



The IMPACT Validation Environment

How to apply the IMPACT online self-assessment procedure in the IMPACT Open Learning Space?

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Preliminary remark

The paper on hand is a manual that explains the pathway through the IMPACT “open learning system” which combines learning technologies with validation. It shall be a rather seamless journey starting at the e-Portfolio (my-VITA) with its IMPACT learning space (portfolio/course/repository / competence framework) via the moodle as container for the two stage assessment procedure up to the LEVEL5 validation system as provider for the self-assessment ratings and reasonings.

It is as such a manual for the IMPACT partners which is an example for a specific learning situation – here the learning in IMPACT related to validation, COL and LEVEL5.

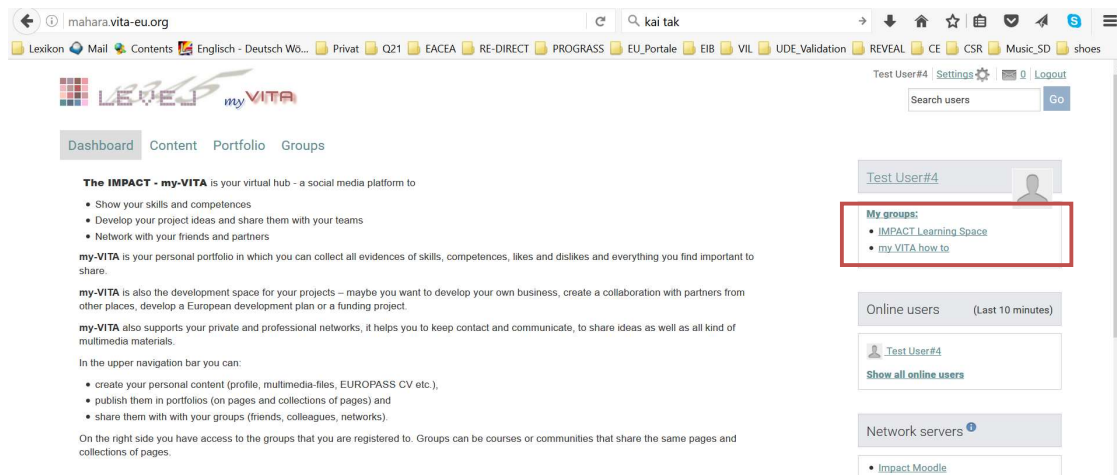
Please imagine that a similar kinds of settings can be established also for completely different learning situations.

This self assessment comes together with an accompanying questionnaire.

1. Starting on my-VITA- The IMPACT group

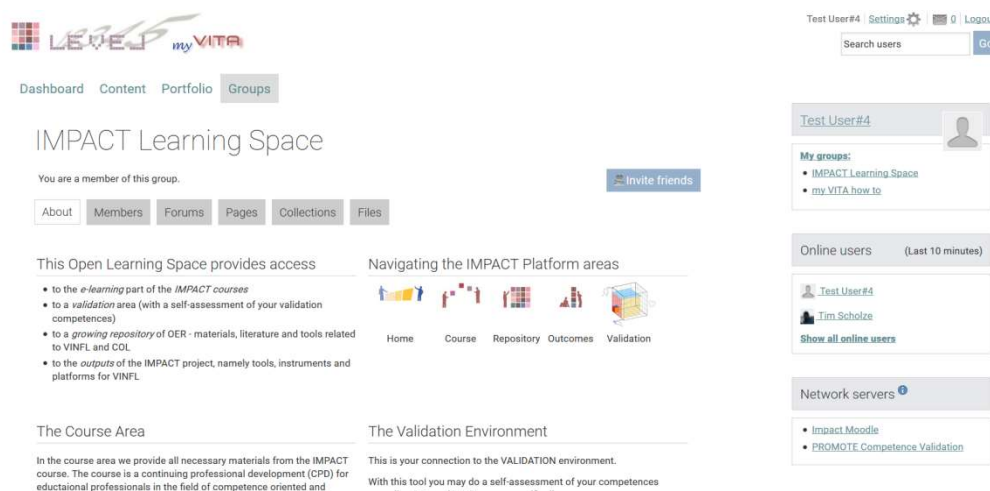
1.1 Login to the my-vita.eu

You will land on your dashboard page:



On the left upper corner you have access to your courses.

Click on “Impact learning space” and you land on the following page:



This is the start page of the learning space in which you get access to:

- to the *e-learning* part of the *IMPACT courses*
- to a *validation* area (with a self-assessment of your validation competences)
- to a *growing repository* of OER - materials, literature and tools related to VINFL and COL
- to the *outputs* of the IMPACT project, namely tools, instruments and platforms for VINFL



The learning space consists of the **course** and **validation** area:

1.2 The course area

In the **course area** we provide all necessary materials from the IMPACT course. The course is a continuing professional development (CPD) for educational professionals in the field of competence oriented and situative learning and validation.

The course covers competence areas:

1. Planning
2. Delivery
3. Validation
4. Evaluation



of competence oriented and situated learning. Via the course icon you get access to this area.

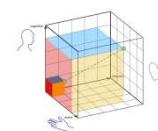
Repository and IMPACT output section are also contained here but not subject of this manual and rather self explaining.

1.3 The IMPACT-validation tool

With this tool you may do a self-assessment of your competences regarding COL and VINFL, more specifically to your competence to:

- *Assess and document learning outcomes with LEVEL5*

Your self-assessment is going to be checked by your tutor who will also issue the LEVEL5 documentations ("certificates") on this competence. You can save your LEVEL5 certificates in your individual portfolio section.



Click on the cube icon to access the validation pathway.

You will be automatically connected to the IMPACT Moodle, where no enrolment password required for IMPACT course members.

2. The Moodle Bridge

LEVEL5 LMS

HOME DASHBOARD CALENDAR COURSES

Julia Busche
Home - VITA-ePortfolio

NAVIGATION

- Home
 - Dashboard
 - Site pages
 - My courses

LEVEL5 Courses on Validation

Welcome in the LMS area.

Please note that you have access to those courses and projects that you have been registered in my-VITA.

Available courses

THREE C: Validate your competence development

This course introduces to the concept of learning projects as approach to competence oriented informal learning. It shows how a conscious consideration of the learning potentials of tasks at work, in volunteering, mobility or internships substantiated with active self-reflection, can boost competence developments. Finally this can be documented in a meaningful way with the LEVEL5 methodology. Finally this can be documented in a meaningful way in personal e-portfolios.

IMPACT competence validation procedure

This course is the self-validation unit which belongs to the open learning platform provided on the

Go to this course

CALENDAR

October 2016

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

This is the landing view in the moodle where you find different courses on validation.

Click on the title of the “IMPACT competence validation procedure” to access this course. You will be informed that no password is required.

You will get the following view. Please read the texts and simply follow the assignments.

NAVIGATION

Home

Dashboard

Site pages

Current course

IMPACT Validation

Participants

Badges

Validate your competence development

Assessment of competence developments

Your learning projects

Second competence assessment

My courses

ADMINISTRATION

Course administration

Unenrol me from IMPACT

Validation

Competencies

Validate your competence development

Your progress

DEVELOP YOUR POTENTIALS



The validation is part of the IMPACT CPD for professionals, e.g.

- Trainers, assessors, educational professionals, HR-managers

who work in rather

- informal/non-formal learning situations (extracurricular school and practical VET learning projects, but also volunteering, mentoring, apprenticeships...)

who are expected to:

- Assess and document the competences of the learners in not formal learning situations
- Measure the development of competences that have no curricular backing

In order to deal with these challenges you need to be able to:

- Validate competence developments and for that you need knowledge and skills related to competence theory, assessment, validation theory) and in, if you are really competent also on "planning" and "delivery" of learning.

Themes and contents that you need to have tackled and that are preconditions for the following self-assessments are:

- The LEVEL5 approach
- Competence theory according to LEVEL5
- LEVEL5 instruments (Reference Systems)
- Assessment settings and methods
- Indicators
- Integrating LEVEL5 in a holistic learning approach
- all relevant learning contents can be found in the respective *impact.my-vita.eu* sections.

Assessment of competence developments



The LEVEL5 procedure aims to assess and evidence competence developments and therefore requires a starting and an end point. In your case, as members of the IMPACT pilot course we could not carry out an initial assessment since some of the main parameters were not even existing when you started your pilot projects.

Hence in the first step we ask you to make an ex-post assessment - or, in other words, you have to make a look back first.

 By clicking on the link below you get access to the LEVEL5 self-assessment space for the competence: **"Assessing and documenting learning outcomes with LEVEL5"**.

You will receive a grid in which you can rate your knowledge, skills and attitudes related to this competence. You will be asked to reason and illustrate this with a fitting example.

IMPORTANT: Please fill this first assessment by recalling your competence levels at the start of the project - at the beginning of the course in Mechelen/Alden Biesen in 2015.

 First competence assessment

Click here for the first assessment to get to the LEVEL5 interface.

Your learning projects



As integral part of your CPD you had to carry out a practical learning project. In this project you were supposed to invent an aspect related to competence oriented learning and validation in your professional domain, for instance in a learning activity, a course or in a learning project.



After planning, delivery and validation within your learning project please upload the filled project pattern in the course section of the IMPACT course. Please note that the external assessors have access to your project descriptions and use the quality of your project as indicator for their assessment. Hence it would be great if you set up a nice project page about your individual learning project. You may do that in your personal section in the my-VITA area and include it in your portfolio.

If you just want to report on your project we have again attached the report form below.

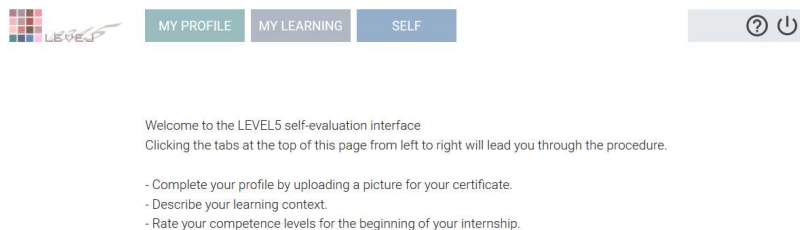
 Plan your IMPACT learning project

By clicking on the first competence assessment you will be forwarded to the LEVEL5¹ validation service...

¹ According to your internet connection this step can take some seconds up to 1 minute. If you are not connected at all there may be some firewall problems (sometimes some ports are blocked in University networks). In this case try to use another network or use your private network at home.

3. The LEVEL5 Validation

This is the landing screen in the validation software.



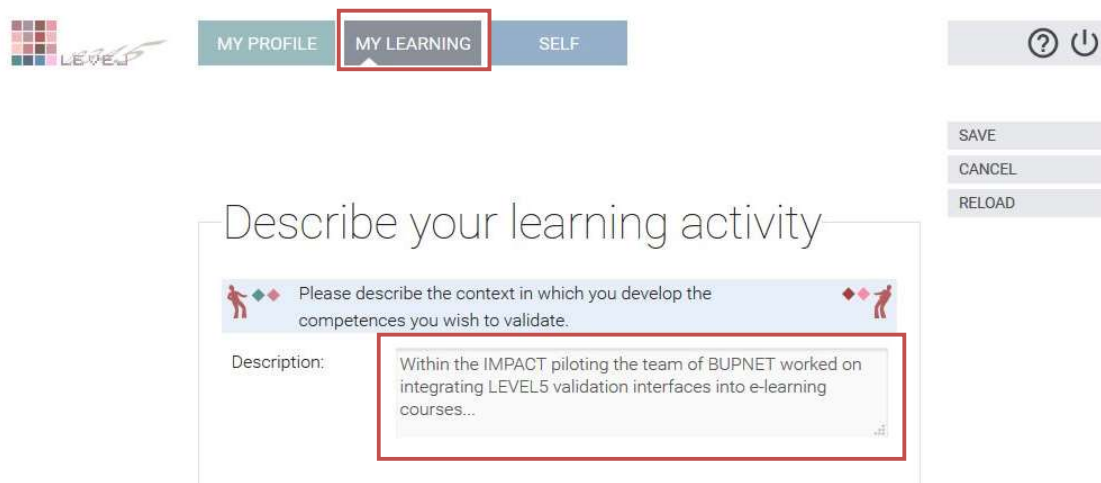
3.1 Edit your profile

The tab “MY PROFILE” leads you to an area where you can edit your profile and include your photograph.

The screenshot shows the 'Edit your data' form. At the top, the 'MY PROFILE' tab is highlighted with a red box. Below the tabs, a status bar shows 'Build: 5401' with a checkmark and a message 'Data successfully refreshed.' To the right are 'SAVE', 'CANCEL', and 'RELOAD' buttons. The form itself is titled 'Edit your data' and contains a message: 'Please edit your data. Save your changes by clicking \'save\'.' The form fields are: Nickname (juliab), First name (Julia), Last name (Busche), Email (jbusche@bupnet.de), Date of birth (empty), Place of birth (empty), Sex (weiblich), and a Photograph (a photo of a woman with curly hair).

3.2 Describe your learning project

Behind the next tab “MY LEARNING” you may describe your learning context; here the IMPACT course and your learning project (if any)

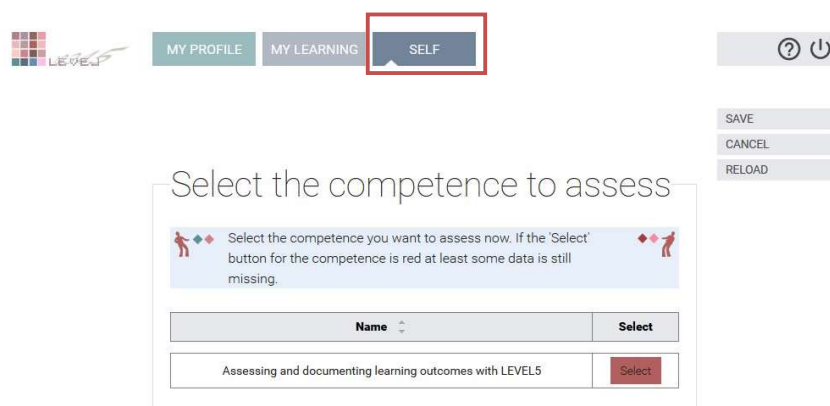


The screenshot shows the 'Describe your learning activity' form. At the top, there are three tabs: 'MY PROFILE', 'MY LEARNING' (highlighted with a red box), and 'SELF'. To the right of the tabs are buttons for '?', 'SAVE', 'CANCEL', and 'RELOAD'. The main content area has a title 'Describe your learning activity' and a instruction: 'Please describe the context in which you develop the competences you wish to validate.' Below this is a text input field labeled 'Description:' containing the text: 'Within the IMPACT piloting the team of BUPNET worked on integrating LEVEL5 validation interfaces into e-learning courses...'. The text field is also highlighted with a red box.

This text will appear in your LEVEL5 certificate. Please limit it to 500 characters and write a meaningful summary of your practical learning setting (context and activities).

3.3 Start the Self-Validation procedure

Go to the next tab and select the competence that you wish to assess (in this case only the competence “Assessing and documenting learning outcomes with LEVEL5” is offered).




The screenshot shows the 'Select the competence to assess' form. At the top, there are three tabs: 'MY PROFILE', 'MY LEARNING', and 'SELF' (highlighted with a red box). To the right of the tabs are buttons for '?', 'SAVE', 'CANCEL', and 'RELOAD'. The main content area has a title 'Select the competence to assess' and a instruction: 'Select the competence you want to assess now. If the 'Select' button for the competence is red at least some data is still missing.' Below this is a table with two columns: 'Name' and 'Select'.

Name	Select
Assessing and documenting learning outcomes with LEVEL5	Select

Rating and evidencing

After the selection you will see this interface. Follow the instructions on the page and save your results.



MY PROFILEMY LEARNINGSELF

?

⏻

SAVE

CANCEL

RELOAD

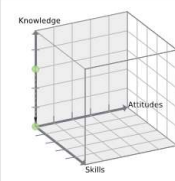
Select the competence to assess

Select the competence you want to assess now. If the 'Select' button for the competence is red at least some data is still missing.

Name	Select
Assessing and documenting learning outcomes with LEVEL5	Select

Assessing and documenting learning outcomes with LEVEL5

Learning field



Rate per dimension

To rate yourself click on one of the arrows in the 'Select' column. An input field for your reasons will be opened.

Knowledge

Skills

Attitudes

Rate your competence level for each dimension.

1. Read the level descriptions
2. Rate yourself for each dimension
3. Give reasons for your rating with concrete examples that illustrate your choice
4. Save your changes when finished

L	Level title	Level description	Select
5	Know where else... (Transfer knowledge)	Knowing how to transfer the LEVEL5 approach to an unknown situation and to connect it with an appropriate learning setting.	▶
4	Know when... (Practical knowledge)	Knowing practically how to apply the approach and its instruments in a known situation.	▶
3	Know how... (Theoretical knowledge)	Knowing theoretically how the LEVEL5 approach and its components work and how it can be embedded in a learning field.	▼
Give concrete examples of what you know (max 230 characters)			
2	Know why... (Factual knowledge)	Knowing the purpose, the functional elements and benefits of LEVEL5 in general.	▶
1	Know that... (Basic knowledge)	Basic understanding that LEVEL5 is an approach to assessing and evidencing competences and learning outcomes.	▶

Select the level you see yourself at and reason why you chose it.

Please note: The first assessment shall represent your knowledge, skills and attitudes at the beginning, in other words in 2015 at the beginning of the f2f-course in Belgium.

A filled cell for the choice level 3 for the attitude dimension could look like that:

An input field for your reasons will be opened.

Knowledge Skills Attitudes

1. Read the level descriptions
2. Rate yourself for each dimension
3. Give reasons for your rating with concrete examples that illustrate your choice
4. Save your changes when finished

L	Level title	Level description	Select
5	Incorporation (Internalising)	Having incorporated the approach in the own mindset and portfolio when planning, delivering and validating competences and learning outcomes.	▶
4	Affective self-regulation	Being determined and pro-active in applying LEVEL5 and to constantly further develop own competences to work with it.	▶
3	Appreciation	Appreciating the LEVEL5 approach and being motivated to apply it.	▼
Give examples that illustrate your attitude (max 230 characters)			
As I need a system to evidence social competences I was very positive about what I heard about LEVEL5 before the course.			
2	Perspective taking	Being interested in the concept of LEVEL5 and considering to learn how to apply it.	▶
1	Self orientation (Neutral)	Being aware of LEVEL5 without relating it to the own domain.	▶

Please select one level at the beginning for knowledge, skills and attitudes each and give a good reason (best an example) that illustrates your choice.

Don't forget to save! Once you save, the colour will change from red to green and you get a message that you successfully accomplished the self-assessment part 1.

LEVEL5

MY PROFILE MY LEARNING SELF

?

SAVE

CANCEL

RELOAD

Build: 5401 ✓

- Congratulations! You have finished your self-evaluation and successfully saved your changes. Please log out.

Select the competence to assess

Select the competence you want to assess now. If the 'Select' button for the competence is red at least some data is still missing.

Name	Select
Assessing and documenting learning outcomes with LEVEL5	Select

You have to log from LEVEL5 before being able to access the second assessment.

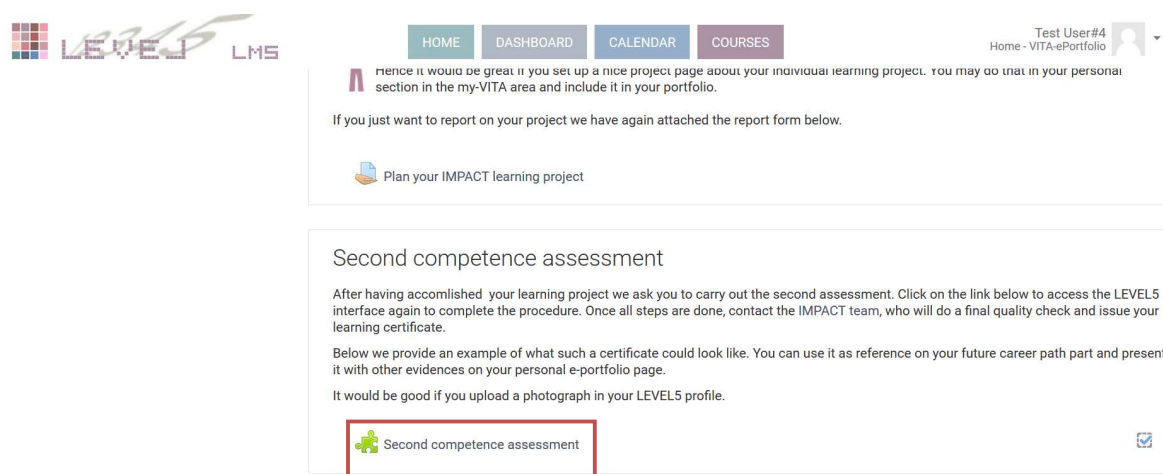
3.4 The Second Assessment

The second assessment works the same way; starting from the mahara or the moodle.

Just remember: in between you had the 5-days course, we had intensive exchanges, and, most important: you carried out your own learning project with your learners.

Hence we expect that your competence to “Assessing and documenting learning outcomes with LEVEL5” has substantially developed.

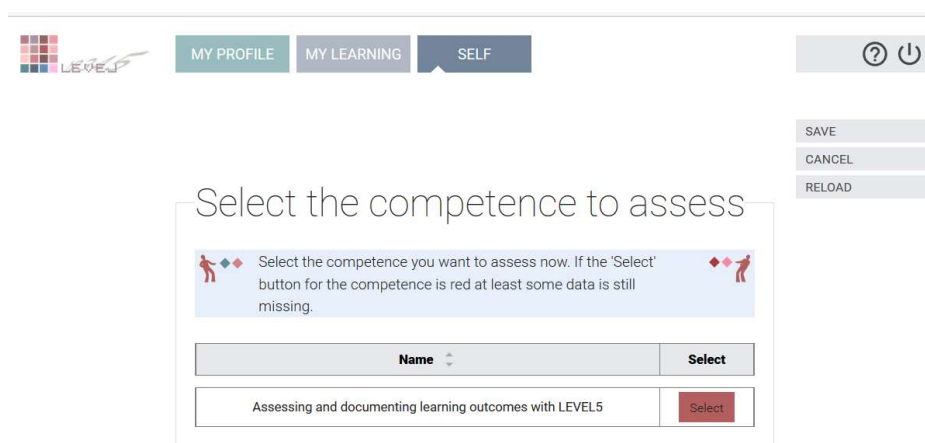
Please start from the moodle again and now select the second assessment:



The screenshot shows the LEVEL5 LMS dashboard. At the top, there are navigation tabs: HOME, DASHBOARD, CALENDAR, and COURSES. The user is logged in as 'Test User#4' with the role 'Home - VITA-ePortfolio'. The main content area has a message about setting up a project page and a link to 'Plan your IMPACT learning project'. Below this, there is a section titled 'Second competence assessment'. The text in this section explains that after completing a learning project, the user should carry out the second assessment and provides instructions on how to use the resulting certificate. A red box highlights a button labeled 'Second competence assessment' with a green puzzle piece icon.

You get the same LEVEL5 start screen and you can again select PROFILE, MY LEARNING and SELF.

If you access LEVEL5 -> “SELF” (assessment) you realise that the “select” button is again red (since the second assessment is still open).

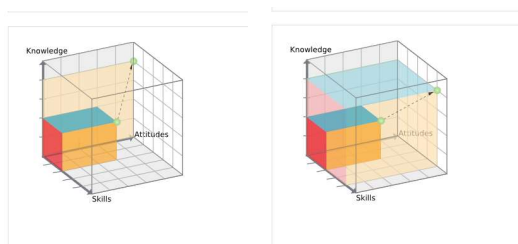


The screenshot shows the LEVEL5 'SELF' assessment screen. At the top, there are navigation tabs: MY PROFILE, MY LEARNING, and SELF. The user is logged in as 'Test User#4'. The main content area has a message about selecting a competence to assess. Below this, there is a table with two columns: 'Name' and 'Select'. The table contains one row with the text 'Assessing and documenting learning outcomes with LEVEL5'. The 'Select' button for this row is highlighted in red. To the right of the table, there are three buttons: SAVE, CANCEL, and RELOAD.

Select the competence and do the second rating.

The first thing you see on the rating screen is the competence cube filled with the ratings on your first assessment.

With the second assessment the cube will now emerge into a procedural visual representation of your “growing competence” with the “old” ratings inside and the “new” ratings in lighter colours.



2. Rate yourself for each dimension
3. Give reasons for your rating with concrete examples that illustrate your choice
4. Save your changes when finished



L	Level title	Level description	Select
5	Know where else... (Transfer knowledge)	Knowing how to transfer the LEVEL5 approach to an unknown situation and to connect it with an appropriate learning setting.	▶
4	Know when... (Practical knowledge)	Knowing practically how to apply the approach and its instruments in a known situation.	▼
Give concrete examples of what you know (max 230 characters)			
I am able to explain how to create correct descriptors and indicators in a familiar learning situation.			
3	Know how... (Theoretical knowledge)	Knowing theoretically how the LEVEL5 approach and its components work and how it can be embedded in a learning field.	▶
2	Know why... (Factual knowledge)	Knowing the purpose, the functional elements and benefits of LEVEL5 in general.	▶
1	Know that... (Basic knowledge)	Basic understanding that LEVEL5 is an approach to assessing and evidencing competences and learning outcomes.	▶
Please summarise your development for this competence dimension (max 150 characters):			
I had some faint ideas about the approach and after the learning experience I acquired substantial theoretical and also applied knowledge.			

Please illustrate your ratings with a good reasons or examples like in assessment 1. Please also summarise the development of your knowledge, skills and attitudes at the bottom of the grid.


Don't forget to save! And log-out.

As this is a semi-autonomous self-assessment the REVEAL experts will do a final check before you get your LEVEL5 certificates.

Annex 1: LEVEL5 Exemplary Certificate



Learner-Certificate
Impact



Participant
Test User#4


Informal learning project
Impact

Project start	15/02/16
Project end	31/08/16
Institution	
Location	

Learning activities
IMPACT is an initiative to foster the validation of informal and non-formal learning in classical and IT based learning situations. Each partner institution carried out projects at the workplace to explore and develop competences related to VINFL.

Evaluated competences
Assessing and documenting learning outcomes with LEVEL5

Assessment methods
Self-assessment : Self-rating based on reflection about own learning against the reference system.



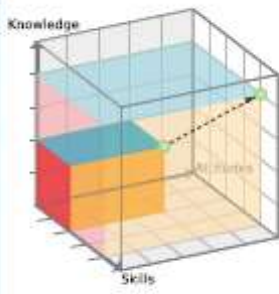
The validation was carried out in the framework of the IMPACT project funded with support of the European Commission.



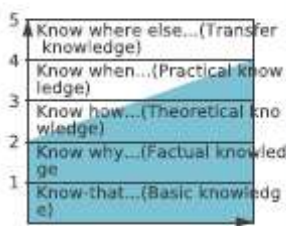


The LEVEL5® validation system is courtesy of the
REVEAL Network for Learning, Validation and Capacity Building



Learning outcomes – Assessing and documenting learning outcomes with LEVEL5

Competence profile at the beginning	Competence profile at the end	
Knowledge: 2: I was Being able to explain the benefits of LEVEL5 approach to other stakeholders	Knowledge: 4: I am able to explain how to create correct descriptors and indicators in a familiar learning situation.	
Skills: 2: I was able able to assign given level descriptors correctly into a given LEVEL5 reference system.	Skills: 4: I designed a sound assessment setting with suitable methods that are fit for purpose, rated learners appropriately and described learning outcomes appropriately.	
Attitudes: 3: As I need a system to evidence social competences I was very positive about what I heard about LEVEL5 before the course.	Attitudes: 5: I am completely convinced about the approach! I'm motivating and teaching others to apply the concept as a tool for professional development.	

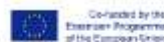
Competence development on each dimension

Knowledge	Skills	Attitudes
		
At the start I had some faint ideas about the approach; at the end I acquired substantial theoretical and also applied knowledge.	At the beginning I followed the instructions of the trainer, at the end I applied the whole procedure with my group of learners.	I liked the concept already at the beginning and at the end I'm totally convinced and will implement it wherever I can.

The validation was carried out in the framework of the IMPACT project funded with support of the European Commission.



The LEVEL5® validation system is courtesy of the REVEAL Network for Learning, Validation and Capacity Building



Co-funded by the Erasmus+ Programme of the European Union

Note for internal use: this is not the ultimate certificate. We will include mainstreamed learning outcome descriptors instead of the example descriptors (next to the cube).

Competence : Assessing and documenting learning outcomes with LEVEL5

Learning field

Reference system : Knowledge

- 5 : Know where else...(Transfer knowledge)
 - Individual description : Knowing how to transfer the LEVEL5 approach to an unknown situation and to connect it with an appropriate learning setting.
 - Indicators : Knowing how to set up learning and validation environments based on ref. sys. for new learning fields. Profound theoretical (+metacognitive) and practical knowledge how to derive descriptors, fitting assessments, assignments and didactic concept.
- 4 : Know when...(Practical knowledge)
 - Individual description : Knowing practically how to apply the approach and its instruments in a known situation.
 - Indicators : Practical knowledge on contextualising descriptors to validation context. Knowing how to create correct descriptors and indicators for familiar learning situations. Knowing how and when to use suitable assessment instruments in known learning fields.
- 3 : Know how...(Theoretical knowledge)
 - Individual description : Knowing theoretically how the LEVEL5 approach and its components work and how it can be embedded in a learning field.
 - Indicators : Knowing related quality criteria. Knowing how purpose of the validation affects results. Knowing learning theories it relates to, knowing how to describe learning outcomes correctly, knowing which assessment methods fit to purpose and competence.
- 2 : Know why...(Factual knowledge)
 - Individual description : Knowing the purpose, the functional elements and benefits of LEVEL5 in general.
 - Indicators : Being able to explain the benefits of LEVEL5 approach to other stakeholders.
- 1 : Know that...(Basic knowledge)
 - Individual description : Basic understanding that LEVEL5 is an approach to assessing and evidencing competences and learning outcomes.

Reference system : Skills

- 5 : Developing / Constructing Transferring
 - Individual description : Being able to transfer the LEVEL5 approach and methodology to unknown learning contexts.
 - Indicators : Developing new approaches to evidence competences in terms of learning outcomes and to create new assessment settings and reference systems for new and various purposes and in new learning contexts.
- 4 : Discovering / Acting independently
 - Individual description : Being able to assess and document competence developments with LEVEL5 in known learning contexts in the own environment.
 - Indicators : Being able to set up an appropriate competence catalogue, select suitable reference systems, contextualise reference systems, design a sound assessment setting, rate learners and describe learning outcomes appropriately in known learning settings.
- 3 : Deciding / Selecting
 - Individual description : Being able to rate learners' knowledge, skills and attitudes in a given reference system and to assign suitable indicators and assessment methods to it.
 - Indicators : In given cases: being able to describe learning outcomes in the reference systems in a contextualised way, to find suitable indicators (examples) in a correct way with known reference systems. Assigning given assessment methods in these case studies.

The validation was carried out in the framework of the IMPACT project funded with support of the European Commission.



The LEVEL5® validation system is courtesy of the REVEAL Network for Learning, Validation and Capacity Building



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Pages 3 and 4: Descriptors in the reference systems

Annex 2: Validation Procedure Prototype

Technical description of the prototype that serves to create a seamless validation procedure and connects mahara, moodle and LEVEL5.

1. Prototypical Architecture and Standards

Previous sections highlighted that, over the years, several technical standards have been developed with the aim of representing learners' profiles, competences and e-portfolio information. However, only a restrict number of them have been fully implemented in online e-learning systems.

The IMS consortium has published a table available at the following address (<https://www.imsglobal.org/conformance-list>) collecting the status of the Interoperability Conformance Certification of the standards published by the consortium.

A quick analysis of this table reveals that the standard that has implemented the most is the LTI (Learning Tools Interoperability), with particular respect to the version 1.0. The most part of both commercial and open source products adopts this standard to support interoperability functionalities with other tools.

Even though the current version of the standard (v2.0) supports communication in both ways between learning provider and learning consumer, as stated before, the most implemented version of the LTI standard is the v1.0. This version of the standard presents a limitation in the sharing of data between learning consumer and provider, as a result of the elaboration carried out on the learning provider system.

1.1. The Prototypical Architecture in Practice

The reference architecture of our e-learning eco-system is composed by three environments:

- e-learning provider: this is a platform that deliver the e-learning course. In this platform students access to the learning materials and participate to assessment sessions.
- validation system: this platform is used by teachers to store data related to the validation of qualifications.
- e-portfolio: this platform collects all the information related to the students curricula.

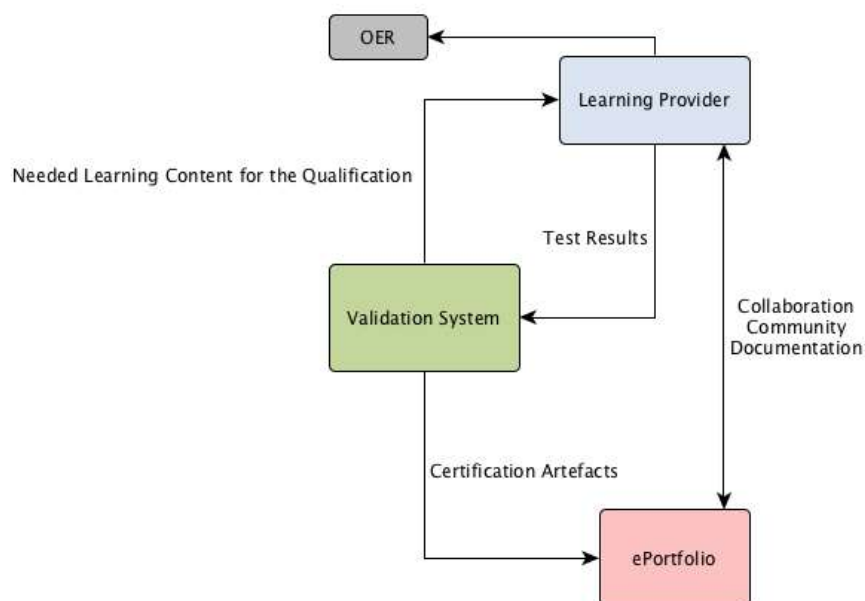


Fig 1: Key elements of the prototypical architecture

As an example, the reference architecture could be implemented by using the LMS Moodle, the LEVEL5 software as a validation system and Mahara as the e-portfolio platform.

The development of an holistic learning ecosystem, in which different platforms have to communicate and share their data, has to take into consideration this relevant information.

In fact, the architecture that is at the basis of this technical specification has the aim to propose a general approach, in which a system is identified by its role, avoiding bindings to specific platforms. In this sense, when we talk about learning provider, we refer to a general Learning Management System.

Figure 7 shows a general overview of systems and communications provided by the standard.

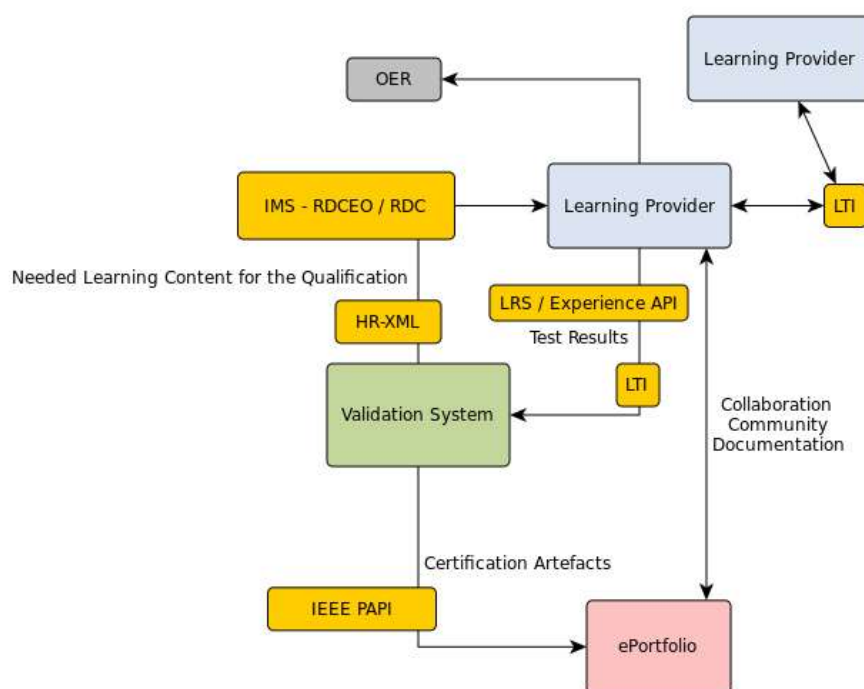


Fig. 7: Relationships between standards

1.2. Implementation of the Prototypical Architecture and Use Cases

The prototypical architecture implemented in the IMPACT project is composed by: Mahara (the my-VITA platform) to manage e-portfolio, Moodle (as a LMS) and the LEVEL5 software as a validation system.

The integration between Mahara and Moodle platforms has been developed by using the existing 'Mahoodle' – plugin to support a single sign-on solution.

The integration between Moodle and LEVEL5 platforms has been tested in two different scenarios:

- In the first scenario students of a course on the Moodle platform need to do a self-assessment on a competence described on the LEVEL5 platform. For this scenario an implementation using the Learning Tools Interoperability (LTI) specification developed by the IMS Global Learning Consortium has been created. On the Moodle side the existing LTI tool consumer implementation (in compliance with version 1.1 of LTI) is used, on the LEVEL5 side a LTI tool provider implementation has been created (including necessary changes in the graphical user interface of the LEVEL5 software. This solution might also be used for the integration of Mahara and LEVEL5. The LTI specification has been selected for this scenario since, amongst the huge number of available specifications designed to describe competences, students' profile and learning paths, the LTI specification has the peculiarity of being specifically designed to support interoperability and, as declared in the IMS Interoperability Conformance

Certification (<https://www.imsglobal.org/conformance-list>), LTI is the most implemented standards by the most part of e-learning platforms.

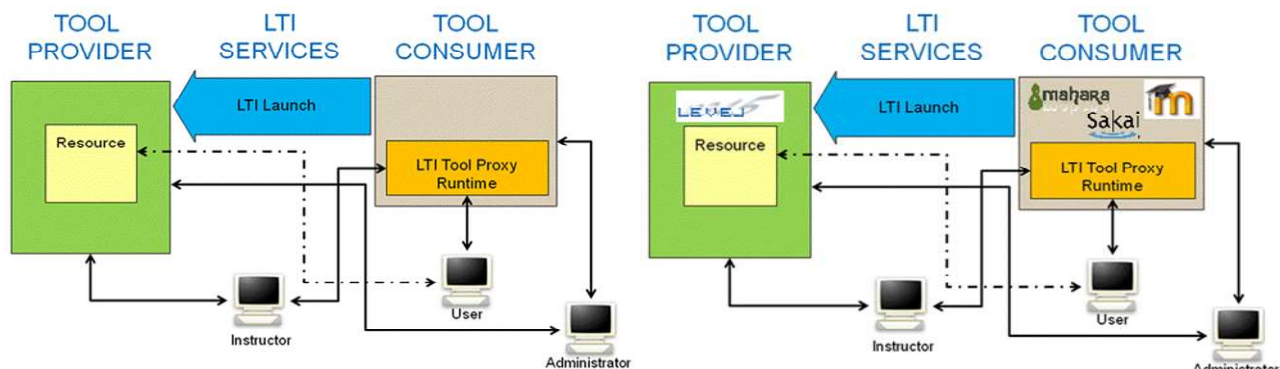


Fig. 2: Use case with LTI implementation

- In the second scenario the students of a course on the Moodle platform need to be assessed by a 'teacher' in a competence described on the LEVEL5 platform. For this scenario an implementation using the web service API of Moodle was chosen as no 'general' specification could be found which would have served the needs and is commonly used. For moodle a local plug-in has been created which extends the web service API with additional functionality. For the LEVEL5 software a client for the extended Moodle web service API has been created and necessary changes in the graphical user interface have been integrated. This solution is so far Moodle specific, but a Mahara plug-in exists which implements a web service API quite similar to the Moodle web service API so that a similar solution for the integration of Mahara and LEVEL5 might be implemented.

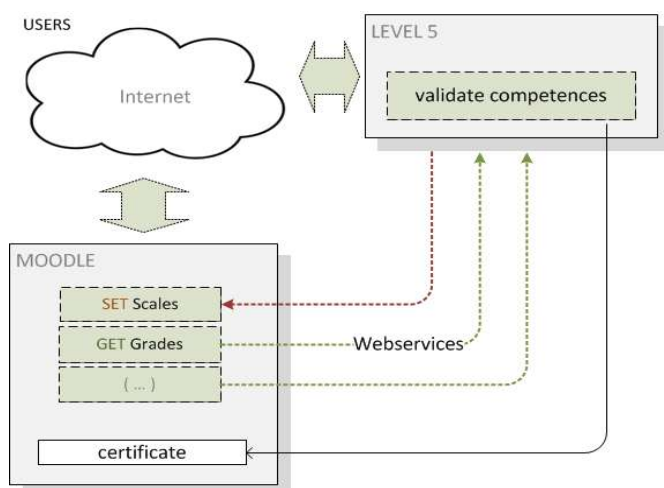


Fig. 3: use case with Moodle web services

Even though both scenarios support the exchange of information between the elements of the prototypical architecture proposed in Figure 3, in the IMPACT project the first scenario based on the use of LTI standard has been preferred. The main motivation is the wide numbers of e-learning platforms that declare to be compliant with the LTI standard. While the second use-case presented is bounded to the Moodle learning management system, the use of the LTI solution is not connected to the use of a specific platform, but all the systems compliant with LTI standard can be integrate. A testing phase conducted within the IMPACT project has the use of LEVEL 5