EAGLE

EnhAnced Government LEarning

www.fp7-eagle.eu

FP7-ICT-2013-11

Objective 8.2 Technology-enhanced learning;

Target outcome c): Holistic learning solutions for managing, reaching and engaging learners in the public administrations

Deliverable 8.3

OER Documentation on Validation

WP8 – UX-based Validation
Lead Participant: DHBW

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Glossary

DE	Deutschland (validation country; Germany)
EC	European Commission
EAGLE	EnhAnced Government LEarning
EU	European Union
FP7	Seventh Framework Programme
IE	Ireland (validation country)
LU	Luxembourg (validation country)
ME	Montenegro (validation country)
OER	Open Educational Resources
PA	Public administration
UX	User Experience
WP	Work Package

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Executive Summary

This Deliverable D8.3 summarizes the collection of validation Open Educational Resources (OER) published in the wiki of the EAGLE portal.

The OER are to inform interested future organisational users of EAGLE what to look out for in a UX-based validation.

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1   UX-based Validation

Validation aims to collect evidence from different sources to increase the validity of arguments leading to a specific interpretation of collected data. In this project, UX-based validation is applied in order to find evidence whether the created EAGLE solution actually provides the intended results for the users.

User Experience (UX) describes how a person feels about using a computer system or product. It also covers a person's perceptions of the practical aspects such as utility, ease of use and efficiency of the system, which is also a way to describe usability. UX is influenced by knowledge and experience of the user, the user's concerns, expectations, skills and abilities. UX-based validation means that methods known from UX design are applied, but also that the experience of the users determines the interpretation of the validation results.

UX-based validation shows whether the learning solution provides satisfactory usage by a distinct user group in a specific context, reaching defined goals effectively and efficiently. It particularly focuses on the perception and reactions of the user on the actual or expected use of the learning solution. It aims to consider emotions, perceptions, preferences, typical behaviour during as well as after the use of the learning system.

Several methods and data collection techniques are typical of UX-based validation because of their high level of interaction with the users, e.g. **open interviews**, **card sorting**, **task-based testing** of scenarios, **focus groups**, **observation**, and so-called "**think-aloud" testing** (with or without **eye-tracking**). Other formats, like **creativity workshops** are used to discuss identified questions or to collectively create knowledge resources, thus validating whether the approach of the solution with users creating their own content is feasible. **Online surveys** are used to collect feedback from a larger audience of users.

Generally the participants should represent different levels of hierarchy and seniority, gender and IT literacy, to allow for a feedback from a variety of perspectives. Participants should also come from different sizes of municipalities, covering all ranges from very small to medium-size rural communities.

UX-based validation is applied during both the formative & summative validation phases of the EAGLE platform. Results are lists of suggestions and recommendations for how to enhance design, structure, clarity, functionality, usability and UX from the real users' perspective.

For a detailed description and further information, see D8.1.

2 Description of UX Validation Techniques Used

2.1 Surveys

Surveys are used to collect feedback from a large audience of users regarding the use of the EAGLE solution. The survey can accompany any online prototype or a beta version. It can also be used to attract people to take part in face-to-face evaluations.

Example from EAGLE validation: A survey was developed and distributed that aimed to ascertain the employees' views on how they use or engage with information and communication technologies (ICT) at work, and how these technologies might support their learning opportunities. Users were invited to participate in answering the questionnaire in order to:

1. Assess their readiness to use such a platform (Performance of "Digital Check-up")
2. Get a training needs analysis for those wishing to implement the platform (Managers / Stakeholders in PA).

Example: Question 11 asks about the confidence and competence of using ICT at work. For this question, statements could be rated from "I don't know what it is" (1 point) to "I could show others how to do it" (5 points), which means that **high numbers are equivalent to expert competence**.
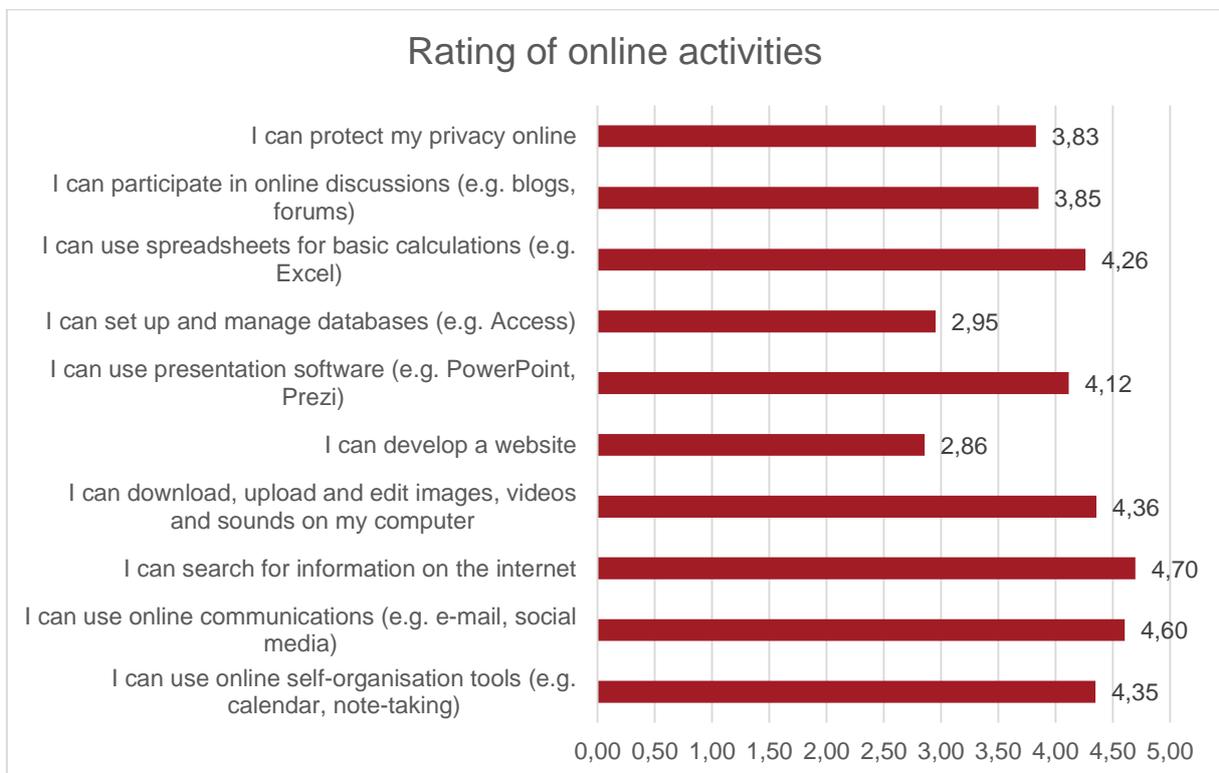

TABLE 1: RATING OF ONLINE ACTIVITIES

Only few people indicated their expertise in website development (2.86) or management of databases (2.95), whereas use of online communication (4.60) and information search (4.70) were rated as being

very common online activities. Also the participation in online discussions, including blogs and forums (3.85), is quite common, as well as the protection of privacy (3.83).

2.2 Thinking-Out-Loud

Thinking-out-loud is particularly helpful in finding out some of the motivations and expectations of the users, which are crucial for UX. **Concurrent Think Aloud (CTA)** is used to understand the participants' thoughts as they interact with a product by having them think aloud while they work. The method can also be applied using retrospective think-aloud protocols. In CTA, participants are asked to speak out as they are working on a task to better understand their mental model for the task and his/her decision-making in real time. Speaking out their intentions, feelings, thoughts and problems is more important at this moment than finding the right solution.

Example from EAGLE validation: EAGLE platform prototypes were validated in face-to-face meetings that were held in the four validation countries (DE, LU, IRE, ME). The validation teams were equipped with material (forms and questionnaires), and brief guidelines with instructions on how to perform the different parts and phases of the validation.

FIGURE 1: EXAMPLE FROM THE VALIDATION

2.3 Task-based Observation

Task-based observation allows for a high level of interaction of the users with the system. Users are provided with a set of tasks so that validation experts can observe them during prolonged engagement with the solution. The tasks reflect typical workplace scenarios, and the point is not to see how well the users perform their tasks, but how well the system supports the user on carrying out these tasks. Researchers write down their observations or make audio (or video) recordings of the test users.

Example from EAGLE validation: The following task scenarios were defined and carried out by all users in all validation countries and regions:

Task 1. SEARCH

You want to find information on a specific topic (to be defined by the regional validation team): How do you look for it and where can you find it?

Task 2. FORUM / MESSAGE BOARD

Engage in one of the discussions in the forum!
Open a new thread or post a reply to one of the questions posted by others.

Task 3. BLOG

Read the blog entries and add a comment. Or write your own blog entry.

Task 4. RESOURCES

Check out the resources section and view some of the contributions.
- Rate the quality of a resource
- Bookmark a document and read or edit it later
- Look for mistakes in documents and correct these
- Adapt the content and upload a modified version.

Task 5. (COMMUNITY BUILDING) (larger focus groups)

Establish ties with your colleagues and create your own network

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TABLE 2: TASK SCENARIOS (EXAMPLES)

2.4 A/B Testing

A/B Testing method offers alternative interface designs of specific parts of the prototype to the users during validation to find out which is the better received version.

Example from EAGLE validation: The method was partly applied for the start page designs, for which two versions had been created that were presented to test users.

2.5 Card sorting

Card sorting is a simple technique used to explore with users how they would categorize the information provided, which can then be used for designing information architecture, workflows, menu structure, or website navigation. It is literally sorting cards with all the category items on them. It can vary between closed and open sorting; closed sorting providing all categories, while open sorting leaves the definition of the categories to the participants of the exercise.

Example from EAGLE validation: A large number of terms used for building the EAGLE portal were written on pieces of paper, and the users were asked to arrange them in a way they would like them to be presented on the future EAGLE platform. Users put aside terms they did not understand (either wholly or in part), and grouped the cards according to their needs. This method helped us to find out that some terms are not immediately self-evident for the users (e.g., Statistics, Dashboard, Studio, Network).
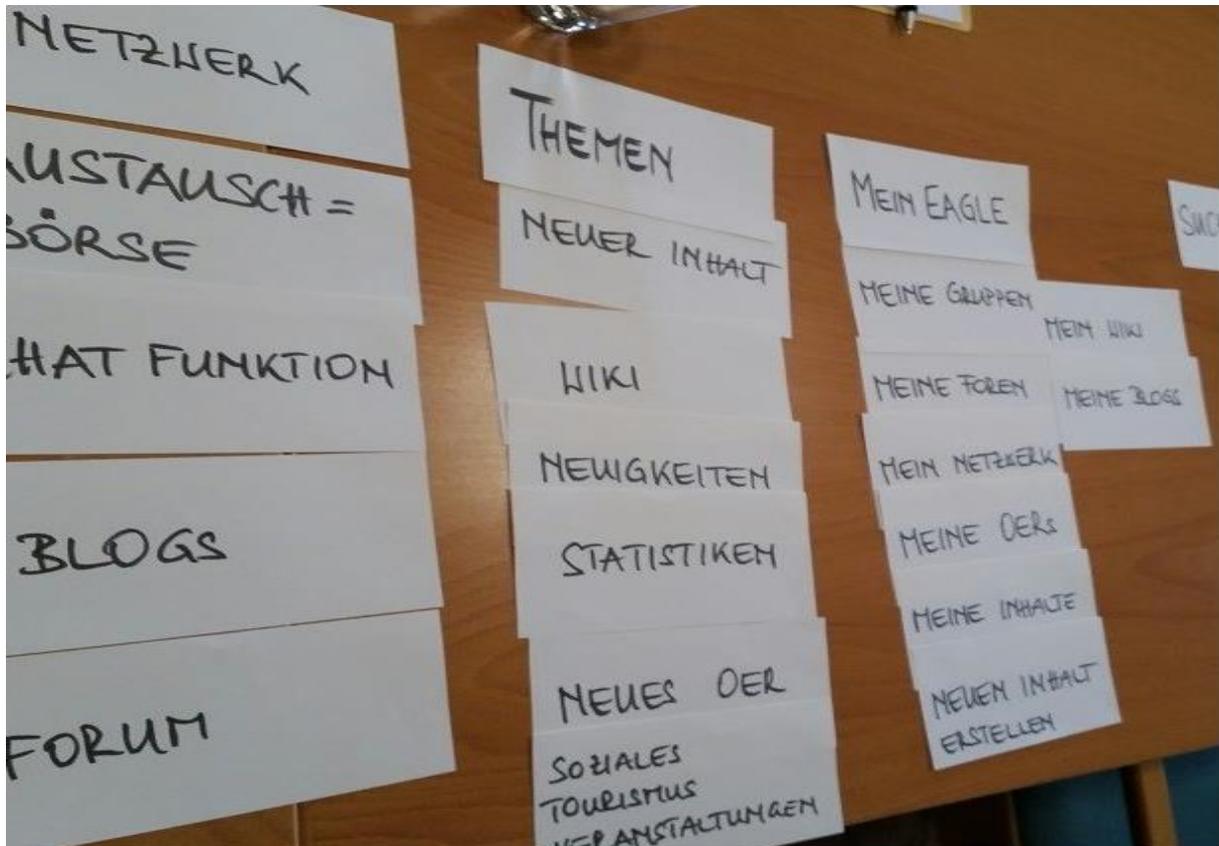
FIGURE 2: EXAMPLE FROM CARD SORTING (RESULT) FROM GERMAN VALIDATION

2.6 Cognitive Walkthrough

Cognitive walkthroughs are done by experts who "walk" through some of the most typical user tasks supported by a website. They assess issues and obstacles that the users might encounter and provide their insights to the developers for further improving the usability of the website.

Example from EAGLE validation: This method was used by the EAGLE team every time before real users were exposed to a new version of the prototype.

2.7 Eye-Tracking

Eye-tracking is a valuable addition to any usability testing and compliments task-based observation methods well. Eye-tracking refers to the measurement of eye activity. Video-based eye-tracking devices observe a person's pupil to determine the direction of their gaze. It can be used to study how user interfaces are being used and may give insight into screen layout issues and how users are performing their tasks. Using eye-tracking equipment requires some preparation and is mostly done in usability labs, as the equipment has to be fixed to a computer with a special eye-tracking software running.

Example from EAGLE validation: Eye-tracking was also used as a method for pre-prototype and early testing of the platform. While attending regional or national events, the eye-tracking equipment was also used with video capturing and think-aloud observation. It proved to be useful for attracting passers-by

on such events to make them try and test, while learning more about the EAGLE project and its planned achievements.

2.8 Personas & Scenarios

Summarising and analysing the requirements identified in scenarios and personas is a common technique in UX-based projects. The user requirements are condensed into regional scenarios, a project-specific scenario and a set of personas, representing the users of the target group. In a next step, the personas and scenarios function as a means for an expert validation of the requirements. The mock-ups can be validated against the needs of the different personas and the features described in the scenario?

Example from EAGLE validation: Personas were shown and explained, together with wireframes and mock-ups, to a small group of users.
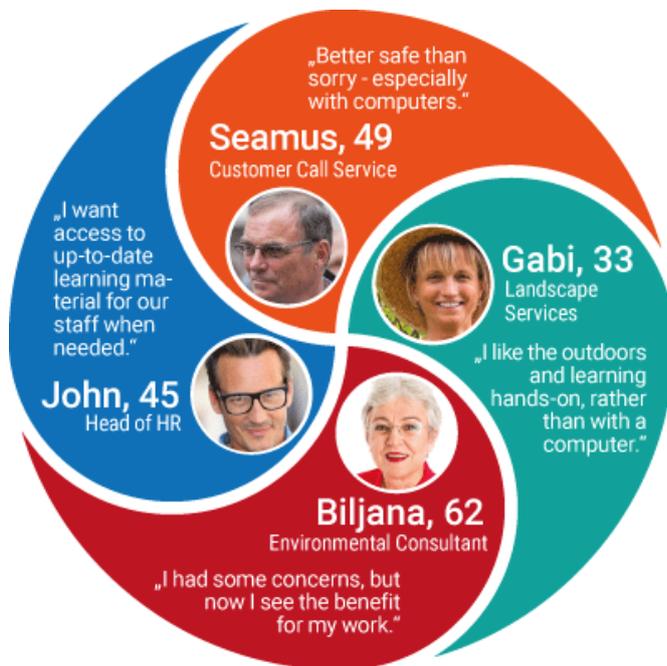
FIGURE 3: EAGLE PERSONAS

2.9 Perspective-based Inspections

Perspective-based inspections are used by experts who go through the prototype taking on the perspective of one or more of the personas. The experts are provided with a set of tasks corresponding to that persona. This can be combined with the heuristics evaluation, selecting those heuristics corresponding closely to the particular persona.

Example from EAGLE validation: This method was used for prototype pre-tests. Internal experts from the project consortium, provided with a set of tasks, went through the prototype. Some of the results:

Functionality tested	Results & recommendations
User registration and login **User profile**	Make user registration more user friendly. Simplify profile picture upload.
Forum	Change colour / contrast for reply button
Wiki	Change Wiki Front Page into an overview page
Authoring tool	Make the access to the authoring tool easier to find
Networking	Send message after "friends" have accepted the invitation. Change "friends" into "contacts"

TABLE 3: PERSPECTIVE-BASED INSPECTIONS AS USED IN EAGLE

2.10 Wireframes, Mock-ups and Prototyping

Wireframes and mock-ups are best presented to focus groups or individual test users. Prototyping is the bridge between wireframes, storyboard and clickable prototypes. The clickable prototype can be provided as an online version to reach a larger audience, without the restrictions of arranged meetings in a certain location.

FIGURE 4: EAGLE FLYER TO INFORM INTERESTED USERS HOW TO GET INVOLVED

Example from EAGLE validation: Wireframes & mock-ups (using paper-based mock-ups and flyers) were tested in DE and LU. Employees and stakeholders from rural communities were made familiar with the EAGLE persona concept and the requirements of different personas. Additionally, paper mock-ups were shown to them aiming to find out whether these requirements were addressed by the planned system. Portal mock-ups and persona flyers were also presented to visitors at EAGLE booths at specific conferences for PA. Passers-by were asked to provide feedback on mock-ups and personas, which was collected through short questionnaires. Results of mock-up and personas validation were integrated into the development of the first prototype.
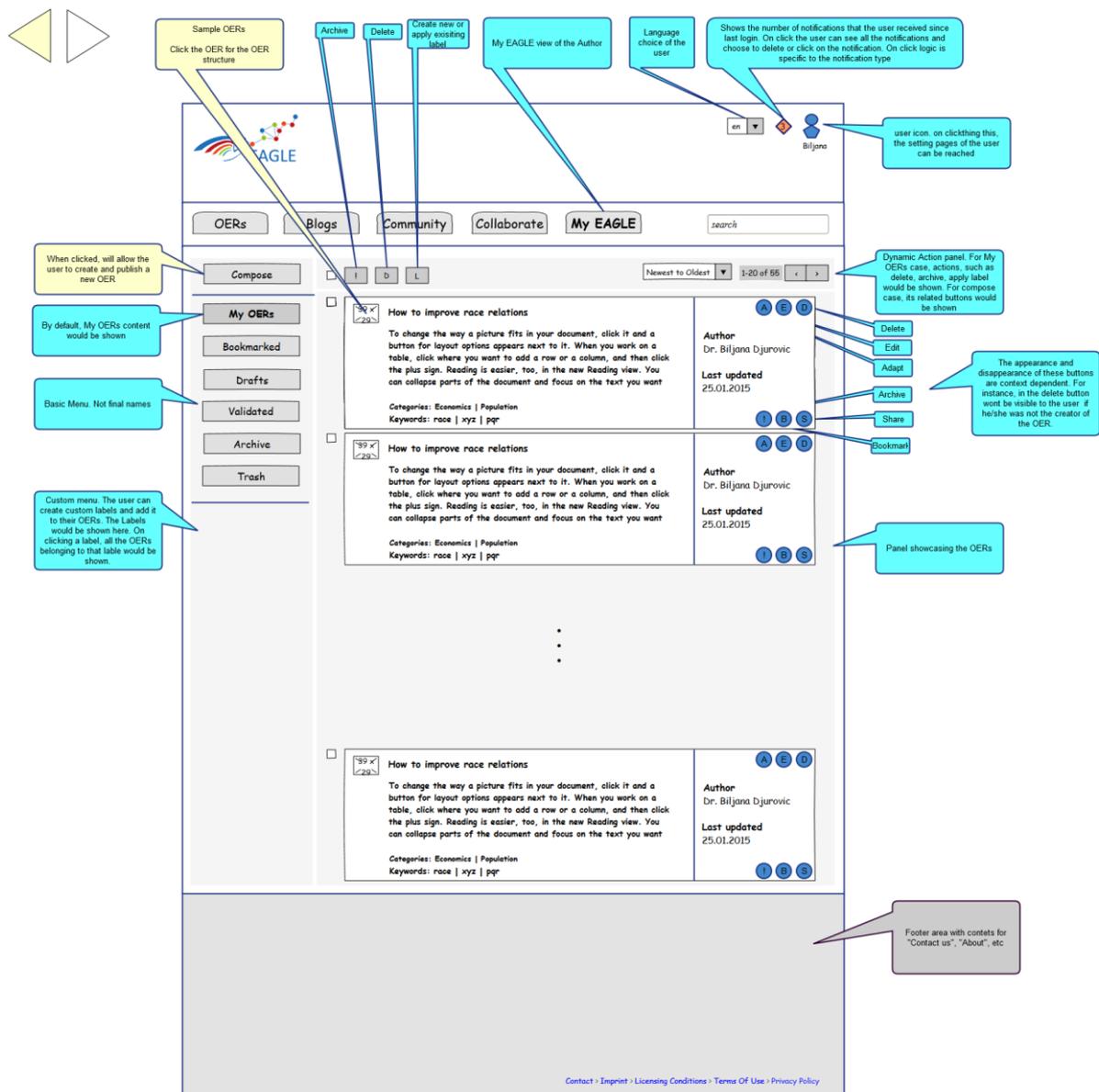

FIGURE 5: EAGLE WIREFRAME

3 Results of UX Validation Campaigns

In the results section, we present a selection of the data collected during our validation campaigns. For more data and details, please see D8.2.

3.1 Biographical & Statistical Data of Users involved in EAGLE Validation

A total number of **220 employees from 50 communities** or county councils in **four countries** (DE, LU, IE, ME) took part in EAGLE platform validation activities from **October 2015 to January 2017**.

	Validation on site 1	Work-shops	Online survey	Validation on site 2		
Communities involved						
DE	9	4	--	3		
LU	3	0	--	5		
IE	1	0	--	1		
ME	10	3	--	11		
	23	**7**		**20**	**50**	
DE	18	5	17	18	59	26,8
LU	5	0	9	7	21	10,0
IE	11	0	12	8	31	14,1
ME	63	11	7	26	107	**49,1**
	97	**16**	**48**	**59**	**220**	100,0
Gender						
Male	51	8	25	26	113	51,4
Female	46	8	20	33	107	48,6
Age Groups						
20-29	19	7	9	10	45	20,5
30-39	36	4	16	26	83	**37,7**
40-49	22	4	11	16	54	24,5
50-59	19	1	9	5	35	15,9
>60	1	0	0	2	3	1,4
Managerial responsibility						
Employee	66	2	22	30	120	**54,5**
1-5 people	12	4	7	10	33	15,0
6-10 people	12	6	6	13	40	18,2
DH	3	2	6	6	17	7,7
Other	4	2	4		10	4,5
Years of service						
0-3	6	2	9	6	23	10,5
4 to 7	20	2	10	18	50	22,7
8 to 15	30	4	11	17	62	28,2
16+	41	8	15	18	85	38,6

TABLE 4: OVERALL SUMMARY OF VALIDATION ACTIVITIES

The largest number of participants came from Montenegro, followed by Germany, Ireland and Luxembourg. Men and women were equally represented, and the strongest age group was 30 to 39 years old (58,2% were under 40; 41,8% over 40). More people with longer job experience took part in the validation activities: 66,8% had more than 8 years of service. Stakeholders and people with managerial responsibility were represented by 41% of the participants.

3.2 Qualification level

The participants in the Online survey had high qualification levels: 54.5% had a post-graduate or a master's degree.
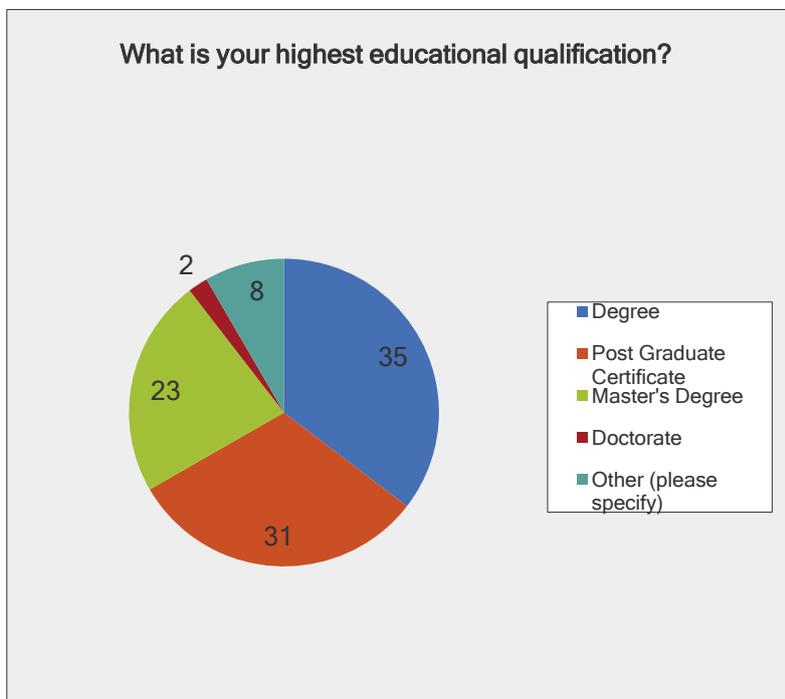

FIGURE 6: QUALIFICATION LEVEL

3.3 ICT skills

Mostly people considering themselves as confident in using ICT took part in our validation activities. The graphic shows the results of the online survey:

Which of the following descriptions describes your attitude towards using ICT at work?
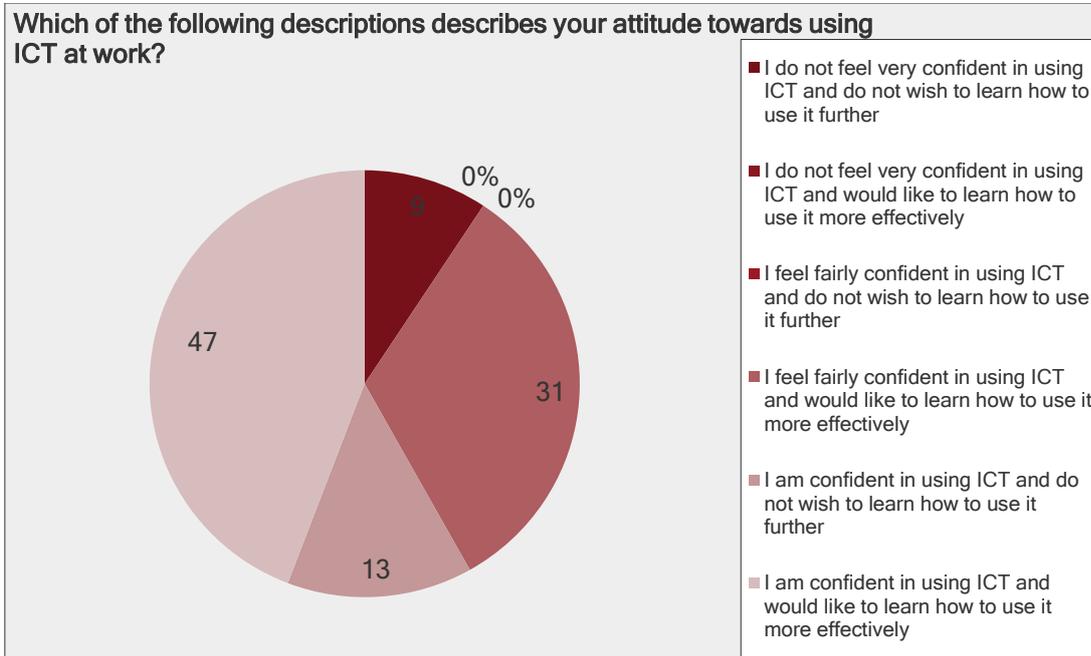

FIGURE 7: ICT COMPETENCY SELF-ASSESSMENT
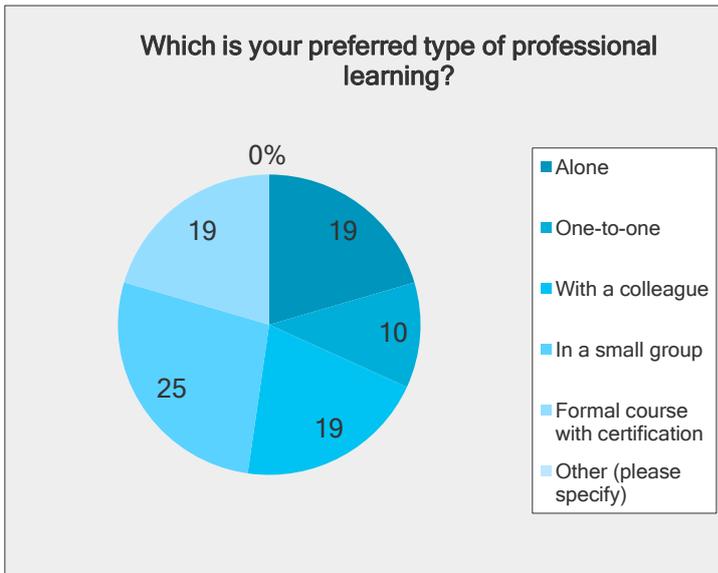
3.4 Learning habits & preferences

FIGURE 8: LEARNING TYPE

No clear tendency for any type of professional learning can be derived. Nevertheless, the largest group of respondents (25%) were inclined to learning in small groups.

Which of the following describes how you prefer to learn most of the time?

20

42

38

- I like to have clear goals and targets set for me to achieve. These are monitored and I get frequent feedback about performance in relation to my goals and targets. I like to develop skills and competence by working towards my goals in a highly structured

- I like to develop my own ideas and set my own targets. I like to collaborate on tasks with other people. I reflect on my own performance and feedback on others work too.

- I like to take part in activities by interacting with peers and experts through dialogues and discussion. I like to work in a community in collaboration with experts/managers and other colleagues. I like to work in a community that is wider than my immedi
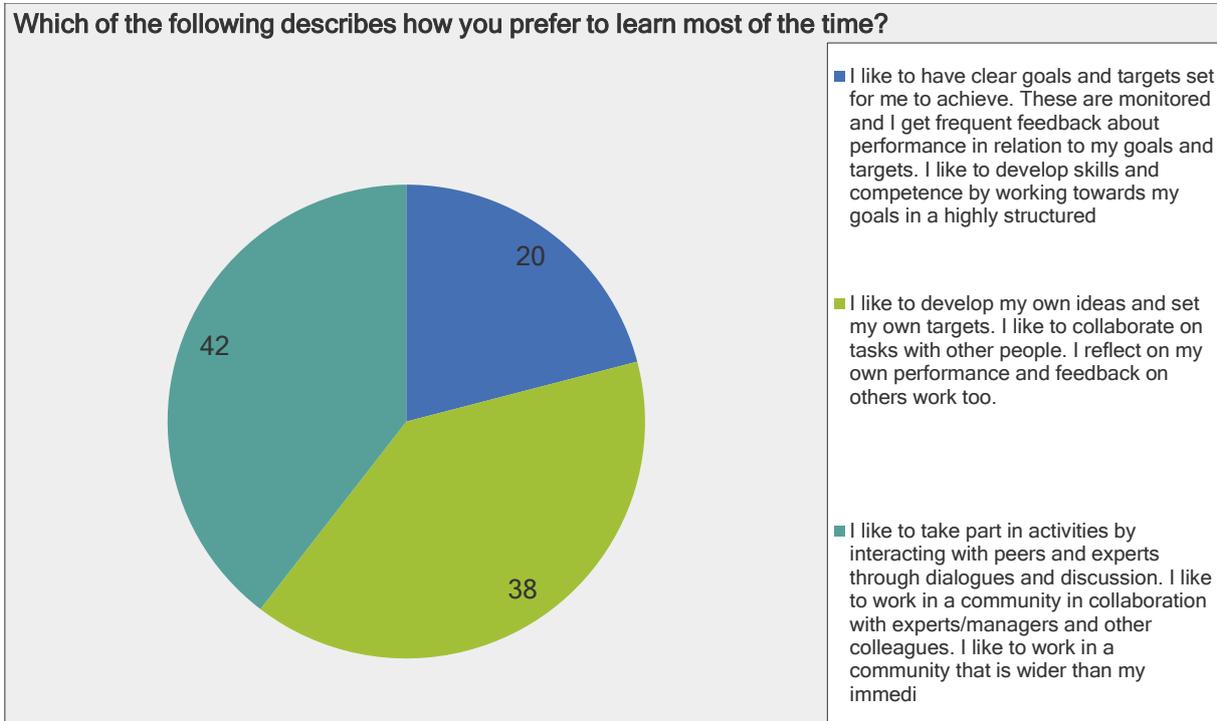
FIGURE 9: LEARNING PREFERENCE

There were three options to choose among in this question and only 20% opted for formal learning with clear goals and the monitoring of these in a structured way. Option 3 (community learning) was the most frequently chosen option by all respondents (42%).

3.5   Experiences with online engagement

Results from the EAGLE Online Survey show that PA employees are quite familiar with engaging in online communities, but most of them are not directly involved in social media or online engagement during work. Even the **online forum** which is rated as being the easiest to use community feature is not frequented by many PA employees: 65% never use a work-related forum. Using wikis (85%) or blogs (95%) is even more unpopular: in our online survey, only two people indicated that they write **blogs** with relation to their work, and only three maintain a **wiki** about work-related topics. Most employees are quite familiar with the use of blogs for discussing job-related topics. But there seems to be no need to use blogs or wikis for the purpose of publishing a piece of content in public service. **Uploading** or **downloading** of resources is done by some employees sometimes or rarely, but almost half of our respondents never do this in the framework of online communities. It is interesting to note that after all 50% **endorse** their connections' profile, while the other half never does it or even does not know what this is all about. The same applies to giving **feedback** or **rating** of resources: 58% are fairly familiar with rating other people's resources, or with giving feedback or sharing expertise on work-related topics, but 42% never engage in this kind of online activities.

3.6 Suggestions & recommendations for enhancement of EAGLE

In face-to-face validation, we collected valuable feedback from the users, mostly with respect to enhancement of UX of the EAGLE platform. Here are some of the suggestions & recommendations:

Start Page	"There is not too much information, and you can easily navigate to the main areas of importance". "The look & feel is professional, but not too administrative", "it looks modern and everything is clearly represented"
Start Page	Background image: Why only women? Does not really represent the typical EAGLE target groups and the project goals
News & Updates	Very useful, because you can directly access any newly created or uploaded resource and you also get the author's name at this place.
News & Updates	Risk to have too many news items here that do not concern you personally, making you feel getting spammed. Filtered/personalized news here would be better.
Blog	Some of the translations need to be reworked to make the meaning fully understandable
Blog & forum	What is the difference? Blog entries can be commented and entail discussions just as in a forum
Resources	Access to resources is not intuitive. The (preview of the) resource should open right on clicking on the resource title
Resources	Editorial or expert revision of resources is needed to make sure that the content is reliable and of high quality

TABLE 5: RECOMMENDATIONS FOR THE ENHANCEMENT OF EAGLE