Comparing Validation of Self-acquired Learning in the ICT Company Sector and in VET Schools/centers in Bulgaria

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Abstract –**The current paper will compare the approaches and tools in the public and private sector in terms of validation of self-acquired learning with examples from the ICT. The material starts with some historical overview of the validation of self-acquired learning and then shows the tendencies of the validation approaches in the ICT company sector during the last years. Further, the validation of self-acquired learning in the vocational schools and centers has been explored. The nowadays tendencies of introducing units of learning outcomes have been discussed. The recent changes of the vocational area legislation in Bulgaria have been summarized. At the end of the paper, some results of the innovative projects, related to the topic, have been presented.**

Keywords – **self-acquired learning, ECVET, units of learning outcomes**

I. INTRODUCTION

The validation of self-acquired learning is undergoing significant changes last few years. The fast development of online provision of information and training materials, the dynamic of the labour market, the need of shorter duration of trainings, the flexibility of training methods and many other reasons determine the appearance of different methods for validation of self-acquired learning.

The companies used certification methods of self-acquired experience since many years. For example, the ICT sector has employed many validation approaches last few decades. It worth to mention the CompTIA A+ certification for beginners in the IT world, CISCO, Microsoft and other certification systems.

The private Vocational Education and Training (VET) centers also tried to be flexible last few years and try to employ open and distance education methods not only to satisfy the variety of trainees but also to reduce the cost of the training. But, being the officially licensed centers, they had to respect the VET law which was quite inflexible in the past (we mean, in Bulgaria). The options for validation of self-acquired learning have been introduced officially since the end of 2014.

VET schools (mostly public ones today) are least flexible in terms of introducing new forms of learning and validation. Being conservative institutions that have to respect visions and capacity of the teachers, the opinion of students and their parents, VET schools will probably introduce such innovative approaches like validation of

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self-acquired learning or dual education system in longer period, step by step.

The paper will try to explore the different and common approaches in the validation of self-acquired learning in the corporate sector and in the VET centers and schools.

II. VALIDATION OF SELF-ACQUIRED LEARNING IN THE ICT COMPANY SECTOR

Some years ago, the validation of self-acquired learning in the company sector was product oriented and in some cases emphasizing only on the practical skills. Also, the certification process was not so flexible in terms of dates for exams and the organization of the exams itself. Some exams were offline or face-to-face and this also made the process slower. But, situation changes nowadays.

In the business sector, the validation of work/project based experience has always been an important issue. In the corporate sector, concerning the validation, there are so called *company certificates* and *third party certificates*. Third party certificates are certificates issued by organizations or associations that don't cover their own products/services. Examples of third party certificates are Microsoft, CISCO, Apple certificates, example of third party (company independent) certificates are CompTIA certification programmes. If we move away from the ICT sector, some of the well-known examples of third party tests are TOEFEL and GRE ones.

Last few years, there are rapid changes in the validation approaches. Companies are structuring better their certification process, including respective knowledge and skills, they are emphasizing more on the area of working (e.g. networks, servers maintenance) not only on the skills related to their commercial product. Other interesting novice is the usage of nowadays concepts and some ideas from the public sector (formulating units of learning outcomes, for examples).

It is also worth to say that there are also many hidden (internal) procedures in companies related to the validation of the employee's experience. Here, we will focus mainly on publicly announced certification programmes.

Last but not least, there are different forms of blended learning where the combination of formal, informal, non-formal and self-acquired learning could occur.

Let see some of the nowadays examples in the ICT company sector. There are simpler certification systems where the test covers certain area and requires certain experience in advance. For example, the general parameters of ComTIA networking certification, Fig. 1, [4], look like:

The CompTIA Network+ce program is included in the scope of this accreditation, and may be kept current through the CompTIA Continuing Education program.

Test Details		
Exam Codes	N10-005 JK0-019 *(for CompTIA Academy Partners only)*	N10-006 JK0-023 *(for CompTIA Academy Partners only)*
Launch Date	1-Dec-11	28-Feb-15
Number of Questions	Maximum of 100 questions	Maximum of 90 questions
Type of Questions	Multiple choice and performance-based	Multiple choice and performance-based
Length of Test	90 Minutes	90 Minutes
Passing Score	720 (on a scale of 100-900)	720 (on a scale of 100-900)
Recommended Experience	• CompTIA A+ Certification • (9) months of networking experience	• CompTIA A+ Certification • (9) months of networking experience
Languages	English, Japanese, German, Simplified Chinese, Korean, Spanish, Traditional Chinese	English at launch (2/28/15) Japanese and German - in development

Fig. 1. ComTIA network certification programme

Of course, each company (or related training organizations) usually offers training possibilities for beginners or for people who like to increase the chance to pass the tests.

Interesting phenomena could be seen in Microsoft certification programmes, Fig. 2, [3], where the certification path is very flexible and modern. Here, you could verify your knowledge and skills in certain unit or in combination of $_{units}$. So, the certificate contains details of the units you passed. This approach is similar to the European Credit System for Vocational Education and Training (ECVET) approach and definition of so called *units of learning outcomes,* introduced and recommended by the EU last few years.
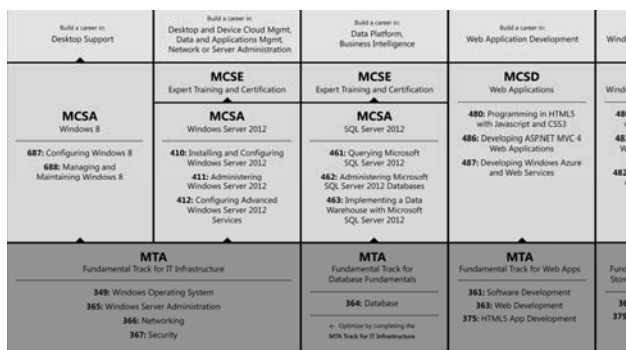
Fig. 2. Paths in Microsoft Technology Associate (MTA) test

For example, if you have interests in the area of IT infrastructure and configuring operating systems, networks, you could pass exams 349, 365, 366 or 367. Recently, the exam for cloud technology and mobile devices, number 368 has been added. You will get the certificate when passing one of the above exams. In the certification programme, there is also a description of ways of getting the certificate, ways of licensing of institutions that could issue such certificates etc.

The question who certifies, the quality of the organization that is licensed to issues certificates is also interesting. One of the ways the certifying organization could demonstrate the quality is to obtain some world-known certificate for quality, for example, ISO/ IEC 17024: 2012 [5]. ISO/IEC 17024 gives the criteria/principles for the establishment of certification programme for individual clients.

It is also curios to see how these certificates are demanded by the employers [6]. Here is one figure (Fig. 3) of research about certificates demanding, in the social networks or in jobs portals:

	Dice	Indeed	JustTechJobs	LinkedIn	SimplyHired	TechCareers
CompTIA CTT+	0	8	4	6	18	4
MCT	6	33	25	198	67	9
CCSI	7	67	214	56	138	13
CCI	0	0	0	0	4	1
ACT	0	40	16	9	13	0

Fig. 3. Results from research of tom'sIT Pro about demanding of certificates

III. VALIDATION OF SELF-ACQUIRED LEARNING IN THE VET CENTERS AND VET SCHOOLS

Validation of self-acquired learning in the VAT centers or in the VAT schools depends on two factors, the first one is the formal legislation and the second is the management of schools. The considerations here cover mainly Bulgaria VET sector but most of the cases are similar to many EU countries.

Last few years, there were several attempts to make amendments to the existing laws regulating VET. Finally, in 2014, the new VET law has been approved by the BG Parliament and the validation of self-acquired learning has been accepted [1]. The new Order N:2 of the Ministry of Education and Science, published in the beginning of 2015, provided more details about implementing the validation procedures in VET schools or centers [2]. So, the doors are open for all practitioners, students or youngsters who would like to validate their experience and receive officially recognized certificate.

There is a difference in the type of education in the VET centers and VET schools defined in the Law for the Vocational Education and Training. The term used for VET centers is *training*, the training could be *initial* and *continuing*. The term used for VET schools is *professional education* and the education there includes also the minimum subjects to receive secondary education level.

In 2008, European Parliament and the European Council have introduced the European Qualification Framework [7]. Here, 8 levels of qualification have been described. The term *units of learning outcomes* have been also introduced. The learning outcomes are described as set of knowledge, skills and competencies. There is a recommendation for the member countries to point out in the issues diplomas/certificates the respective level according to the EQF. An year later, in 2009, the European Credit (Transfer) System in Vocational Education and Training, called shortly ECVET has been introduced. The ECVET aim is to contribute the process of recognition,

accumulation and transfer of credits between the training organizations.

In line to the above considerations, the problem of new professions and their validation rises. In the above mentioned Order 2 of the Ministry of Science and Education there are certain approaches in this case.

Last few years there are some projects of the Ministry of Education and Science, National Agency for Vocational Education and Training (NAVET), Bulgarian Camber of Commerce and Industry and Syndicates related to the topic. They started in parallel to the law changes so some of their findings are not corresponding to the recent legislation changes. But, they are useful as they show the willingness of the state and the business to move in this direction.

One of the first EU projects related to validation of self-acquired learning in the ICT&Arts area is the CREATE project (create-validate.org), coordinated by the author of this paper [8]. The project offers methodology, training materials and concrete online tools for the validation of self-acquired learning in two new professions, web design and computer animation. The project started in 2011 and was one of the pioneering projects in the area, Fig. 4:

Fig. 4. The project CREATE (Validation of self-aCquired learning and cREdits trAnsfer in web design and compuTEr animation), www.create-validate.org

CREATE project uses the latest recommendations of EU related to ECVET points allocation and dividing the material in Units of learning outcomes. Each learning outcome consists of knowledge, skills and competencies. CREATE project also demonstrates different tools for validation of knowledge, skills and competencies- tests, online games, e-portfolio.

In principle, there are several steps in the validation process design. The first one is to determine the main areas/topics to be validated, the second one is formulating the units of learning outcomes. Each unit consist of outcomes, outcomes consist of knowledge, skills and competencies. Then, the methods for evaluation should be selected and respective ECVET points for each unit should be allocated. Last but not least, the ECVET level should be appointed if the desired units are passed successfully. In all those processes, the main stakeholders should participate- employers, trainers, policy-makers, students. Fig. 5 shows how the main page of the tools for some units of learning outcomes look, you could see the unit title/description, educational goal and dedicated ECVET points, as well as the type of the validation tool- test, game, ePortfolio etc.:
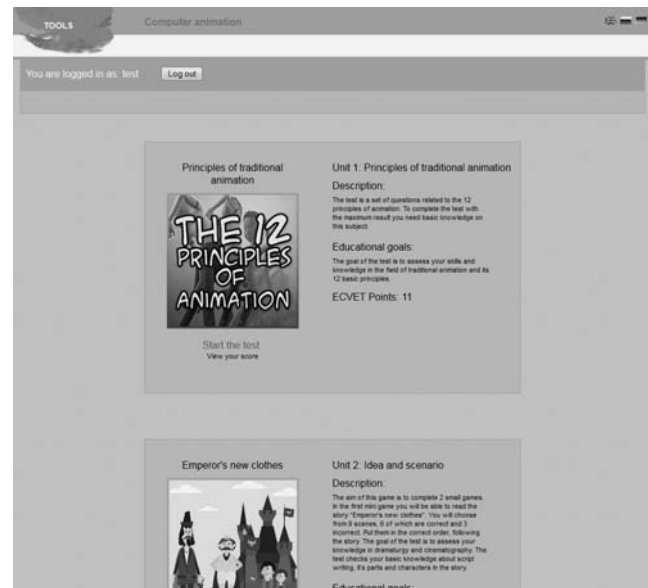

Fig. 5. Tools page for units of learning outcomes in the field of computer animation (The validation tool for the first unit is a test, the tool for the second unit is a game)

CREATE project has been piloted in some vocational schools in Bulgaria, Germany and Ireland. The feedback showed the applicability of the approach. The developed Manual could help the organizations (VET schools, centers of companies) to develop their own certification/validation system. The concrete tools in the two subjects (web design and computer animation) could be a model for the development of system and tools for other training subjects.

IV. E-PORTFOLIO METHOD AS VALIDATION METHOD

The electronic portfolio (ePortfolio or e-portfolio) is very useful method for self-awareness, for self-assessment or external assessment, for communication and presentation purposes, for identification of some problems or training needs of students etc. Depending of the purpose, ePortfolio could be organized in very different ways.

One of the functions of ePortfolio could be the assessment of the level of knowledge, skills and competencies. As a set of artifacts, the portfolio could also show the progress of such competencies during the years.

ePortfolio could be used in formal, informal or non-formal education, it is a method for encouraging the owners to reflect and analyze their achievements, it is a good method for facilitating self-awareness.

ePortfolio for Your Future project (my-eportfolio.org), leaded by the author of the paper, was one of the pioneering international projects in the area of electronic portfolio [9]. The project includes methodology and tools how to use eportfolio for self-assessment purposes. ePortfolio 4YF project also offers multimedia self-assessment game and motivation test (Fig. 6).

Fig. 6. The project ePortfolio 4YF (ePortfolio for Your Future), www.my-eportfolio.org

There is example portfolio system where the users could create the layout of their portfolio depending of the purposes and their vision. In the portfolio the user could state the strong points of his/her personal and professional features. When playing the game, the user will receive feedback about his/her personality. Then the user could compare them with own opinion expressed in the ePortfolio. The comparison of self-opinion (portfolio) and results from validation (game tool, tests) could help the users to reflect on their work, study and achievements.

ePortfolio systems are becoming more and more popular when applying for a job. As an addition to the CV, they could show the several of multimedia data and artifacts of the applicant professional development. Some universities and schools are developing their own portfolio systems but nowadays public portfolio systems (for example, Behance) and social networks (for example, Linkedin, Facebook) are also offering portfolio development features.

The manuals we have developed in the frame of the CREATE and ePortfolio 4YF projects could help VET trainers, teachers and managers of training organizations (VET centers and schools) how to use modern media to organize procedures for validation of self-acquired learning. Also, these training materials (free to access and in several languages) could be useful for all teachers and experts willing to use the advantages of validation of self-acquired learning.

V. CONCLUSION

The above considerations have attempted to show some aspects of corporate sector validation procedures and VET schools/centers validation procedures in self-acquired learning. There are several common tendencies we could observe:
- both sectors are trying to make the process flexible and results transferrable, that is why last few years the companies are also forming units of outcomes when designing their certification procedures;
- both sectors are trying to reach wider audience using open and distance approaches in the validation; the employment of new media and communications is quite visible;

- both sectors and trying to make the validation human- independent using games, tests and other computer based instruments;

The private and public sector, the business and the VET scools/centers are exchanging experience in these new tendencies in the assessment. The competent implementation of the validation of self-acquired learning is expected to wider the access to education and certification.

REFERENCES

[1] Law for the professional education and training http://lex.bg/laws/ldoc/2134673921
[2] Order of Ministry of science and education No 2 from 13.11.2014 for the validation of professional knowledge, skills and competencies http://validirane.mon.bg/docs/nrdb_2_13.11.2014_validirane.pdf
[3] Microsoft certificates, http://en.wikipedia.org/wiki/Microsoft_Certified_Professional
[4] CompTIA Network+ certificates, http://certification.comptia.org/getCertified/certifications/network.aspx
[5] Standard ISO/IEC 17024, http://en.wikipedia.org/wiki/ISO/IEC_17024#ISO.2FIEC_17024:2012
[6] Example of certificates demanding (tom'sIT Pro), http://www.tomsitpro.com/articles/it-trainer-certifications,2-702.html
[7] European Qualification framework, EQF, http://www.eqavet.eu/gns/policy-context/european-vet-initiatives/european-qualifications-framework.aspx
[8] Project CREATE, Validation of self-acquired learning and credits transfer in web-design and computer animation, create-validate.org
[9] Project ePorfolio 4YF, ePortfolio for Your Future, my-eportfolio.org