Final report project edubadges Information Literacy

Cross-institutional Information Literacy badges

Source: https://www.surf.nl/edubadges-digitale-certificaten-uitreiken-aan-studenten?dst=n5048

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Introduction - Project background

Reason

What & why

Digital badges are certificates that show that a person has certain knowledge or skills.

In the field of Information Literacy, badges can be awarded.

For students, badges can be motivating and make them aware of their development, which enhances the learning effect.

In addition, students can use badges to demonstrate their skills to potential employers or educational institutions. Cross-institutional badges further facilitate transfer to other courses or institutions, making education more flexible.

It is efficient for institutions to participate in these types of badges, as they can join an existing system. In higher education, badges can be used alongside or instead of the formal system of study load in credits (such as ECTS). The project chose to use badges extracurricularly, specified with learning outcomes.

Previous history

In order to arrive at exchangeable badges for Information Literacy, VU and WUR, and to a lesser extent Uva/HvA and HR, have previously explored substantive cooperation. The subject was also taken up by the national SHB/UKB Working Group Information Literacy; members of the working group participated in SURF's pilot for the edubadges platform[1].

In addition, the Information Literacy Working Group has produced an Information Literacy Taxonomy, which provides a structured description of the subject area. This common language helps to arrive at common learning outcomes with multiple institutions as a basis for cross-institutional badges.

Status of the case

September 2022 the project was launched, and September 2023 completed, with participants from:

- Breda University of Applied Sciences (BUas)
- Amsterdam University of Applied Sciences /University of Amsterdam (AUAS/UvA)
- Rotterdam University of Applied Sciences (Rotterdam UAS)
- Maastricht University (UM)
- Utrecht University (UU)
- Vrije Universiteit Amsterdam (VU)
- Wageningen University & Research (WUR)
- InHolland University of Applied Sciences

[1] A badge is an edubadge if it comes from SURF's edubadges platform.

Chapter 1 Project results

Summary

In preparation for the elaboration of the project, literature research was carried out on the most commonly used, related terms and concepts of badges in general, of the context and (foreign) relevant examples of badges in general + Information Literacy badges.

Furthermore, the criteria for enabling international exchange between badges were examined and there was a brief exploration of the practice of awarding edubadges across institutions via the SURF platform.

Main conclusion: consensus is needed around learning outcomes before institution-wide badges can be developed.

A number of working sessions were held, starting with an overview of the learning objectives per participating institution in relation to the Taxonomy. Then, based on the corresponding learning objectives, an overview was made with must haves and nice to haves for each part of the Information Literacy Taxonomy.

This resulted in a framework of learning outcomes (learning outcomes matrix), which serves as the basis for cross-institutional Information Literacy edubadges. From this framework, sample badges have been designed for levels 1, 2 and 3. Institutions can use these for inspiration for their own badges, but not on behalf of Information Literacy. More info, see appendix 5.

This is because good, cross-instititutional aligned assessment is needed for a badge to be of good value. A follow-up project is needed to achieve good and feasible assessment together.

Preconditions

Theme	Content	Explanation
Level classification	Dreyfus model of skill acquisition 1. Novice 2. Advanced beginner 3. Competent	See appendix 2 for a visualisation of the framework with only the must haves See appendix 3 for the learning outcomes matrix
Formeel/informeel	Formal/informal	As Information Literacy is generally not a separate part of the curriculum and no formal assessment takes place, we chose to design extracurricular badges
Way of issuing	1 "parent badge" that individual institutions can copy and issue on behalf of the Information Literacy consortium. Click here for more info	The desire was to award cross-institutional Information Literacy badges on behalf of the consortium. As there are many obstacles in this, this is not possible via the SURF platform Het advies is daarom voorbeeldbadges aan te maken die instellingen die zijn aangesloten kunnen kopiëren voor gebruik binnen de instelling.
Assessment	Level 1: optional multiple choice - educational scoring rubric Level 2: assessment - educational scoring rubric Level 3: assessment - educational scoring rubric	Additional requirements: Level 1: assessment based on a rubric to be developed Level 2: assessment based on a rubric to be developed Level 3: assessment based on a rubric to be developed

For your information: the main results of this project can be found on the working group's website, in the Project edubadges drop-down window.

Points of interest

- Recommendation following the above: follow-up project around assessment – collaborative development of rubrics to assess Information Literacy in education.
- Transfer results of the project to the Information Literacy Working Group with a proposal for management construct.
- Although information literacy specialists mostly do the teaching, the application of skills is mostly assessed by subject teachers. Thus, in order to hand out badges, it is necessary to look closely at how and by whom the learning objectives are addressed and tested. By the information skills specialist or by the subject-specific teacher. And who then hands out the badge?

Hint!

The framework of learning outcomes developed by this project can serve as a basis for a conversation between the information specialist and the subject teacher about aligning the treatment and testing of Information Literacy. A possible next step is then to issue badges. Also use the discussion board from appendix 4 for this purpose.

For assessment purposes, sample rubrics from Wageningen University & Research Library (level 1 or level 2) can be used.

Recommendation needed follow-up activities

Issuing edubadges across institutions requires follow-up activities:

1. Follow-up project around assessment - collaborative development of rubrics to assess Information Literacy in education.
2. Transfer results project to Information Literacy Working Group: include proposal for management construct in follow-up project - this can only be done once the cross-institutional badges are final, including the rubrics to assess level

Ad 1.

To ensure the value of badges, more alignment is needed in the assessment of Information Literacy education. Therefore, the recommendation is to start a follow-up project around testing and assessment of Information Literacy education.

In this follow-up project, it is important to involve the outer ring of the working group through an inventory of the points below:

- To what extent can you use the badges at your institution? (e.g. amount of learning per badge, need for partial badges?)
- To what extent is equivalent testing achievable?
- What commitment is needed - at the institution/ from the working group?
- What do institutions need in order to comply with the framework and be able to use the edu badges?

For level 1, it might be possible to use the national test questions database. If so, further development of this database is needed.

For levels 2 and 3, consensus will have to be reached on the rubrics to be used to assess the level of information literacy.

Chapter 2 Digital (open) badges generally

Maaike van Berlo & Kim Dibbets

Why badges?

Several educational institutions ran pilots with microcredentials, open badges and edubadges. This is for the purpose of Lifelong Development (LLO) and making education more flexible. Badges in general are digital certificates consisting of an icon on the 'front' and metadata on the 'back'. The metadata includes the competences/learning outcomes achieved, level, publisher, etc. Students can thus use the metadata of a badge to show that they possess a particular skill at a particular level. Students can also collect all badges in a personal digital backpack and share them on social media platforms, such as LinkedIn.

Open badges are meant to be: (1) mixable, (2) controlled by the badge-earner, (3) shareable, and (4) issuable by any party, to any party, within any learning context (Mozilla Open Badges, 2014a). Here, using badges has benefits, for example: (1) increase student motivation, (2) map learning pathways, (3) increase student mobility, (4) promote LLO, and (5) strategy to support learning agency, planning and self-reflection (Jovanović & Devedžić, 2014; O'Brien & Jacobson, 2018).

Common Terms

For more information, see Working Group website, in the edubadges information Literacy Project drop-down window

What scenarios with badges?

SURF's Whitepaper (Kerver & Riksen, 2016) talks about three scenarios: microcredentialing, informal (tutoring), and/or as an element of play. The second scenario is most applicable to Information Literacy badges.

Working with badges

This current project assumes the use of SURF's edubadges platform. This covers issues such as online proof and trust, storage, privacy and access, architecture for badges, the open badge standard and metadata:Online bewijs en vertrouwen: duurzame validatie van de badge nodig voor onderwijsinstellingen.

- Online proof and trust: sustainable validation of the badge needed for educational institutions.
- Storage: action currently lies with the student through digital backpack.
- Privacy and access: access arranged through educational institution or backpack.
- Ecosystem: SURF *edubadges*
- Open badge standard: SURF *edubadges*

Different kind of badges (Clements, West & Hunsaker, 2020)

There are different kinds of badges: skill badges, knowledge badges, social or life skills badges, participation badges, identify badges, and certification badges. For an explanation of these different types of badges, see the extensive literature research on the website, in the edubadges information Literacy Project drop-down window

Bottlenecks regarding badges

Gamrat and Bixler (2019) describe some bottlenecks in their report that can delay badge implementation:

- Variation in badge design
- Badges require excellent assessments

- Complexity in badge design
- Assessing badge requirements
- Value of a badge
- Buy-in voor badges

One recommendation for the above bottlenecks is that "[t]he collaboration and partnerships are critical to the success of many library instruction and badges" (Rimland & Raish, 2019).

Implementation of badges

Rimland and Raish (2019) indicate some options regarding implementations: (1) LMS: formal, semi-formal and informal, (2) completion rate is only one measurement point, (3) personal learning environment, (4) integration of a badge within formal education, (5) integration of a badge within semi-formal and informal education, and (6) completion models: mandatory, recommended or optional. For an explanation of previously mentioned implementations, see the extensive literature research on the website, in the edubadges information Literacy Project drop-down window

Roll-out and sustainability of badges

There are some points to consider when implementing edubadges:

- Roll-out of edubadges: (1) Pilot run, (2) collaborate, (3) free-text responses, (4) upload documents, (5) automated quiz, (6) content is offered and tested.
- Sustainability: (1) Badge programme continues to work, (2) student expectations are managed, (3) workload is in place.

Assessment

Rimland and Raish (2019) describe the increasing demand for libraries to demonstrate their value or impact. Badges have their value (=evidence of learning objectives) embedded in the metadata, as it were. Relevant ones include: (1) assessment within a badge, (2) assessment of the badge programme, (3) assessment of the ecosystem, and (4) learning analytics.

Conclusion

"*Libraries have the power to be a partner in this disruption, which we believe has the potential to not only transform education and employment, but also showcase the power of information literacy as part of lifelong learning*" (Rimland & Raish, 2019, p. 34), where disruption refers to the use of badges and microcredentials.

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Chapter 3. Information Literacy & badges

Maaike van Berlo, Kim Dibbets & Marie-Louise Goudeau

For the cross-institutional edubadges project, a literature study was carried out on experiences and literature on the use of badges in Information Literacy education and what this means for the implementation of cross-institutional edubadges for Information Literacy in the Netherlands. A total of 20 national and international cases from educational institutions were compared. This is the summary of the complete literature review incl. the cases studied. For the extensive literature research, see website edubadges information Literacy Project drop-down window

Why Information Literacy badges?

There are four reasons for using badges specifically for Information Literacy:

1. Recent graduates often have low levels of information skills (Cyphert & Lyle, 2016), while employers indicate that they do see these skills as a career competency (Raish & Rimland, 2016). Employers indicate that digital badges indicating what information skills a student possesses have added value in determining the level of potential employees (Raish & Rimland, 2016).
2. Information literacy is often insufficiently woven into the curriculum: there is a lot of time between instructions without coherence (case 10) or it involves one-shot sessions (case 14). Applying badges can make more connections between single instructions (LeMire, 2016; Moran & Mulvihill, 2017) and increase the visibility and depth of instruction (Rimland & Raish, 2017).
3. Students overestimate their information literacy skills (Jacobson & O'Brien, 2018, p. 83; Molteni & Chan, 2015) Handing out badges gives students immediate insight into their skills.
4. Motivation for learning information skills is low (Jacobson & O'Brien, 2018, p. 83). Badges can increase motivation for learning information skills (Rimland & Raish, 2017).

How to develop and implement Information Literacy badges?

To develop a badge for Information Literacy, design principles founded within "Instructional Design (ID)" apply (Rimland & Raish, 2017). ID is the design and evaluation of various learning activities in various media to achieve learning objectives. Models for ID, are often founded on one or more "learning theories". Besides components from ID theory, two other components need to be considered: time and assessment. The next step is to think about badge design::

- *Learning outcomes*: Badge value is related to clear learning outcomes that the badge(s) and badge ecosystem stand for (Gamrat & Bixler, 2019; Jacobson & O'Brien, 2018; Rimland & Raish, 2017). Within the case studies, we see that it is difficult to reach consensus on learning outcomes within a programme or institution. To provide direction with these learning outcomes, the ACRL framework was often used (case 1, 3, 9 and 10). In addition, a so-called "outcomes mapping exercise"(case study 9) offers a solution to reach consensus together on learning outcomes
- *How to deploy badges:* The time and setting when badges are deployed affect the design and badge ecosystem. Do you give the badge prior to instruction (case study 1) or can students earn various badges that reveal an information literacy learning pathway (cases 3, 11, 15 and 17)?
- *Motivation:* When designing the badge/badge ecosystem, it is also important to consider how it increases student motivation. For example, a hierarchical structure with metabadges/superbadges can increase student motivation to achieve certain badges (case 11, 15,17 and 20, Rimland & Raish, 2017), especially if the learning outcomes are valuable to employers and students (Raish & Rimland, 2016; Rimland & Raish, 2017). But more is less, not too many badges. Making badges mandatory, badges for extra-curricular work or extra credits, can also increase motivation (Case 4, Laubersheimer et al, 2016).However, mandatory badges or badges requiring only lower-order activities or participation lower intrinsic motivation for the badge (Abramovich et al, 2013; Hickey et al , 2015; Rimland & Raish, 2017; Tran et al, 2014).

- *Workflow:* When designing badges, it is also important to think about what the workflow will be. Making badges a success requires collaboration across campus: faculty, IT, communications and the library will need to work together (Rodgers & Puterbaugh, 2017) for awareness and a smooth workflow of badges. Badges may even offer an opportunity to put the library on the map as a partner and develop deep collaboration to develop a high-quality information literacy curriculum (cases 9 and 11).
- Graphic design: The attractive and well-descriptive graphic design of the badge can help increase its value and success (Rimland & Raish, 2017) . A clear title, who issued the badge and image that reflects what the badge was issued for are important for this.
- *Evaluation:* The last important step within ID models is the evaluation of the badge and the path towards it. However, only one example is known from the literature (Tunon et al., 2015), which focused mainly on the experience of teachers, library and IT rather than students' experiences with badges.

Challenges for cross-institutional badges for Information Literacy

The national and international case studies show that badge projects in higher education in relation to Information Literacy are still in their infancy. All the cases studied involve badges within an institution and often only for within a module, subject or study. There are no examples where this has happened institution-wide. Based on the literature, we arrive at the following challenges for enabling institution-wide badges:

- The literature often indicates that setting those learning outcomes is a long process to reach consensus (cases 1 and 11, Copenhaver & Pritchard, 2017; Ziegler, 2019). Based on this, we can conclude that reaching consensus at the national level will be a process where perhaps limiting it to generic lower-order activities and/or fitting it within a framework could be a solution for attaching badges to learning outcomes.
- The value of the badge is also related to assessment that matches the learning outcomes. It is a challenge to find the right kind of assessing that enables scaling up (case study 8, Rodgers & Puterbaugh, 2017).
- Within the settings, we see different amounts of badges. A hierarchical system with multiple badges can increase the value of the badge, but too many badges have the opposite effect. All institutions in the Netherlands should agree: what do you give badges for and what not? Will all badges be institution-wide?
- The value of an Information Skills Badge is not yet clear to students and employers (cases 3,8,17,18, 19 and 20, Copenhaver & Pritchard, 2017; Raish & Rimland, 2016). A cross-institutional (edu)badge can help with this, but conscious promotion will be necessary to promote the value of the badge.
- The various Dutch institutions use various Learning Management Systems (LMS) and tools for e-modules and assessments. To make institution-wide (edu)badges true on a large scale, integration with various LMSs therefore seems crucial.

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Chapter 4 Considering choice of institution-wide badges via SURF's edubadges platform

Merel Middelman en Marie-Louise Goudeau

Introduction

When issuing or commissioning cross-institutional badges, there are a number of possibilities/issues at SURF's edubadges.nl that require further exploration. It is important here to keep 2 things well apart, as they do not concern the same thing entirely, but can of course coexist:

1. Cross-institution badges (less relevant to this project) - This involves awarding (cross-institution) badges to other institutions or through a consortium.
2. Awarding cross-institutional badges (more the focus of this project)- This is about awarding badges (not necessarily cross-institutional), which are recognised cross-institutionally, for example via endorsements or via national badge(s).

For detailed explanation of the options, see Appendix 1

In the scenarios, we talk about cross-institutional badges. This project aims to achieve institution-wide badges, rather than awarding institution-wide badges. What form of cross-institutional badges do we opt for?

- National Information Literacy badges that any institution can copy and issue itself as long as learning activities and assessment are implemented and demonstrated according to the consensus

Chosen scenario

There are 10 different main scenarios (see Appendix 1) that differ as to whether there are cross-institutional badges, who issues these cross-institutional badges (institutions themselves or cross-institutional), which learning activities and assessment are linked to the badges and/or the institutions themselves also issue badges within the institution.

These main scenarios also have sub-scenarios regarding the amount of badges: will it be an institution-wide badge or will there be an institution-wide badge ecosystem?

Issuing badges on behalf of a consortium has many formal hooks and eyes regarding ownership and access by students from different organisations, so it is not possible in the short term. SURF does continue to look for opportunities to work across institutions.

Setting up the option of endorsing is not possible in the edu badge platform, because the institutions must first work out a policy on this and develop the criteria for comparing badge classes.

In the end, three badges were chosen. The badges indicate the level. For each badge, the subjects of each component from the learning outcomes matrix/taxonomy are described and tested. See working group website for the standard badges.
To ensure that the value of the institutions' badges match each other, the institution will have to check against yet-to-be-issued scoring rubrics.

The institution can copy the content of these badges to its own badge classes and issue badges from its own institution that match the national standard badges in terms of content and level.

Chapter 5 Criteria to enable international exchange of badges

Ilse Sistermans en Harrie van der Meer

In this chapter, we explore the criteria for enabling international exchange of badges. To this end, we answer the following questions for each scenario.

Questions

A. To what extent is there an (international) exchange format. If not, is it desirable?
B. To what extent is awarding internationally possible?

To answer question B, we split the question into a number of scenarios

1. Issuing a NL edubadge by a Dutch educational institution to an international student enrolled at this Dutch institution who subsequently returns to the country of origin within or outside Europe
2. Issuing one of a NL edubadge by a Dutch institution to an international student not enrolled at a Dutch educational institution.
3. Receiving and keeping a foreign badge by a Dutch student from an institution outside the Netherlands or a company.

Before answering these questions, we will explain what an open badge and an edubadge are, and how issuing and receiving them works.

Badges and badge platforms

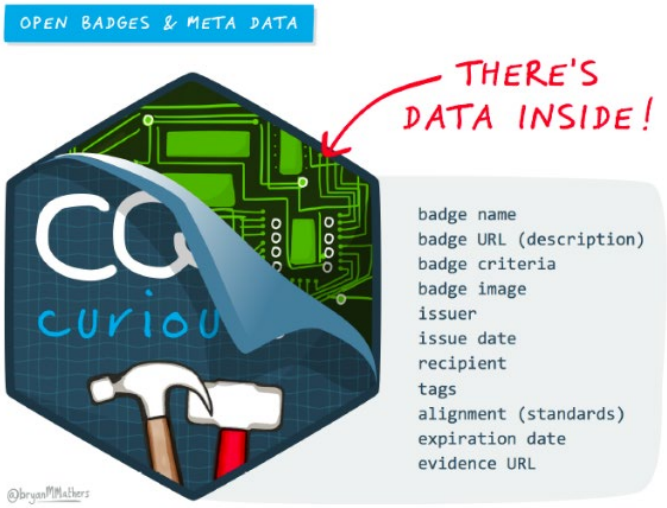
An open badge is a digital certificate for demonstrating knowledge and skills acquired in regular accredited education or in a non-formal educational pathway.

In the Netherlands, most educational institutions use **edubadges**, the badge platform developed by SURF. Within the IV project, we assume the use of edubadges.

Within Europe, at the request of the EU Commission, work has been done on a **European Digital Credentials Infrastructure (EDCI)** to support the issuing and exchange of digital certificates within the EU. To the already existing Europass portal (for working and learning in the EU), they linked the European Digital Credential Issuer, a free web app for issuing diplomas, certificates, diploma supplements, etc. The issuer can issue digital credentials and e-mail them to recipients or place them directly in the **Europass Library**. Anyone can issue EDCs provided the issuer has a 'qualified electronic seal' (more information: step-by-step instructions). Since its launch in October 2021, improvements are being made in the areas of user-friendliness, security, privacy, and automation of processes. Here we explore the possibility of storing digital badges (edubadges) now or in the future in the Europass Library.

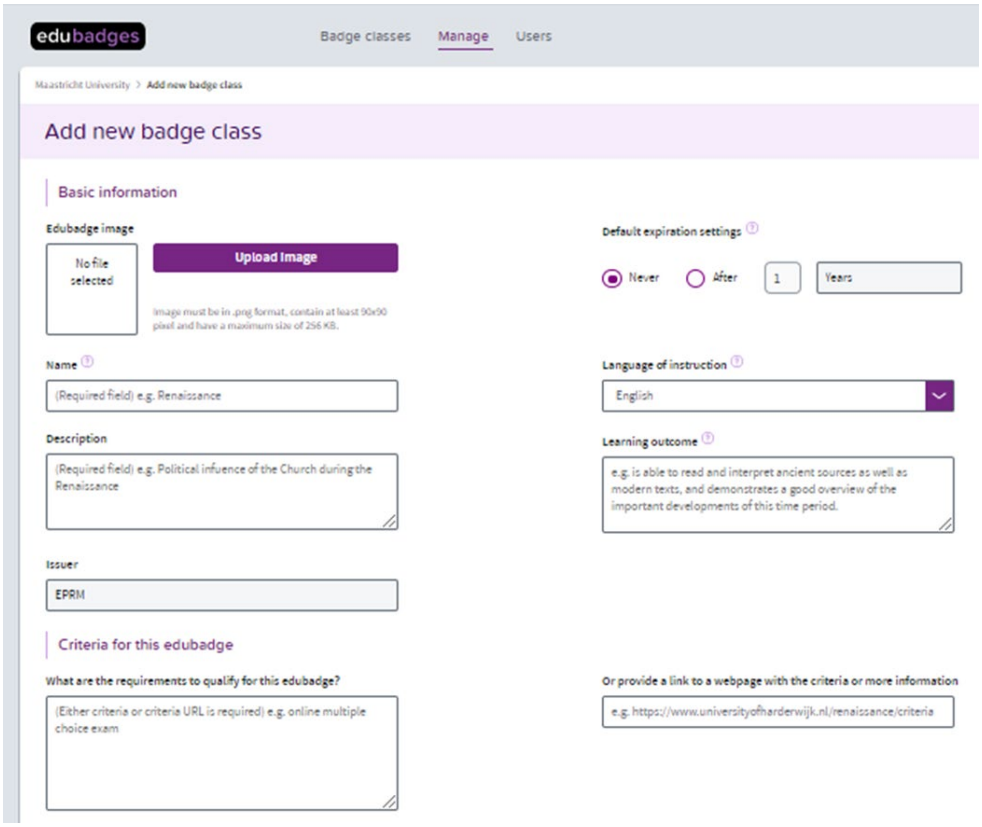
What does a badge and an edubadge consist of?

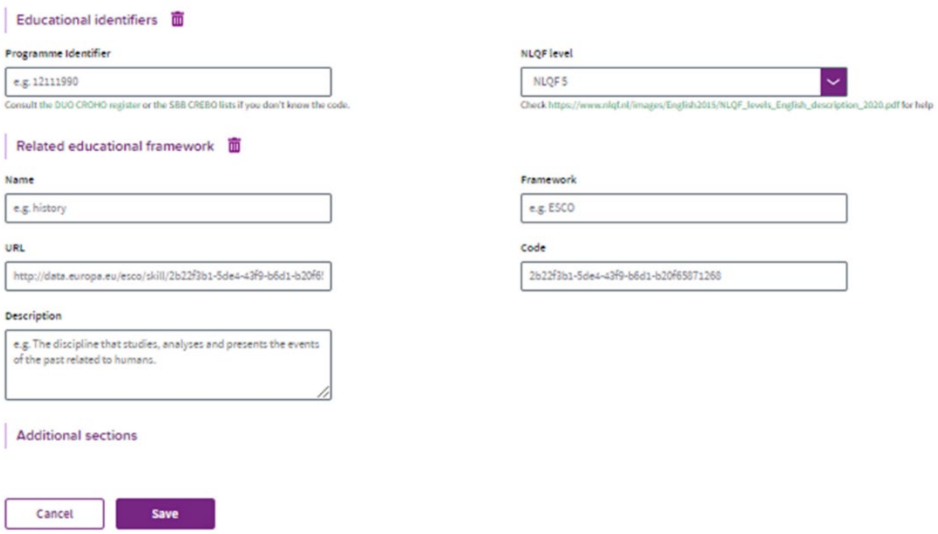
A badge consists of a 'front', an image and a 'back' or 'inside' with data fields. Each badge platform comes with a number of fixed fields. Then the issuer can add fields and data.



Bron: https://openbadgefactory.com/en/about-open-badges/

Edubadgeclasses include the following fields:

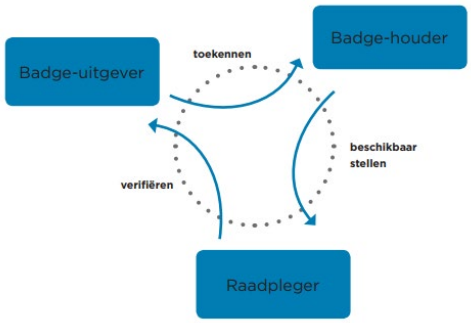




Bron: https://www.edubadges.nl

Create, issue, receive and store badges

In the process of issuing, earning, consulting and keeping badges, we can distinguish three stakeholders, namely: (1) badge issuer, in the case of Information Literacy badges a Dutch higher education institution; (2) the badge holder, i.e. the recipient who earns a badge; (3) the consulter, a third party, for example an admissions committee within another institution or a (potential) employer, who wants to verify the badge.

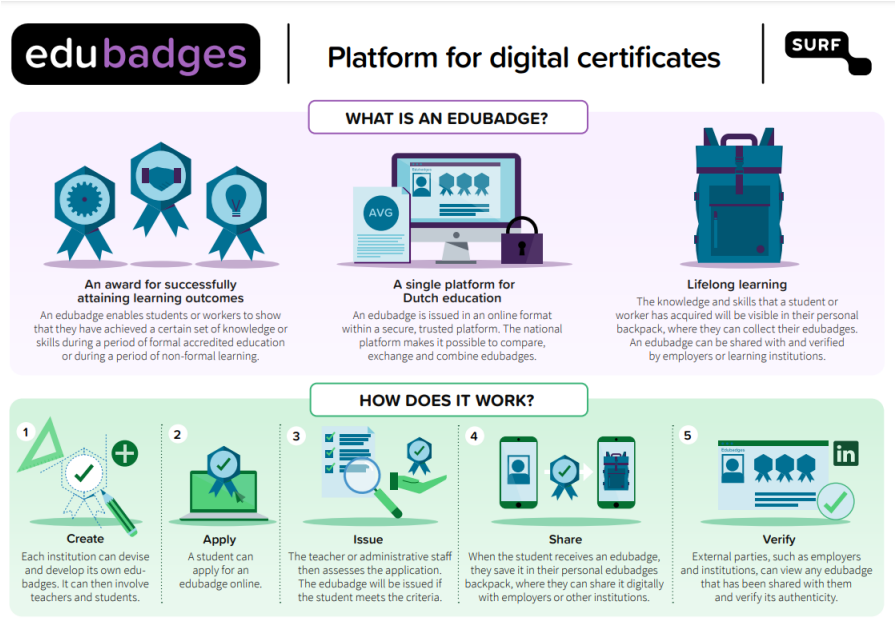


Both issuer (institution) and holder (recipient) have access to portals of the badge platform. Recipient receives a secure URL to access and verify the badge and view the metadata.

- Learner can additionally place the badge in a backpack. Most badge platforms (e.g., Badgr, Digitary and edubadges) offer such a backpack.

Edubadges: create, issue receive and store badges in the Netherlands

Within the Netherlands, most higher education institutions use edubadges, SURF's badge platform. For edubadges, SURF has chosen Badgr's open source technology. The advantage is that the development work SURF does, becomes available to others and vice versa, and vendor dependence can be avoided.



It is important to note that access (user authentication) to edubadges is via EduID and Surf Conext. This means that those who create and issue edubadges must have a Dutch secondary vocational education or higher education institutional email to access the edubadges platform. The badge recipient must also be registered with the institution (and thus appear in the institution's systems), for more information see: https://www.surf.nl/en/get-affiliated-with-edubadges

Answers

A) To what extent is there an (international) exchange format, if not, is it desirable?

SURF makes the edubadges infrastructure available to Dutch educational institutions, but students and institutions naturally move in an international (educational) world. It is therefore important that Dutch edubadges are compatible with badges issued elsewhere. By using the open-badges standard, students can collect multiple badges and display them combined in a presentation environment. In terms of content, SURF will ensure that the edu badges contain the most important information that we have agreed upon in Europe in the bachelor-master system. This includes the number of credits (ECTS) and a description of the learning outcomes achieved. SURF is also in close contact with the **European Commission's Europass project**, which is working on a related initiative in the European context.

B) To what extent is awarding internationally possible? Answers broken down into scenarios:

1) **Issuing a NL edubadge by a Dutch educational institution to an international student enrolled at this Dutch institution who then returns to the country of origin within or outside Europe**

A student who receives a badge while studying at a Dutch higher education institution can claim it. With his/her Dutch higher education institutional account, he/she can access the edubadges portal through EduID and SURF Connext to claim the badge. The student can then link a private email to his/her EduID account. In that case, however, it must be verified through SURF-connext. Then he/she continues to have access to the edubadge packpack even after finishing studies and also from abroad.

It is currently not possible to store the edubadge in any place other than the edubadges backpack. That too can only be accessed through EduID. Therefore, a student cannot take his or her edubadge with him or her to another backpack or Wallet.

2) **Issuing a NL edubadge by a Dutch institution to an international student or professional not enrolled at a Dutch educational institution.**
   There is no solution to this at this time. Various initiatives are currently in progress to make badges also accessible to learners who are not enrolled at the institution. Within the national pilot Microcredentials a (temporary) work-around has been made with which institutions can still enter learners who are not in the institution systems in edubadges, this temporary solution is not scalable. In the future, it will be difficult to run identification/authentication through Verify, where a student has his/her identity established by scanning his/her ID.

One solution reviewed for European students is the European identification tool EDUGAIN.

3) Receiving and keeping a foreign badge by a Dutch student from an institution outside the Netherlands or a company.

Provided that the badge complies with Open badge standard 2 (e.g. made using badger), it can be placed in the edubadge backpack.
NOTEWORTHY: The digital credentials of the **European Digital Credentials Infrastructure (EDCI)**, do not comply with that standard and are unfortunately not compatible with the EduID backpack.

Projectorganisation

Project Group	Role	
Gerdie Limonard (UvA) Martijn Kleppe (KB)	Project executive - (delegated) principal	Steering Committee
Rob van der Werff (SURF)	Supplier	Supplier
Brenda Lems (HR)	Project Leader	Project Group
Elitza Voutcheva (HR)	Expert, project member	Project Group
Harrie van der Meer (Hva/Uva)	Expert, project member	Project Group
Johanna Krijnsen (Inholland)	Expert, project member	Project Group
Ilse Sistermans (Maastricht University)	Expert, project member	Project Group
Maaike van Berlo (Breda UAS)	Expert, project member	Project Group
Marie-Louise Goudeau (UU)	Expert, project member	Project Group
Merel Middelman (WUR)	Expert, project member	Project Group
Kim Dibbets (VU)	Expert, project member	Project Group

Accountability - Time commitment

Phase 1 - Sept. 22 through Dec. 22 - completed:

1. The results of a brief exploration/explanation of the most commonly used, related terms and concepts of badges in general (10 hours total);
2. The outcomes of a brief exploration of the context and (foreign) relevant examples of badges in general + Information Literacy badges (20 hours total);
3. Establish a set of functional and technical criteria to enable international exchange between badges. Within the Netherlands, edubadges from SURF will be the standard (40 hours total);
4. The results of a brief exploration of the possibility of cross-institutional badges via SURF's edubadges platform (24 hours total).

Activities	Deliverables	Who	Spending hours
[1.1] Literature research on the most commonly used, related terms and concepts of badges in general	Summary of SURF Whitepaper	Kim Maaike	10
[1.2] Literature research on context and (foreign) relevant examples Information Literacy badges	Report with state of affairs/ bottlenecks and examples	Kim Marie-Louise Maaike	20
[1.3] Explore prospects for the possibility of international badge exchange	Overview with wishes and possibilities	Ilse Harrie	40
[1.4] Explore the possibility of cross-institutional badges through SURF's edubadges platform - contact SURF/ inquire with edubadge user group	Report	Marie-Louise Merel	20
Total			90

Phase 2 - completed June 2023

A Framework of Information Literacy badges; the badges are thereby defined in relation to each other, at different levels, and by a description of the learning outcomes for each badge. Possibly supplemented by suggestions for assessment and estimation of the course load required to obtain the badge. This should include a reasoned choice for formal/informal badges (280 hours total);

Activities	Deliverables	Who	Spending hours
[2.1] Visualization of naming + levels of current badges	Overview	Harrie Johanna	40
[2.2] Inventarisatie van leeruitkomsten van huidige badges	Overview	Harrie Johanna	40
[2.3] Discussie over consensus: Inhoud: indelingen, leeruitkomsten, tot in welk detail moeten de badges worden beschreven en toegepast om uitwisselbaar te zijn? Vorm: formeel/informeel, onderscheid HO/WO	Learning outcomes inventory of current badges	Project group with feedback from the outer ring	120
[2.4] Creation and Publication Framework	Framework (overview)	Elitza, Johanna	80
Total			280

Phase 3 - completed September 2023

A manual + sample badges for interested institutions towards adoption of Information Literacy badges (106 hours total). Explore and figure out how to deal with institutions that want to join along the way.

Activities	Deliverables	Who	Spending hours
[3.1] Guide for interested institutions	Manual	Maaike, Kim	40
[3.2] Some sample badges (preferably in the edubadge platform)	Digital badge	Elitza, Marie-Louise	60
Total			100

Phase 4 - completed September 2023

Compile and publish final opinion including:

1. The results of a brief exploration/explanation of the most commonly used, related terms and concepts of badges in general
2. The outcomes of a brief exploration of the context and (foreign) relevant examples of badges in general + Information Literacy badges
3. A set of functional and technical criteria to enable international exchange between badges;
4. The outcomes of a brief exploration of the possibility of cross-institutional badges via SURF's edu badges platform
5. A Framework of Information Literacy badges.
6. A manual + sample badges for interested institutions for the adoption of Information Literacy badges.
7. Advice and agreements on follow-up actions.

Activities	Deliverables	Who	Spending hours
[4.1] Compose and publish final advice	Report	Harrie, Brenda	60
Total			60

Total	Deliverables	Who	Spending hours
Project hours		Project members	530
Overhead (stuurgroep en projectleiding)		Overhead (steering committee and project management)	50
Totaal			580

The project was slightly delayed because of the time needed to agree on the learning outcomes. All participants agreed to this extra time, because of the need to take time to process and reformulate where necessary. This way everyone is committed to it and can justify it to the backing community.

The backing community was involved through an online meeting (Dutch) that explained the creation and content of the learning outcomes matrix. Outside circle colleagues from the Information Literacy Working Group provided feedback through an online feedback form.

Outcomes, see Appendix 3.

Finance

- The hourly commitment was funded by the participating institutions themselves.
- Post-project management is coordinated by the Information Literacy Working Group, but probably filled in by one of the institutions participating in the working group, not necessarily one of the institutions participating in the project.
  Hours will be at the expense of the participants' institutions.

Advantages

Working with Information Literacy badges has the advantage for individual institutions that it can help motivate students for the skill. Institution-wide badges have additional benefits in addition:

- Flexibility in education is promoted;
- Institutions that join later have an efficiency advantage because they do not have to design their own badges;
- The co-developing institutions think they can increase the quality of Information Literacy education and assessment.

The members of the project group have accumulated expertise and become (international) forerunners. In addition, they have provided guidance on the process and final product and therefore can more easily adopt/implement it in their own institution.

Appendix 1 Study of the possibility of cross-institutional badges via SURF's edu badge platform

In the scenarios outlined below, we talk about cross-institutional badges. This project also aims to achieve institution-wide badges, rather than institution-wide badge awarding. What are cross-institutional badges?

- Or institution-owned badges that establish tested relationships with each other based on consensus through endorsements and thus gain institution-wide value;
- Or (a) national Information Literacy badge(s) that each institution gets copied and can issue itself as long as learning activities and assessment are implemented and demonstrated according to consensus;
- Or (a) national parent badge(s) that institution-owned badges can enter into an endorsement with based on the consensus;

New situation potential scenarios

There are 10 different main scenarios that differ whether there are cross-institutional badges there, who issues these cross-institutional badges (institutions themselves or cross-institutional), which learning activities and assessment are linked to the badges and/or the institutions themselves also issue badges within the institution (see table below). These main scenarios also have sub-scenarios regarding the amount of badges: will it be an institution-wide badge or will there be an institution-wide badge ecosystem.

	Cross-institutional Badge	Institutional badges	Learning activities linked to the badge	Assessment	Publisher(s) of the cross-institutional badge(s).	Value of the badge
1a	One	N/A	Equal	Equal	Cross-institutional	Badge(s) are equally learnt and assessed and issued centrally
1b	Badge Ecosystem					
2a	One	N/A	Miscellaneous			Badge(s) are equally assessed and issued centrally
2b	Multiple					
3a	One	N/A	Miscellaneous	Miscellaneous		Various learning activities and assessments at the institution earn cross-institutional badge(s)
3b	Multiple	N/A				
4a	One	One	Equal	Equal		Badge(s) are equally learnt and tested and are issued within the institution but can be exchanged for cross-institutional badge(s))
4b	Multiple	Multiple				
5a	One	One	Miscellaneous	Equal		Badge(s) are equally assessed and issued within the institution but can be exchanged for cross-institutional badge(s
5b	Multiple	Multiple				
6a	One	One	Miscellaneous	Miscellaneous		Badge(s) are issued by the institutions based on institution-specific learning activities and assessment and is/are exchangeable for cross-institutional badge(s)
6b	One	Multiple				
6c	Multiple	Multiple				
7a	One	One	Equal	Equal	Institutions	The cross-institutional badge(s) are issued by the institutions but have the same learning objectives and value because they are learnt and assessed in the same way
7b	Multiple	Multiple				
8a	One	One	Miscellaneous			The cross-institutional badge(s) are issued by the institutions but have the same learning objectives and value because they are assessed in the same way
8b	Multiple	Multiple				
9a	One	One	Miscellaneous	Miscellaneous		The cross-institution badge is issued by the institutions but has the same value as one's own institution badge

9b	One	Multiple				The cross-institutional badge is issued by the institutions but has the same value as their own institutional badges
9c	Meerdere	Multiple				The cross-institutional badge is issued by the institutions but has the same value as their own institutional badges
10	None	Multiple	Miscellaneous	Miscellaneous	N/A	All badges are mapped using learning objectives and accepted by other institutions using this map and linked to the institution's own badge(s)

Ways to award cross-institutional badges

1. Cross-institutional awarding of badges

Within edubadges.nl it is possible to issue non-formal badges to students from other institutions. Provided that institution also purchases the edubadges service. Institution administration of the issuing institution will also have to approve the other institutions to be able to issue these.
Students will also need to link their backpack account to the issuing institution through approval statements that must be accepted. Thus, a student's backpack account may be linked with multiple institutions.
What are the scenarios to consider for Information Literacy badges?

Scenario 1 t/m 6

One of the participating institutions issues the institution-wide badge..

- In case of equal assessment (scenario 1,2) the badge is issued after passing the assessment
- In the event of a non-comparable assessment (scenario 3), the badge is issued after passing several assessments
- Badges obtained at various institutions are handed in to the institution that issues cross-institutional badges, which issues these badges (scenarios 4 to 6).

The disadvantage of this is that one of the institutions is the issuer of all the badges and it therefore appears that the learning process took place at this institution.

Scenario 7 t/m 9

- Participating institutions all create the same badge class with the same badges for Information Literacy and hand them out as a result of institution-wide or cross-institution assessment/learning activities
- These badges can then also be issued to students from other institutions.

For these scenarios, the participating institutions would have to enter into an agreement for and commitments would have to be made (for example, by means of a covenant).
The disadvantage of this is that the cross-institutional badge does not seem to come from a cross-institutional body but only 1 institution.

2. Issuing on behalf of a group (consortium)

It is possible to issue edubadges on behalf of a group (consortium). By checking the option 'Issuing on behalf of issuer group', edubadges issued will state that they have been issued on behalf of consortium X. It is also possible to enter a URL that can link to the issuer group. A distinction can also be made between display name and the actual name of the issuer group.
What are the possible scenarios to consider for Information Literacy badges?

Scenario 7 t/m 9

- We could form a consortium with participating institutions.
- Each institution could then still issue its own institution badges, but on behalf of the consortium.
- The badges issued would then have to be interchangeable.
- The added value of this is the collective name of the issuer group.

The disadvantage is that there is no central control over the issue of the cross-institutional badge(s). Good agreements are needed as to what brings up which cross-institutional badge

3. Endorsements

As discussed in the user meeting on July 5, 2022, it was decided not to put the endorsement functionality into production for the time being. The institutions first want to develop policy on this and work out the criteria by which badge classes can be compared. In edubadges.nl it is possible to 'endorse' badge classes of other institutions. With an endorsement you actually indicate that you consider a badgeclass of another institution equivalent to a certain badgeclass of your own institution. What are the possible scenarios to consider for Information Literacy badges?

Scenario 7 t/m 9

Institutions issue their own badge(s) equivalent to an institution-wide national badge(s) via endorsement

- This option seems most relevant for this project. Each institution can use his/her badges for IL, but if it is clear which ones are interchangeable, we can create relationships in the edubadges platform via endorsements.
- This way it is easy to see which badges are interchangeable/comparable.
- The operation of this does depend on many things:
    - Learning objectives
    - Study load
    - Testing
    - Level
    - HBO/WO

Scenario 10

Institutions issue their own badge(s) that are equivalent to other institutions' badges via endorsement

- This option seems relevant for this project. Each institution can use his/her badges for IL, but if it is clear which ones are interchangeable, relationships can be established in the edubadges platform via endorsements.
- This way it is easy to see which badges are interchangeable/comparable.
- The operation of this does depend on many things:
    - Learning objectives
    - Study load
    - Testing
    - Level
    - HBO/WO

The disadvantage of scenario 10 may be that it is complicated to see which badges this is all equal to.

Conclusion: following the above elaboration, 1 "parent badge" was chosen that individual institutions can copy and issue on behalf of the Information Literacy consortium..

Appendix 2 Framework

	Information Literacy **LEVEL 1** *To obtain this badge, the student has shown the ability to:*	**Information Literacy** **LEVEL 2** *To obtain this badge, the student has shown the ability to:*	**Information Literacy** **LEVEL 3** *To obtain this badge, the student has shown the ability to:*
1. Orientate and Specify	• identify a need for information on a given topic • identify characteristics of information sources on a given topic • locate and access appropriate information sources for orientation with a given topic • articulate the given topic clearly	• identify and document the information need on a given topic area • identify and select appropriate information sources for orientation on a given topic area • locate and access appropriate information sources for orientation on a given topic area • formulate a research question for a literature search on a given topic area	• identify and document the information need on a chosen topic • identify, select and substantiate appropriate information sources to orientate on a topic for a chosen topic. • locate and access appropriate information sources for orientation on a chosen topic • formulate a well-focused research question for a literature search on a chosen topic
2. Plan and Search	• locate and access different search engines and finding aids • identify the main key concepts based on the research question or a given topic and determine the main search terms to prepare for a search • perform basic searches using Boolean operators, field searching, phrase searching	• select sufficiently suitable search engines in a given subject area to achieve the (research) goal • identify the main key concepts based on the research question and determine appropriate search terms for each key concept to prepare for a search • perform a systematic search in various databases and platforms, with key concepts and search terms, using Boolean operators, field searching, phrase searching and wildcards, for a given topic area	• select and substantiate sufficiently suitable search engines on a chosen topic to achieve the (research) goal • identify main key concepts based on the research question and determine sufficient, appropriate search terms for each key concept to prepare for a search • perform a systematic search in various databases and platforms, with key concepts and search terms, using Boolean operators, field searching, phrase searching and wildcards, and if appropriate, **advanced techniques** such as **proximity operators or thesauri**,
3. Critically Assess	• describe and apply criteria to assess search results on a given topic • identify and describe criteria to assess selected sources for relevance and reliability	• critically assess the search results in relation to the original research question and revise the search if necessary • describe and apply criteria to assess selected sources for relevance and reliability	• critically assess the search results to the original research question, revise the search if necessary and apply advanced approaches, such as determining precision and recall, to determine when to stop searching • apply advanced criteria to assess selected sources for relevance and reliability
4. Organize and Process	• apply basic techniques to store and organise information sources effectively • explain methods for keeping track of the search process for later repetition and improvement • cite and paraphrase within a text to avoid plagiarism • describe the concepts of copyright and	• apply techniques to store and systematically organise and process information sources, using relevant reference management and citation software • keep track of the search process for later repetition and improvement, such as by maintaining a search log or journal • use the correct in-text citation and paraphrasing style to avoid plagiarism and compile a reference list • avoid copyright infringement by correctly using (open) licensed resources • explain what privacy (sensitive) information is and demonstrate awareness of the need for ethical processing	• apply advanced techniques to store and systematically organise and process information sources, using relevant reference management and citation software • keep track of the search process for later repetition and improvement by saving searches and setting up alerts • cite correctly using the relevant citation style for the field concerned or for intended publication, demonstrating the ability to switch between different citation styles if necessary • avoid copyright infringement by correctly using (open) licensed resources
5. Publish and Communicate	• describe the purposes of publishing in different information sources, such as academic journals, news articles, blog posts) • describe different ways of communication, considering various mediums and channels	• describe the process of publishing in different information sources, understanding the specific requirements and procedures involved • describe the concept and different aspects of open science • communicate, share, and present an information product effectively in various formats, such as written documents, images, or oral presentations, suitable for the intended audience	• describe the process of publishing in discipline- appropriate information sources, understanding the scholarly publishing landscape • apply open science principles and practices communicate, share, and present an information product effectively in suitable formats, such as written documents, images, or oral presentations, for one's peers and the general public (outreach)

Explanation

- Digital badges are digital certificates that demonstrate that a person has certain knowledge or skills. Information Literacy is a skill for which badges can be awarded. SURF provides a platform to which all members have access edubadges.nl where you can manage these digital certificates.
- An important part of an edubadge are the learning outcomes. For cross-institutional edubadges, we inventoried learning outcomes from participating institutions and generated this framework of learning outcomes based on that inventory.
  Please note that only the must haves are included in this framework. For some items, nice to haves have also been added, see Appendix 3

Advantages cross-institutional edubadges:

- Easier to demonstrate what skills students have mastered if they transfer to another institution
- New institutions do not have to come up with their own badge structure
- Link with Taxonomy

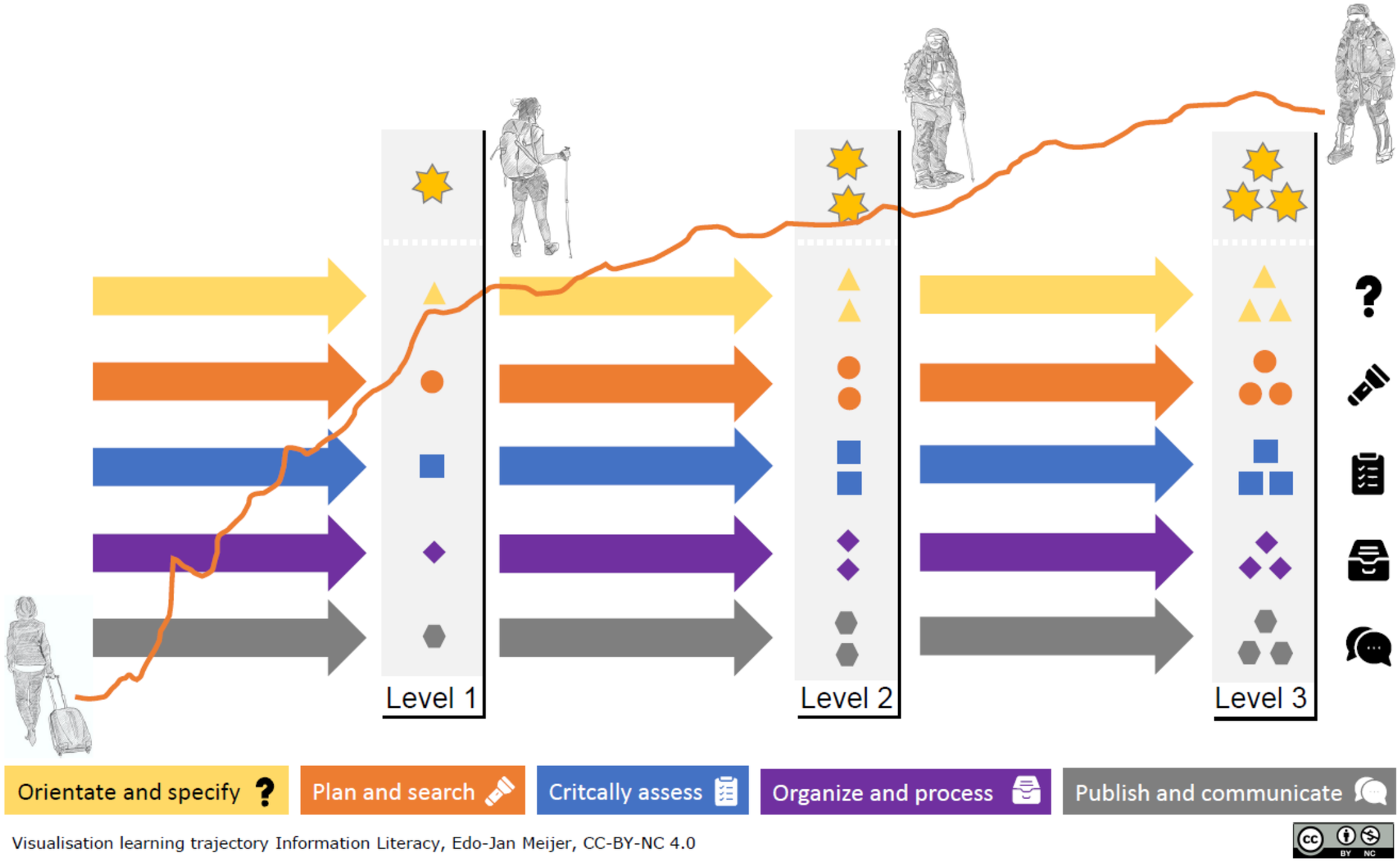
Appendix 3 Learning outcomes matrix (framework) - complete

Information Literacy Edubadges Framework (based on Miro https://miro.com/app/board/uXjVPrf1Bmg=/)

	Learning objectives level 1 ***To obtain this badge, the student has shown the ability to:*** *Guideline: remember & understand - guided - given information question*	**Learning objectives level 2** ***To obtain this badge, the student has shown the ability to*** *Guideline: apply & analyse - explicit and repeated practice - guided information question*	**Learning objectives level 3** **To obtain this badge, the student has shown the ability to** *Guideline: create & evaluate - independently – personal information question*
1. Orientate and Specify	**MUST** haves: • identify a need for information on a given topic • identify characteristics of information sources on a given topic • locate and access appropriate information sources for orientation with a given topic • articulate the given topic clearly **NICE** to haves: • identify several professional and social learning networks that are relevant to the topic • describe aspects such as digital identity, digital footprint and privacy	**MUST** haves: • identify and document the information need on a given topic area • identify and select appropriate information sources for orientation on a given topic area • locate and access appropriate information sources for orientation on a given topic area • formulate a research question for a literature search on a given topic area **NICE** to haves: • select several professional and social learning networks and describe their relevance to a given topic area • reflect on aspects such as digital identity, digital footprint and privacy	**MUST** haves: • identify and document the information need on a chosen topic • identify, select and substantiate appropriate information sources to orientate on a topic for a chosen topic. • locate and access appropriate information sources for orientation on a chosen topic • formulate a well-focused research question for a literature search on a chosen topic **NICE** to haves: • select and interact with several professional and social networks and describe their relevance to the discipline-specific task • act consciously in aspects such as digital identity, digital footprint and privacy
2. Plan and Search	**MUST** haves • locate and access different search engines and finding aids • identify the main key concepts based on the research question or a given topic and determine the main search terms to prepare for a search • perform basic searches using Boolean operators, field searching, phrase searching and wildcards	**MUST** haves • select sufficiently suitable search engines in a given subject area to achieve the (research) goal • identify the main key concepts based on the research question and determine appropriate search terms for each key concept to prepare for a search • perform a systematic search in various databases and platforms, with key concepts and search terms, using Boolean operators, field searching, phrase searching and wildcards, for a given topic area	**MUST** haves • select and substantiate sufficiently suitable search engines on a chosen topic to achieve the (research) goal • identify main key concepts based on the research question and determine sufficient, appropriate search terms for each key concept to prepare for a search • perform a systematic search in various databases and platforms, with key concepts and search terms, using Boolean operators, field searching, phrase searching and wildcards, and if appropriate, **advanced techniques** such as **proximity operators or thesauri**, for a chosen topic
3. Critically Assess	**MUST** haves:	**MUST** haves:	**MUST** haves:

	• describe and apply criteria to assess search results on a given topic • identify and describe criteria to assess selected sources for relevance and reliability	• critically assess the search results in relation to the original research question and revise the search if necessary • describe and apply criteria to assess selected sources for relevance and reliability	• critically assess the search results to the original research question, revise the search if necessary and apply advanced approaches, such as determining precision and recall, to determine when to stop searching • apply advanced criteria to assess selected sources for relevance and reliability
4. Organise and Process	**MUST** haves: • apply basic techniques to store and organise information sources effectively • explain methods for keeping track of the search process for later repetition and improvement • cite and paraphrase within a text to avoid plagiarism • describe the concepts of copyright and open licences (e.g., creative commons) **NICE** to haves • synthesise information to a new type of information product relating to the research question on a given topic	**MUST** haves: • apply techniques to store and systematically organise and process information sources, using relevant reference management and citation software • keep track of the search process for later repetition and improvement, such as by maintaining a search log or journal • use the correct in-text citation and paraphrasing style to avoid plagiarism and compile a reference list • avoid copyright infringement by correctly using (open) licensed resources • explain what privacy (sensitive) information is and demonstrate awareness of the need for ethical processing **NICE** to haves • synthesise information/data into a new information product, relating the research question on a given topic area	**MUST** haves: • apply advanced techniques to store and systematically organise and process information sources, using relevant reference management and citation software • keep track of the search process for later repetition and improvement by saving searches and setting up alerts • cite correctly using the relevant citation style for the field concerned or for intended publication, demonstrating the ability to switch between different citation styles if necessary • avoid copyright infringement by correctly using (open) licensed resources • process privacy (sensitive) information in an ethically conscious manner **NICE** to haves • synthesise information/data into a new information product and a new theory, using processes and forms aligned with the information need on a chosen topic
5. Publish and Communicate	**Must haves** • describe the purposes of publishing in different information sources (such as academic journals, news articles, blog posts) • describe different ways of communication, considering various mediums and channels	**Must haves** • describe the process of publishing in different information sources, understanding the specific requirements and procedures involved • describe the concept and different aspects of open science • communicate, share, and present an information product effectively in various formats, such as written documents, images, or oral presentations, suitable for the intended audience	**Must haves** • describe the process of publishing in discipline-appropriate information sources, understanding the scholarly publishing landscape • apply open science principles and practices • communicate, share, and present an information product effectively in suitable formats, such as written documents, images, or oral presentations, for one's peers and the general public (outreach)

Appendix 4. Visual aid learning trajectory Information Literacy



Appendix 5. Example badges and conditions for the badge

Conditions for the badges

Literature review shows that it is important that the badge shows what the badge stands for. Based on this, we set some conditions for the badges.

Each institute creates in its own edubadges portal and design with the following conditions:

- The badges have the same name as described in the sample badges.
- The badges have the same description, criteria and learning outcomes as in the example badges. Dutch and English can be chosen.
- The badges visuals contain the following elements
    - Full title of the badge
    - Three stars, of which one is filled for level 1, two for level 2, three for level 3
    - The UKB/SHB information literacy logo is added as shown in the example - NOTE: Commissioning can only be carried out after agreement has been reached with the Working Group on verification.

Example badges are available here:

Level-name	Link
Novice	Higher Education Information Literacy level 1
Advanced Beginner	Higher Education Information Literacy level 2
Competent	Higher Education Information Literacy level 3

Description of the badges

The Higher Education Information Literacy Level 1 badge, approved by the SHB UKB working group on Information Literacy in the Netherlands, signifies your expertise in information literacy at the higher education level.

This badge recognizes your skills in actively searching for information, discerning credible sources, creatively applying knowledge, and participating ethically in academic communities. It attests that you have successfully reached Guideline Level 1 out of 3.

- Guideline 1: You can remember and understand information literacy concepts. You demonstrate the ability to find, evaluate, and process information in response to given information questions with guidance.
- Guideline 2: You apply and analyze your knowledge of information literacy concepts. You can find, evaluate, and process information in response to guided information questions semi-independently.
- Guideline 3: You create and evaluate information based on your knowledge of information literacy concepts. You are able to find, evaluate, process information for a personal information question independently.