e-Skills4All

IO3

DIGITAL ASSESSMENT TOOL: Building the on-line assessment tool and procedures for self-audit-skills and external evaluation in close link with the Open Badges

Erasmus+ KA2 Adult Education

eSkills4ALL

A Digital Skills Tool kit for low adults focusing on Women re-entering the labour market

Leader Organisation: CIVIC

Table of Contents

Project information

Project acronym: eSkills4all

Project title: A DIGITAL SKILLS TOOL KIT FOR LOW SKILLED ADULTS FOCUSING ON WOMEN RE-ENTERING THE LABOUR MARKET

Project number: 2017-1-UK01-KA204-036712

Sub-programme or KA: KA2 Cooperation for Innovation and the Exchange of Good Practices

Project website: https://eskills4all.eu/

Introduction

The eSkills4All project seeks to guide a pathway to employability and prosperity. With the right skills, people are better equipped to find good-quality jobs and can fulfill their potential as confident, active citizens. They are the key to social cohesion. Skills gaps and mismatches are striking. Many people work in jobs that do not match their talents. At the same time, 40% of European employers have difficulty finding people with the skills they need to grow and innovate.

The eSKILLS4ALL project fights digital illiteracy, skills mis-matches and long unemployment for low skilled adults, especially for women, supporting them to return to employment with a new set of skills adequate for the new challenges. The project proposes to introduce a transparent and multi-assessed process, based on an interactive and dynamic platform to be developed in order to up-grade, up-skill or re-skill their digital skills related employability to meet the needs of the labour market and bridge the gap related to skills mismatches between E&T and the world of work.

It also aims to support low skilled adults (women in particular) in their search for a better job or enter the employment by building bridges with the labour market through the creation of the on-line and in-house "eSKILLS4ALL HUBs. The HUBs to be set (pilot-tested) in partner organisations will offer all the services to be developed in the project: i.e. SKILLS AUDIT, professional ICT training for re-skilling and up-skilling of digital skills and career guidance. In this way the equipment, infrastructure and personnel of each organization will be fully utilized. The synergies developed for the eSKILLS4ALL NETWORK between various organisations, stakeholders, agencies, public services etc. will offer guidance and support.

Thus, the consortium decided to investigate the current scene of each partner country to identify the current needs (IO1). 2 surveys were conducted, one with 5 employers from each country to conclude the skills they need their staff to have, and then from this we created a second survey to identify what skills our target audience have and don't have.

Based on these results, the eSkills4All consortium identified the Digital Competences to be included in the Framework (IO2). The framework has been used to develop the curriculum/training material to be followed (IO4). It has been designed with benchmarks and indicators against which our student's skills will be evaluated. This Intellectual Output involves the building the on-line assessment tool and procedures for self-audit-skills and external evaluation in close link with the Open Badges.

The introduction of this recognition and validation process through the use of the Open Badges is an added value to the project, as it will enable low skilled adults to have a valid proof of this learning which can be added to their CV, profile or portfolio in addition to the Certificate of Participation. The Open Badges is a motivating procedure which will encourage and provide incentives for low skilled adults to continue their participation. It is linked to the digital skills, as Open Badges are created on-line through the use of an open-platform and can be shown on various personal pages, such as FB, Twitter, LinkedIn etc.

Open Badges originally developed by the Mozilla Foundation with funding from the MacArthur Foundation.[1] The Open Badges standard describes a method for packaging information about

accomplishments, embedding it into portable image files as a digital badge, and establishing an infrastructure for badge validation.

Modules

eSkills4All Presents the following Modules:

- Module 1: Problem Solving
- Module 2: Digital Content Creation
- Module 3: Communication and collaboration
- Module 4: Safety
- Module 5: Information and data literacy

OpenBadge

Open Badges are a digital representation of skills, learning outcomes, achievements or experience such as:

- Hard skills: knowledge, competences, etc.
- Soft skills: collaboration, communication, etc.
- Participation and community involvement
- Official certification
- Authorisation

Open Badges are verifiable, portable digital badges with embedded metadata about skills, achievements and experience and are shareable across the web. Each Open Badge is associated with an image and information about the badge, its recipient, the issuer, and any supporting evidence. Badges can be used in many ways, for example to set goals, motivate behaviors and convey success. They can be particularly useful for recognising new kinds of learning, beyond the traditional classroom environment. Nowadays, learning happens everywhere-badges provide a way to validate the outcome.

Benefits

The following are some of the benefits of Open Badges:

- Badges can demonstrate a wider range of skills and achievements in formal and informal learning methods.
- Badges are portable and verifiable digital objects-All this information may be packaged within a badge image file that can be displayed via online CVs and social networks.
- Each Badge includes the description of achievement: a particular path that learner took along the way to an achievement, together with the evidence used to support the badge award.
- Each Badge includes information about the earner identity, link to information about the issuer, link to the badge class information (description of what a badge represents)
- Badges can be used to unlock learning and career pathways. They can be used to build pathways to support individuals to work towards learning goals, provide routes into employment and nurture and progress talent within organisations.
- Badges represent personal attributes that matter employers (such as soft skills)

Badges can be used in professional context-Thousands of organisations across the world issue badges in accordance with the Open Badges Specification, from non-profits to major employers to educational institutions at all levels.

Key Elements

Issuer

First of all, the issuer could define a competency in a subject, design the learning material for it and assess the users with regard to that competency. Then, the issuer can create a badge and make it available for earning. When an issuer creates a new badge, the data can include details of the criteria that an earner must meet in order to be awarded the badge. When assessment is involved, the reviewer may compare earner evidence against badge criteria, which can be required or optional.

Any individual or organisation can create an Issuer profile and begin defining and issuing Open Badges. A diverse range of organisations and communities, including:

- Schools and universities
- Employers
- Community and nonprofit organisations
- Government agencies (including NASA)
- Libraries and museums.
- Event organisers and science fairs (Including Intel)
- Companies and groups focused on professional development (such as eSkills4All consortium)

Any entity that can be described with a name, description, URL, image, and email address is a possible candidate to become an Issuer. To issue Open Badges you need a technology platform that supports the Open Badges Specification.

The platform

Many companies are creating badge issuing platforms compliant with the Open Badges Specification. They provide a wide range of services, which allow non-technical users issue Open Badges credentials. Platforms each offer a mix of custom services possibly including: online badge designers, badge discovery, issuing, assessment workflow, display, user profiles, social sharing and tools to integrate with existing learning systems. All Open Badges issuing platforms should allow recipients to export their badges to a Backpack of choice. This allows users to stack and share their badges earned on different platforms and choose their own spaces to establish their identity on the web.

Earner

Open Badges are for everyone to recognise skills gained through a variety of experiences, regardless of your age or background. They allow you to follow your interests and passions and unlock opportunities in life and work by standing out from the crowd. The earners should register in the organisation platform and claim for a badge, when the pre-defined criteria have been met during the 'evaluation' phase.

Evaluation

The assessment process can vary:

- Asynchronous assessment: learners seek out the assessment on their own time instead of being required to take an exam at a pre-determined time.
- Stealth assessment: assessment and awarding badges can happen automatically and provide immediate feedback.
- Portfolio assessment: work samples, projects and other artifacts the learner has produced and can be used as evidences for claiming a badge.
- Multiple assessors or group assessment: multiple contexts of assessment such as course organisers, peers or learners themselves.

Displayer

Open Badges are designed to be shared. By sharing, individuals showcase their achievements to consumers turning them into a valuable currency to unlock new opportunities. Displayers can utilise the Displayer API for retrieving earner badges from the Mozilla hosted Backpack. Mozilla set up the first Backpack in 2011. Most issuing platforms provide users with the ability to connect and store their badges to this Backpack. When retrieving badges form the earner's Mozilla Backpack (using the email address account), the displayer will only be able to access those badges that the earner has chosen to public.

Badges also can be shared:

- Blogs, websites, e-Portfolios, and professional networks
- Job applications
- Social media sites - Twitter, Google+, Facebook, LinkedIn
- Even in your email signature!

Aspects

Technical

An earnable badge is defined as a badge class, using a variety of data items, including descriptions, criteria and information about the issuing organisation itself. When an issuer decides to award that badge to a specific earner, they create a badge assertion. A badge assertion describes the data for an awarder badge-it includes the earner identity and a link to the generic badge class, which in turn links to information about the badge issuer. All of the data for the badge is defined using JSON structures. To award a badge to an earner the issuer creates a badge assertion in JSON.

Properties

The image for a badge should be a square PNG (or SVG). The file size should be a maximum of 256KB and should not be smaller than 90 PX square.

Things you can verify and explore in a badge:

- Details about the organisation issuing the badge
- What the individual has done to earn the badge
- The criteria that the badge has been assessed against
- That the badge was issued to the expected recipient
- The badge earner's unique evidence (optionally included)
- When the badge was issued and whether it has expired

Institutional Endorsements

Badges are like commercial products that have to be endorsed by a certain celebrity or institution in order to promote it in a wider sphere and to gain the support of the consumer. In this section, institutions from public and private sectors, which are endorsing open badges as a recognition tool, will be highlighted. Furthermore, this section also tries to explain the importance of endorsing a badge within the ecosystem.

Governmental Institutions

Council of the European Union is one of the governmental institutions in the regional level, which has expressed its support to the open badge as one of the nonconventional approach in recognising someone's work. In a conclusion made by the Council and Representatives of the Government of the Member States, which was released in November 23, 2016, it was mentioned that "To appeal to young people and to ensure greater impact on their lives, new settings where young people spend their time, such as modern city infrastructure and virtual space, as well as new approaches using innovative online and offline tools (such as gamification, GPS based activities, learning badges or design thinking5), should be reflected upon and taken into account in the further development of education and training of youth workers." (Council of the European Union, 2016). This statement released by the aforementioned regional body affirms that learning badges such as open badges is one of today's trends in recognising learners' skills and knowledge that they have acquired during their training days.

Within the EU, Lithuanian National Commission for UNESCO together with the Lithuanian Association of Non-Formal Education recommends the use of open badges to other UNESCO affiliated schools in the country (Lithuanian National Commission for UNESCO, 2016).

Aside from these EU bodies, in 2013 the U.S. Department of Education's Office of Vocational and Adult Education (OVAE), has funded a study aiming to "explores the feasibility of developing and implementing a system of digital badges for adult learners and the implications for policy, practice, and the adult education delivery system" (Finkelstein, Knight, & Manning, 2013). In the US, the following institutions have been long time implementing the open badge system as a recognition tool (Ibis):

- EDUCAUSE- a leading association in the field of information technology focusing in higher education.
- The Society for Science and the Public administers the Intel International Science and Engineering Fair (Intel ISEF), - the largest precollege science completion in the world.

- The American Association for State and Local History
- The Yale Center for Emotional Intelligence

These institutional endorsements from various governmental bodies just show that open badges a legitimate tool to be considered and one of the "trends" in the 21st century, that everybody in the field of education whether its formal or non-formal education, should explore.

Private Sector's Endorsement

Aside from Mozilla Foundation, who started this the idea of open badges, various entities in the private sectors have been using open badges as a new way to recognise someone who just recently developed a skill or reached a specific level of knowledge. For instance, the American company Microsoft has introduced open badge system to their partners. "Microsoft developed a badge system for the Partners in Learning Network (PiLN) of educators and school leaders to promote technological competencies and relevant skills in today's digital age." (Chow, 2014). In the official website of Microsoft, the company answered the question why they are offering badges – to offer the people a tool they need to move forward in their chosen field. "Your digital badge allows you to easily share the details of your skills in a way that is trusted and verifiable" (Microsoft, 2016). One of the well-known institutions, which is using open badge is the National Aeronautics and Space Administration (NASA). In 2012, NASA together with Project Whitecard and Wheeling Jesuit University, have worked together to convince the California Academy of Science to implement Mozilla's open badge system in "recognizing life's achievements" (NASA, 2016). Aside from companies, formal education institutions have been also using open badges as recognition tool. In Europe, some of these institutions include Beuth University of Applied Sciences Berlin in Germany, Newcastle University in the United Kingdom, Universitat de les Illes Balears in Spain (Mozilla Foundation, 2016c).

eSkills4All OPEN BADGES ECO-SYSTEM

Open Badges provide portable and verifiable information about digital skills and achievements. Low skilled adults can unlock opportunities by sharing collections of badges representing desired skill sets in a dynamic, evidence-based way. Open Badges represent legitimate, authenticated achievements, described within the badge and linked to the eSkills4All project.

To summarise:

- eSkills4All consortium creates badges for five different digital competences:
    - Module 1: Problem Solving
    - Module 2: Digital Content Creation
    - Module 3: Communication and collaboration
    - Module 4: Safety
    - Module 5: Information and data literacy
- Learners are invited to register in the e-learning platform and take the course(s) of the eSkills4All programme
- The e-learning platform listing indicates the criteria for earning the badge
- Learners should provide evidences against the badge criteria
- Learners should claim a badge, including evidence, against badge criteria
- The tool acts as the evaluator , based on a 10 question quiz for each Module. If the user sits the quiz and achieves 70% or over, they will be awarded the badge
- The learner will be able to download their badges from the platform

eSkills4All consortium offer opportunities of upskilling the digital skills of Low skills adult learners and in exchange, play a critical role in the ecosystem. Through this process, Open Badges can be turned into new collaborations, jobs, internships, and richer connections between lifelong learners.

In this section each partner will prepare the details related to each of the Open Badges to be allocated to each Digital Competence. It is proposed that for each Digital Competence the low skilled adults can earn all 5 badges and if they do, they will be allocated the Final 'eSkills4All Badge' which represents all of the skills outlined in each Module. For each Digital Competence the following aspects will be analysed in the template provided below:

- Name of OB: The name of OB can be the same as the Topic.
- Design of OB: Visualisation of the OB
- Main Objective: The description of the Open Badge
- Learning Outcomes: The specific learning outcome to be acquired
- Assessment criteria: The criteria used to assess whether the learning outcome has been achieved and set of skills and competences have been acquired. Assessment criteria are comprised of one component, the theoretical test. All possible points for each of the theoretical questions will be defined within the training content for IO4.
- Evidence: Scoring 70% or over in each 10 question test at the end of each module

- Issued by: In this section the issuer of the OB is eSkills4All

Assessment Criteria and Methods on the e-Learning platform

For the eSkills4All Digital Competences Modules the idea is to assess the theoretical knowledge that the adult learners of the courses will acquire throughout the project lifetime as well as to provide a self-assessment test for the participants before taking the courses in order for them to identify beforehand their strengths and weaknesses.

Initial Self-Assessment

The self-assessment test will take place before participants take the course. It will be done in the form of a multiple-choice quiz which covers all the topics of each Digital Competence and the score will be just informative and given in %.

Once the participants submit their answers, the system will provide them with feedback. Correct and wrong answers will be highlighted for the users to see. Overall feedback will be shown to adult learners after they have completed the quiz.

This self-assessment test will not be mandatory.

Final Theoretical Knowledge Assessment

The final theoretical knowledge assessment will take place after the self-assessment and after optionally going through all the educational material and resources in the form of a multiple-choice quiz. The final assessment of the theoretical knowledge will be done in a form of a multiple-choice test to assess the theoretical knowledge of the adult learners.

Each multiple-choice quiz will have 10 questions which will be selected at random, with three (3) possible answers, one which will be correct. After the users take the quiz, it will be automatically marked, and users will be able to instantly see what grade they have achieved. Users will have the chance for three (3) attempts to pass the test. If the user fails all three attempts, the user has to contact one of the Mentors to discuss more possibilities to pass the test successfully. After each attempt both questions and answers will be shuffled in order to make the test more challenging. Correct and wrong answers will be highlighted for the users to see. Their final grade will be the highest (best) attempt. Overall feedback will be shown to students after they have completed an attempt at the quiz.

It must be noted, that a successful self-assessment multiple choice quiz attempt does not award a badge to the adult learners but is only part of the process and one of the requirements (criteria) in order to receive a badge. Finally, only the multiple-choice quizzes after the course will be taken into account in the badges awarding process as one of the criteria to earn one. The self-assessment test before the course is going to be used merely for self-assessment purposes.

Practical Skills Assessment

As far as the practical skills assessment procedure is concerned, it takes place after the theoretical knowledge test.

The practical skill assessment criteria vary per module/topic. However, this will not be part of the criteria to gain a badge, it will be added as extra tasks to do to improve your skills and competencies.

Badges Awarding Criteria

The eSkills4All e-tool offers 6 badges in total. The criteria for earning the badges for the digital competences modules, which are five (5) in total, differ from the criteria for the awarding of the overall badge.

Award Criteria for 6 Badges

The criteria that have to be met by the adult educators in order to receive the five (5) badges for each level and for each digital competence are the following four (2):

1. Course Enrolment (users will have to enroll to the course by signing up)
2. Successfully pass the Theoretical knowledge multiple choice quiz at the end of the course (70% or over)

TREE STRUCTURE OF OPEN BADGES

eSkills4All Super Badge

Problem Solving

Communication
and
Collaboration

Digital Content
Creation

Information and
Data Literacy

Safety

Open Badges Module Tables

	Module 1: Problem Solving		
	Main Objective: This module will serve to help people with lesser technological skills to learn how to solve problems themselves which they may encounter when working with computers.		
	Issued by: ICT Expert		
	Learning Outcomes	*Criteria*	*Evidence*
	a) Hardware and Devices	**Multiple Choice Quiz** 3 possible answers – 1 correct (10 questions)	Pass the quiz (70%)
	b) Connection to Internet		
	c) Operating systems and software		

Module 2: Digital Content Creation

Main Objective: This module provides information on different aspects of how to create a digital content, using digital tools and basic principles in composing, editing and sending an email, as well as its main functions.

Issued by: ICT Expert

Learning Outcomes	Criteria	Evidence
a) Digital Office Tools		
b) E-mail	**Multiple Choice Quiz –** 3 possible answers – 1 correct (10 questions)	Pass the quiz (70%)
c) Creation of Content		

Module 3: Communication and Collaboration

Main Objective: This module provides information on different aspects of how to use social media, write interesting content and engage users with special tools, how to source information and how to use it for expanding your network.

Issued by: ICT Expert

Learning Outcomes	Criteria	Evidence
a) Express yourself as well as your company's brand philosophy		
b) Create engagement out of thin air	**Multiple Choice Quiz** 3 possible answers – 1 correct (10 questions)	Pass the quiz (70%)
c) Absorb all the data and make knowledge your main unique selling point		

Module 4: Safety

Main Objective: This module provides information on different aspects of safety with regard to data protection, the evaluation of online information and secure online communication.		
Issued by: ICT Expert		
Learning Outcomes	*Criteria*	*Evidence*
a) Basic Internet Concepts and Terms	**Multiple Choice Quiz** 3 possible answers – 1 correct (10 questions)	Pass the quiz (70%)
b) Risks		
c) Measures		

Module 5: Information and data literacy

Main Objective: This module provides information on acquiring and managing information and data on and off line.

Issued by: ICT Expert

Learning Outcomes	Criteria	Evidence
a) Information & Data Discovery and Collection	**Multiple Choice Quiz** 3 possible answers – 1 correct (10 questions)	Pass the quiz (70%)
b) Data & File Management		
c) Studying Online and Practice		

eSKills4All Expert

Main Objective: The individual has passed all 5 Modules of the eSkills4All course.

Issued by: ICT Expert

Learning Outcomes	Criteria	Evidence
a) Problem Solving		
b) Digital Content Creation	**Multiple Choice Quiz** 3 possible answers – 1 correct (50 questions)	Pass all 5 quizzes (70%)
c) Communication and Collaboration		
d) Information and data literacy		

	e) Safety		

REFERENCES

Council of the European Union. (2012, December 20). Council Recommendation of 20 December 2012 on the validation of non-formal and informal learning. Official Journal of the European Union. Retrieved from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2012:398:0001:0005:EN:PDF

Council of the European Union. (2016, November 23). Outcomes of proceedings - Promoting new approaches in youth work to uncover and develop the potential of young people. Council of the European Union. Retrieved from http://data.consilium.europa.eu/doc/document/ST-14277-2016-INIT/en/pdf

Devedžić, V., & Jovanović, J. (2015). Developing Open Badges: a comprehensive approach. Educational Technology Research and Development, 64(4), 603–620. https://doi.org/10.1007/s11423-015-9388-3

European Commission. (2016). Europe 2020 strategy [Institutional]. Retrieved from https://ec.europa.eu/info/strategy/european-semester/framework/europe-2020-strategy_en

Everhart, D., Derryberry, A., Knight, E., & Lee, S. (2016). The Role of Endorsement in Open Badges Ecosystems. In D. Ifenthaler, N. Bellin-Mularski, & D.-K. Mah (Eds.), In Foundation of Digital Badges and Micro-Credentials. Demonstrating and Recognizing Knowledge and Competencies (pp. 221–235). Switzerland: Springer International Publishing.

Finkelstein, J., Knight, E., & Manning, S. (2013). The Potential and Value of Using Digital Badges for Adult Learners (Final Report). Washington, DC: American Institutes for Research. Retrieved from https://lincs.ed.gov/publications/pdf/AIR_Digital_Badge_Report_508.pdf

Grant, S. (2014, October 27). All About That Badge. Retrieved from http://dmlcentral.net/all-about-that-badge/

Hickey, D. T., Otto, N., Itow, R., Schenke, K., Tran, C., & Chow, C. (2014). Badges design principles documentation (DPD). Interim project report. (p. 135). Center for Research on Learning and Technology. Indiana University. Retrieved from http://iudpd.indiana.edu/JanuaryReport

Ifenthaler, D., Bellin-Mularski, N., & Mah, D.-K. (Eds.). (2016). Foundation of Digital Badges and Micro-Credentials. Demonstrating and Recognizing Knowledge and Competencies. Switzerland: Springer International Publishing.

Knight, E., & Mozilla Foundation. (2013). An Open, Distributed System for Badge Validation (Working Paper). Retrieved from http://bit.ly/badgevalidation

Lithuanian National Commission for UNESCO. (2016). Recommendations for achievement programme at UNESCO associated school. Retrieved from https://issuu.com/nerijuskriauciunas/docs/recommendations_for_unesco_achievem

Microsoft. (2016). Introducing Microsoft badges [Institutional]. Retrieved from https://www.microsoft.com/en-us/learning/badges.aspx

Mozilla Foundation. (2016a). Earning Open Badges [Institutional]. Retrieved from https://openbadges.org/get-started/earning-badges/

Mozilla Foundation. (2016b). History of Open Badges [Institutional]. Retrieved from https://openbadges.org/about/#history

Mozilla Foundation. (2016c). Who's Issuing Open Badges? [Institutional]. Retrieved from https://openbadges.org/about/participating-issuers/

NASA. (2016). Digital Badges [Institutional]. Retrieved from https://www.nasa.gov/offices/education/programs/national/dln/special/DigitalBadges.html

Newby, T., Wright, C., Besser, E. D., & Besse, E. (2016). Passport to creating and issuing digital instructional badges. In D. Ifenthaler, N. Bellin-Mularski, & D.-K. Mah (Eds.), Foundations of Digital Badges and Micro-Credentials: Demonstrating and Recognizing Knowledge and Competencies (pp. 179–201). Switzerland: Springer International Publishing.

Wright, C., & O'Shea, K. (2014). Digital badges and outcomes-based learning. Purdue University. Retrieved from http://www.educause.edu/events/educause-connect baltimore/2014/digital-badges-and-outcomes-based-learning