EduArc – A FAIR and User-centred Infrastructure for Learning Resources

The willingness to share resources like research output, data and educational material led to the development of numerous infrastructures to support the searchability, findability and accessibility of relevant material. Single solutions might be inefficient for users because they either offer access to limited material (e.g. university repositories might store material created by their staff only) or are not supportive in foster sharing beyond single organisations. We are developing an infrastructure for open resources, with a focus on educational learning material like open educational resources (OER). The following contribution focuses on our user-centred approaches to improve OER retrieval and sharing with metadata, while considering FAIR principles.
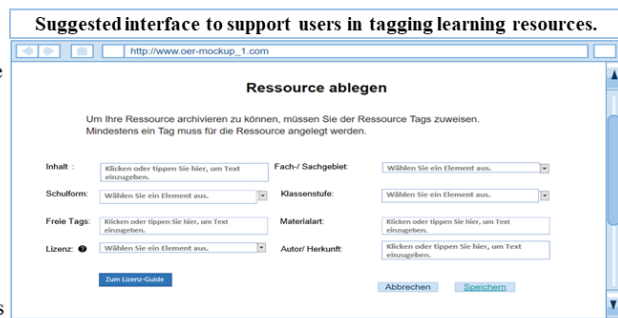
We address the challenges posed by the dissemination of OER, i.e. enabling anyone to reuse, remix, revise, retain and redistribute openly licensed learning material [1]. We investigate a successful dissemination of OER beyond institutional borders in the decentralized ecosystem of higher education in Germany. In other words, we aim at establishing an infrastructure that allows users to find OER from diverse relevant sources like learning management systems, such as Moodle, and existing university repositories. Our research takes into account existing infrastructures, tools and their stakeholders. Our infrastructure will store the index and metadata for searching OER, while integrating established in standards like LOM [2] or LRMI [3] and supporting users' needs and their search behaviour. Additionally, users will be able to add new resources, describe them via tags, comment on or rate existing OER. Although several repositories already offer diverse functions [4], still there are technical and conceptual challenges not only with the provision of OER, but also with their access in distributed repositories, especially in dealing with edits and versions.

We aim to investigate several functions that allow users' communication and collaboration to fully support the idea of open education practices in higher education [5]. Therefore, we apply user-centred and participatory approaches like qualitative user studies (cognitive walk-throughs) on OER tagging functions and OER interface design, and participatory sessions with OER repository stakeholders and technical providers.

Findings (Figure 1) from our first two studies show the diversity in users and use cases, in which OER are applied. Moreover, users that seek OER or want to add their own resources need clarification on available metadata fields and their meaning. Besides standards fields, users prefer free tag fields to describing resources according to their needs. Concerning (meta)data fields and their handling within the system, we will comply with the FAIR principles [6], which ensures the findability, accessibility, interoperability (with diverse metadata systems), and reuse of digital assets. The poster will present the overall infrastructure design based on the findings from our studies, and our model to comply with the FAIR principles.

What supports users in describing OER? → User Preferences from qualitative study on OER tagging.
- Important OER categories: Content, type of school, grade level, subject, material
- Combination of free tags and drop-down
    - Free tag fields with auto-completion
    - drop-down for fields like subject, domain
- Additional field with „free Tags"
- Explanation of CC-License → Licence Guide
- Useful expansions:
    - Number of tags being allocated by users
    - recommendation system -> suggesting useful tags

Suggested interface to support users in tagging learning resources.

http://www.oer-mockup_1.com

Ressource ablegen

Um Ihre Ressource archivieren zu können, müssen Sie der Ressource Tags zuweisen. Mindestens ein Tag muss für die Ressource angelegt werden.

Inhalt : Klicken oder tippen Sie hier, um Text einzugeben. | Fach-/ Sachgebiet: Wählen Sie ein Element aus.
Schulform: Wählen Sie ein Element aus. | Klassenstufe: Wählen Sie ein Element aus.
Freie Tags: Klicken oder tippen Sie hier, um Text einzugeben. | Materialart: Klicken oder tippen Sie hier, um Text einzugeben.
Lizenz: Wählen Sie ein Element aus. | Autor/ Herkunft: Klicken oder tippen Sie hier, um Text einzugeben.

Zum Lizenz-Guide | Abbrechen | Speichern

Which criteria are relevant for users? → Answers from a qualitative study on OER repository design.

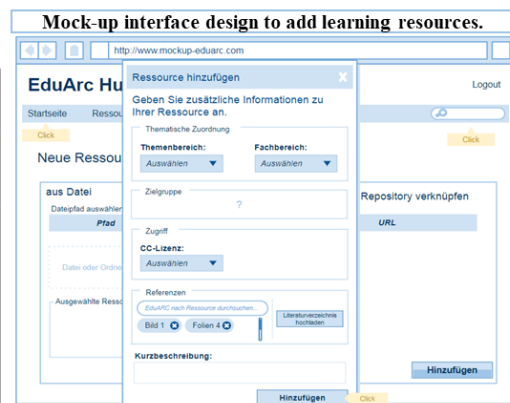| User Story #E3 (#1:E5/E3, #2:E5, #3:E3, #4:E3, #5E4, #6:E4, #7:E4)		implemented in Wireframe	V4
Story	As a lecturer, I can add metadata to my created resources when they are uploaded so that other users can easily search for my resources.		
Acceptance criteria	1) The following metadata is desired and sorted according to the frequency of naming: a) Access (e.g. through CC licenses) (6) b) Topic (5) c) Target group (4) d) Brief descriptions (2) e) Scope of resource (1) f) Resources and literature used (1) 2) Metadata may need to be explained.		

Mock-up interface design to add learning resources.

http://www.mockup-eduarc.com

EduArc Hu | Logout
Startseite | Ressou
Neue Ressou

Ressource hinzufügen
Geben Sie zusätzliche Informationen zu Ihrer Ressource an.
Thematische Zuordnung
Themenbereich: Auswählen | Fachbereich: Auswählen
Zielgruppe
Zugriff
CC-Lizenz: Auswählen
Referenzen
EduARC nach Ressource durchsuchen | Literaturverzeichnis hochladen
Bild 1 | Folien 4
Kurzbeschreibung:
Hinzufügen

aus Datei
Dateipfad auswähl
Pfad
Datei oder Ordn
Ausgewählte Ressou

Repository verknüpfen
URL
Hinzufügen

Figure 1. Findings from the cognitive walk-through studies and first design recommendations (top right). Users went through diverse mock-ups (ex. bottom right) and were interviewed about their expectations and experiences.

References

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4. Santos-Hermosa, G., Ferran-Ferrer, N., Abadal, E.: Repositories of Open Educational Resources. An Assessment of Reuse and Educational Aspects. IRRODL 18, 84+ (2017). doi:10.19173/irrodl.v18i5.3063

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