 2010).

As the Polish dual system of vocational education is under development it still can be designed to achieve effects mentioned above as experiences from well-developed systems operating e.g. in Germany, Austria, Finland or Switzerland to mention the most effective that provide benchmarks also for a higher education level. As the problem of youth unemployment becomes a critical issue also in Lublin Region with unemployment rate of vocational education graduates estimated to over 25% last years, the project of innovative approach to designing cooperation between vocational schools and employers was launched in 2012. The complete framework of the LVQF system covered four final products, including: procedures of school accreditation to the system, recommendations for development of teaching programs, outlines of strategic development of cooperation between schools and employers and e-Barometer web platform.

The project started with diagnosis of convergence between profiles of graduates expected by employers, teachers and pupils for 5 pilot professions indicated by panel of experts as key strategic professions for region: construction worker, plumber, car mechanic, telecom fitter and cook. In 2012, direct interviews were administered to employers (N=1361, random sample, 5 sectors employing workers of pilot professions), teachers (N=119, random sample teaching pilot professions) and vocational schools pupils (N=1098, random sample, trained in 5 pilot professions). All respondents were asked to indicate key competences, assess theoretical knowledge and practical skills expected from graduates as well as intensity and quality of cooperation between schools and employers.

Table 1: Declared cooperation of entrepreneurships with vocational schools in Lublin Region

Size	Declared pending cooperation	Declared cancelled cooperation	Never cooperated
Micro	9,8%	2,4%	87,8%
Small	23,8%	3,9%	72,4%
Middle	44,0%	0,0%	56,0%

Source: own calculations based on interviews.

The results confirmed the need for development in all above areas (Table 1). Even if almost half of middle size enterprises declared cooperation with vocational schools only 9,8% of microenterprises is active in this area. The lowest share regarded construction (1,8%) and indications from HoReCa sector was the highest (27,7% active in cooperating on average). It explains why vocational education may be focused mostly on compliance with ministerial requirements keeping labour market expectations away.

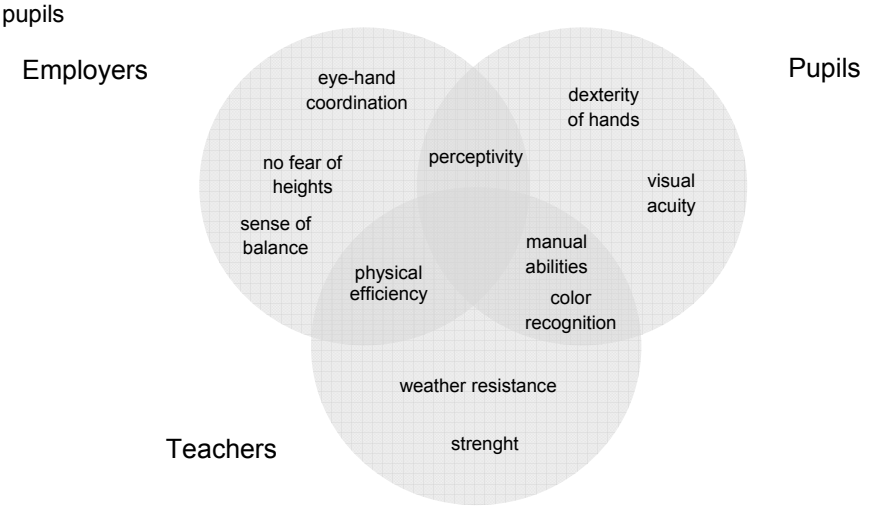
Assessment of graduates knowledge (theory) and skills (practice) confirms the above. First, in all cases teachers and pupils believed that graduates were better prepared that in fact they were. Second, teachers and pupils in most cases agreed that graduates were better equipped in practical skills than theoretical knowledge what made them well prepared for vocational duties. Unfortunately, employers had quite a different experiences (Table 2).

Table 2: Assessment of theoretical and practical qualifications of graduates of vocational schools in Lublin Region (from: 1 – unacceptable to: 6 – perfect)

Profession	Theoretical knowledge			Practical skills		
	employers	teachers	pupils	employers	teachers	pupils
Construction worker	3,25	4,21	4,00	2,96	4,26	4,07
Plumber	3,12	4,32	4,00	2,93	4,50	4,13
Car mechanic	3,07	4,43	4,08	2,84	4,63	4,05
Telecom fitter	3,22	4,50	4,06	2,96	4,00	4,12
Cook	3,07	4,23	4,20	3,16	4,51	4,14

Source: own calculations based on interviews.

Figure 1: The most important physical attitudes of construction worker in opinion of employers, teachers and pupils



Source: own research based on interviews.

Each group was also asked to define attributes of the perfect employee for every profession, indicating attributes of skills, physical predispositions and social qualifications. The graph (Figure 1) presents a common situation being the result of the study, this one regarding construction worker. It shows that expectations of each group may differ significantly and it may be impossible to find core features that are common for all groups. In this conditions teachers and schools may focus on competences different than expected by employers and believed to be expected by pupils. That may explain low assessment of graduate practical skills in the eye of employers.

Opinion of employers served as foundation for recommendations regarding practical education of 5 pilot professions in vocational schools. The recommendations for new programs of education respected obligatory requirements of the ministerial qualifications framework (knowledge, skills and competences) but were supplemented with all qualifications that were missing but required at the moment of analysis by employers.

Another interesting issue discovered interviewing employers was almost the same, unified profile of social competences expected from graduates and candidates for employers regardless the profession examined. The perfect employee should be responsible, motivated, communicative person understanding commands with recognizable good manners (Table 3). Social competences are often at least as important as vocational skills for employers. Employers don't expect that system of education is able to supply workers with well-developed vocational skills and detailed knowledge but rather graduates with basic understanding of professional processes and aware of possible challenges in general but equipped with social competences to provide team working, be able to communicate with others etc. The results of the study highlighted importance of developing student social skills, especially readiness for life-long learning, personality development and are confirmed in other studies (Heinz et al., 1998; Kutscha, 1996).

Table 3: Employers' most expected social competences for 5 key professions

	Construction worker	Plumber	Car mechanic	Telecom fitter	Cook
1	Responsible	Responsible	Motivated	Communicative	Responsibility
2	Understands commands	Understands commands	Responsible	Mannerly	Understands commands
3	Motivated	Self-thinking	Mannerly	Responsible	Mannerly
4	Durable	Motivated	Understands commands	Motivated	Cooperative
5	Communicative	Communicative	Communicative	Understands commands	Motivated

Source: own research based on interviews.

Having general objectives as effects of diagnosis provided a simplified Balanced Scorecard (BSC) methodology was also proposed to increase the strategic level of cooperation between vocational schools and employers regarding designing, organization and execution of new teaching programs. General adaptability of BSC approach allows to combine strategic objectives and actions with resources, costs and results of these activities. As effective vocational education process requires strategic coexistence of school and its business partners BSC transparently indicates responsibilities, benefits and engagement of all parties as well as objective measures and procedures of control. Although vocational schools recognized BSC methodology as quite sophisticated and demanding they valued its logic and were able to develop strategic plans with external partners. Moreover, with the main objective of improving teaching and cooperation with employers being common for all schools BSC approach made it possible to design actions toward achieving the strategic objectives individually at every school according to their condition, resources and willingness of change.

The most interesting part of the project providing operational effectiveness is regional web platform called “e-Barometer” (e-Barometer WebPlatform, The Lubelskie Vocational Qualifications Framework. 2014) designed to link all parties involved: schools, employers, pupils and graduates. The main objective of the platform was to allow employers to search database of pupils and graduates at regional level (which wasn’t provided never before) and link potential employers with young graduates. These links may be established even during teaching period to provide employers’ tailored care and supervisory over a specific pupils to develop their vocational skills required before they complete education. Pupils of the LVQF participating schools are able to create individual accounts and updating them with their achievements they can compare their current personal profile defined by set of grades, vocational skills and social competences to market profile of “a perfect employee”. The latter is in turn updated by queries of employers searching for workers with certain features. Every feature that is described as important when employer is asking system to provide him with list of young candidates for an employee is then compared with the existing profile and the profile is updated. For example, if more and more employers searching for cooks indicate “fluent Chinese” as competence expected from candidates in the market profile of a cook that feature will gradually appear more important and that trend can be noticed by pupils and school teachers. In consequence, schools may react adopting changes in their long-term training programmes or introduce short-term trainings immediately. It is also worth noting that employers are able to find candidates for employees asking not only for those with vocational skills but also with social competences. The latter are measured by psychological tests pupils undertake at the end of every semester updating their profiles. This feature allows for finding “a perfect cook” from of all pupils described as responsible, cooperative and motivated if these competences were expected.

3. CONCLUSIONS: EXPECTED EFFECTS OF THE LVQF REGIONAL DISSEMINATION

The LVQF project outcomes were approved by the regional EU funds and education system supervising authorities agreed pilot testing of the system in 5 vocational schools in Lublin Region in 2013. By the end of February 2014 strategies of cooperation were designed and accepted in these schools and all products were introduced to 20 teachers, 139 pupils and 125 employers. In general, participants testing products were satisfied with its outcomes and new possibilities for vocational education development and labour market stimulation.

With FGI method a group of vocational teachers estimated possible level of acceptance if the project would enter dissemination phase in Lublin Region (expected to start in September 2014). Teachers participating in interviews were introduced to all products then asked to share their impressions and assess usefulness and applicability. Kendall’s W coefficient of concordance was used to estimate level of teachers’ agreement (Table 5). Teachers recognized products as innovative, useful and although process of introducing them at school may seem demanding they expect that about 20-40% of teachers would participate in project’s dissemination phase and up to 60-80% of pupils would become users of e-Barometer platform.

Table 5: FGI results on potential interest of teachers interested in implementing the LVQF system

Product	Kendall-Smith W	X^2 (α=0,05; s=5) = 11,070	Expected percent of interested teachers
Accreditation	0,406	16,240	20-40%
Learning programs	0,674	29,960	20-40%
Strategic cooperation	0,606	24,240	20-40%
e-Barometer	0,504	20,160	61-80%

Source: own calculations based on FGI results.

Effects of the LVQF project dissemination in Lublin Region estimated below cover direct and indirect benefits. Direct benefits should appear as effects of expected decrease in unemployment rate of vocational graduates in region which in consequence makes social security system operating cheaper because of less unemployment benefits paid. On the other hand, indirect benefits are effects of increased employment and include increased inflows to the public sector: social security dues, personal income taxes and indirect taxes from higher expenses financed with salaries paid to employed graduates. Economic and social benefits of the LVQF dissemination in region we calculated for 8 years period starting 2013.

Table 6: Expected benefits and costs of the LVQF system regional dissemination in 2013-2020

Specification	2013	2014F	2015F	2016F	2017F	2018F	2019F	2020F
Schools participating	5	10	20	31	31	31	31	31
Pupils with access to e-Barometer	400	800	1600	2480	2480	2480	2480	2480
Active pupils	40	160	480	992	1240	1240	1240	1240
Pupils employed with LVQF	0	2	74	150	224	224	224	224
Graduates unemployed without LVQF	880	871	863	854	846	846	846	846
Graduates unemployed with LVQF	880	870	789	705	622	622	622	622
Unemployment rate without LVQF, %	25,4	25,4	25,4	25,4	25,4	25,4	25,4	25,4
Unemployment rate with LVQF, %	25,4	25,4	23,2	20,9	18,7	18,7	18,7	18,7
Security system savings, PLN	0	6 942	325 255	675 707	1 031 300	1 051 926	1 072 964	1 094 424
Security system inflows (dues), PLN	0	4 619	216 432	449 630	686 250	699 975	713 974	728 254
Fiscal system inflows (taxes), PLN	0	3 140	147 112	305 620	466 454	475 783	485 299	495 004
TOTAL BENEFITS, PLN	**0**	**14 700**	**688 799**	**1 430 958**	**2 184 003**	**2 227 683**	**2 272 237**	**2 317 682**
Consultancy at implementation, PLN	615 600	631 584	1 250 977	1 372 294	73 741	74 224	74 717	75 220
System maintenance, PLN	103 200	111 648	127 315	144 471	145 490	146 529	147 589	148 670
TOTAL SPENDINGS, PLN	**718 800**	**743 232**	**1 378 292**	**1 516 765**	**219 231**	**220 753**	**222 306**	**223 890**
NET CASH FLOWS, PLN	**-718 800**	**-728 532**	**-689 494**	**-85 807**	**1 964 773**	**2 006 930**	**2 049 931**	**2 093 792**

Source: own calculations.

It is estimated that the LVQF system may provide employment for over 1250 pupils and graduates in 2014-2020 with about 220 graduates being employed per year ultimately. That should decrease unemployment rate among vocational graduates from 24,8% to 18,7%. Moreover, indirect effects would reduce 6-months unemployment insurance transfers up to 1.1 million PLN every year since 2017. On the other hand, assuming only 6-months employment of graduates with the minimal salary, the social security system would receive up to 700,000 PLN annually and the fiscal system up to 260,000 PLN of personal income taxes paid (12% effective rate). As the level of the minimal

compensation is rather neutral for savings it would finance consumer expenses in total that would lead to increase of indirect taxes received by budget by 220,000 PLN. All in all, direct and indirect effects of the LVQF dissemination are estimated to 14,700 PLN in 2014 (starting stage) and over 2.3 million PLN annually since 2017 (advanced stage).

On the other hand, the total cost of implementing the LVQF system in 2013-2014 is then estimated to 740,000 PLN annually up to over 1.5 million PLN in 2016 due to growing number of schools and pupils participating assumed. Costs would be reduced to about 230,000 PLN annually since 2017, which stands for about 7,200 PLN per school and 180 PLN per single user (registered pupil) annually. Moreover, the average cost of a single graduate employed using the LVQF system is equal to less than 1,000 PLN per year after dissemination – the amount only 20% higher than monthly unemployment compensation for a young graduate. Table 6 presents estimated total costs as well as direct and indirect benefits of the system, cash flows and measures of effectiveness in 2013-2020. Positive NPV value equal to over 2.5 million PLN at 10% discount rate and relatively high IRR (34,3%) prove that the LVQF system may be recommended for regional dissemination and if forecast are confirmed it may be considered for implementation on the national level.

If the widespread phase ends with success the framework can be easily adopted at all levels of education. Procedures of accrediting schools are only a formal process adjustable for specific parameters. BSC approach for developing a strategic cooperation is also universal and applicable. The heart of the system providing its expected effectiveness, allowing for discoveries of market trends and securing quick response to current market requirements is e-Barometer platform. Its open architecture may become an effective tool of communication between every school teaching every profession and all employers interested in hiring school's graduates.

REFERENCE LIST

1. Ahola, S. (1997). Different but equal - Student expectations and the Finnish dual higher education policy. *European Journal of Education*, 32(3), 291–302.
2. *e-Barometer WebPlatform*, The Lubelskie Vocational Qualifications Framework (2014, March 24). Retrieved from http://www.e-barometr.eu.
3. *Europe 2020 initiatives*, http://ec.europa.eu/social/main.jsp?langId=pl&catId=956.
4. Heinz W.R., Kelle U., Witzel A., Zinn J. (1998). Vocational training and career development in Germany: Results from a longitudinal study. *International Journal of Behavioral Development*, 22, 77-101.
5. *Human Capital Operational Program, Priority IX* (2014, March 24). Retrieved from http://www.efs.gov.pl/english/Strony/default.aspx
6. Kivinen O., Nurmi J. (2009). Different but equal? Assessing European dual HE systems. *Higher Education*, 60, 369-393.
7. Kutscha G. (1996). The Dual System of Vocational Education in the Federal Republic of Germany. An Obsolescent Model?, *European Education*, Summer 1996, 49-62.
8. Masdonati J. (2010). The transition from school to vocational education and training: a theoretical model and transition support program. *Journal of Employment Counseling*, 47, 20-29.
9. Perellon, J.-F. (2003). The creation of a vocational sector in Swiss Higher Education: Balancing trends of system differentiation and integration. *European Journal of Education*, 38(4), 357–370.