DaLiCo
References

Author:
Ulrike Spree – HAW Hamburg

DaLiCo References

PROJECT INFORMATION

PROJECT TITLE:
Data Literacy in Context

PROJECT ACRONYM:
DaLiCo

PROJECT NUMBER:
2019-1-DE01-KA203-005066

ERASMUS+ PROGRAMME:
KA2 Partnerships for Innovation and the Exchange of Good Practices

WEBSITE:
www.dalico.info

PARTNERS:

DaLiCo References

AUTHOR

Ulrike Spree (HAW Hamburg, Faculty of Design, Media, Information, Dept. Information)

CONTRIBUTORS

Kristin Ameis (HAW Hamburg, Faculty of Design, Media, Information, Dept. Information)
J. Alberto Conejero (Universitat Politècnica de València, Director of the Dep. of Applied Mathematics)
Hanna Käfer (HAW Hamburg, Faculty of Design, Media, Information, Dept. Information)
José Luis Poza Lujan (Universitat Politècnica de València)
Christine Gläser (HAW Hamburg, Faculty of Design, Media, Information, Dept. Information)
Guido Ongena (Hogeschool Utrecht University of Applied Sciences)
Rüdiger Weißbach (HAW Hamburg, Faculty of Business and Social Sciences)

ABSTRACT

DaLiCo References is part of the integrated Web-application DaLiCo map. It consists of a collection of references of curated data literacy resources provided and regularly updated by the DaLiCo members. The resources are indexed with descriptors from a controlled vocabulary (DaLiCo Glossary) and assigned to categories from the DaLiCo dimensions.

DATE: 31.10.2022

LICENCE

Contents

Introduction

DaLiCo References is one of the main components of the DaLiCo map. It is a reference database of curated resources relevant in the field of data literacy education.

DaLiCo References described in this result description is part of IO1. The goal of IO1-The DaLiCo data literacy map (DaLiCo map) is to provide a survey of existing data literacy resources and activities with a focus on the four DaLiCo partners in order to make these resources discoverable and accessible. Included are physical and virtual infrastructure (like labs, digital libraries), resources (e-learning/hybrid modules or courses) and tools.

DaLiCo References is part of The DaLiCo map that consists of the following interconnected deliverables,

1. a glossary of data literacy terms,
2. a suggestion of a facetted structure for the description of data literacy competencies (for details refer to IO1-Result Description DaLiCo Dimensions)
3. a collection of literature references of useful data literacy resources assembled with the reference management software Zotero. The materials developed in the course of the DaLiCo in Context project are also made accessible via the collection. The resources are indexed with keywords from the DaLiCo Glossary and assigned to one or more facets from the DaLiCo Dimensions (described in this IO1-Result Description DaLiCo Dimensions.)
4. The integrated tool DaLiCo App makes the DaLiCo Map available online.

Development of the Output

Based on exploratory studies of selected degree programmes on the strengths and weaknesses of data literacy among students at the partner universities, it became clear that at the partner institutions data literacy has so far been taught primarily in the areas of data evaluation with a focus on statistical data analysis. However, the entire spectrum of data literacy as formulated by Ridsdale or Schüller is rarely addressed as a whole. Scraping the four university web presences for resources on the keywords "data literacy", "data science" and "data analysis" as well as the respective translations in Dutch, German, Hungarian and Spanish confirmed this assumption (Gläser and Spree 2020). In different contexts, curricula, research projects, publications, supporting service units like Centres for Higher Education Didactics and University Libraries, relevant material and training on individual aspects like big data, research data management is provided. However, examples that indicate a holistic understanding and passing on of data literacy competencies are rare.

Therefore, the initial idea to provide a complete review and documentation of existing resources that could be relevant for selected aspects was abandoned in favor of a focused and curated collection of data literacy resources recommended by the partners. The goal is to provide a curated collection of references for re-usable open educational resources, data literacy projects as well as experts for individual areas of data literacy education. As DaLiCo is also concerned with curriculum development in general (IO2 – Train-the-trainer, IO5 curriculum development) general resources on curriculum development like educational frameworks are also included.

As collecting references generally is a tedious task, we tried to create a simple and time-saving process. We simply set up a collection at the cloud-based free and open-source reference management software Zotero (Zotero 2022). In a first step with the aim to quickly achieve a 'critical mass' of collected resources all partners were asked to enter suggestions for resources in our Zotero library. For each entry a minimal set of formal metadata, a short abstract and at least one tag was requested.

Structure and Features

Based on the collected resources, it was possible to narrow down the final collection focus for DaLiCo References, to determine the document types of the curated resources and develop a metadata schema. We decided on collecting the following types of material:

Name of subcollection	Description	Example
1. Bibliographies – resource collections – research overviews	The collection includes general bibliographies, seminal works on data literacy that serve as kind of bibliographies, web based link lists and repositories	Zhang, Yingting (2022). Research Guides: Data Literacy: Introduction." *Rutgers University Libraries*. https://libguides.rutgers.edu/data_literacy/introduction.
2. Learning and teaching materials on data literacy topics	Online accessible learning and teaching materials (preferably with an open licence) on data literacy competences	European Journalism Center and Google News initiative (2020). The Data Journalism Handbook 2. *DataJournalism.Com.* https://datajournalism.com/read/handbook/two.
3. Frameworks – standards - guidelines	Frameworks, standards and guidelines as well as bodies of knowledge (BOK) that support curriculum development (guidelines for processes, defining competencies and learning outcomes, national and international qualification frameworks).	Bellinga, Pim (2017). Creating a Curriculum to Help Civil Society Become More Data Literate. *Medium*, 20 Feb. 2017, https://medium.com/ihatestatistics/creating-a-curriculum-to-help-civil-society-become-more-data-literate-6b0649c0f31a.
4. Experts (from the partner institutions) who can be consulted on specific topics	List of experts in the field of data literacy	Ongena, Guido. *Profile: Guido Ongena Hogeschool Utrecht*. https://www.hu.nl/onderzoek/onderzoekers/guido-ongena. Accessed 17 Feb. 2022.
5. Projects and infrastructure facilities	Collection of projects and infrastructure facilities related to data literacy at the partner institutions	Gilanyi, Attila, et al. (2017) "Virtual Reality Laboratory - Virtual reconstruction of a medieval church." *Debreceni Egyetem*, http://ieeexplore.ieee.org/document/8268257/.
6. DaLiCo outcomes	All DaLiCo deliverables	DaLiCo Team (2022). *Course: DaLiCo - Data Literacy Learning Space*. https://viamint.haw-hamburg.de/course/view.php?id=271.

Table 1: Subcollections of DaLiCo References

The editorial team in Hamburg unified and supplemented the formal metadata. Each entry is indexed with tags from the DaLiCo Glossary (Basic Concepts) and assigned to at least one category of the DaLiCo Dimensions (for details refer to IO1-Result_ Description_dalico_dimensions). Resources can be filtered via tags from Basic Concepts or via Dimensions.

Figure 1: assigned tags in Zotero

Title	Creator	Date
Course: DaLiCo - Data Literacy Learning Space	DaLiCo Team	2022
DaLiCo Glossary	DaLiCo Team and Spree	2021-08-05
The Data Journalism Handbook 2	European Journalism Center and Google Ne...	2020

Figure 2: filtered resources in Zotero

During the project phase the group library in Zotero simply served as a knowledge management tool for sharing resources used for the work on the different IOs. It was a very simple way of exchanging knowledge. Especially, the automatic saving features in Zotero make it easy to save and share references.

In the second phase a special selection of resources was curated that will be published and made accessible via the DaLiCo App (for details refer to IO1-Result_Description_DaLiCo_App). The ingest of selected data elements into the DaLiCo App is done via the Zotero API.

Target groups
We distinguish internal and external target groups that could benefit from the resource collection.

Internal target groups
DaLiCo References is an interim product mainly meant to support internal knowledge exchange. Currently, it is a closed collection in Zotero only accessible by members from the DaLiCo Team.

During the project phase the group library in Zotero simply served as explained above as a very low threshold knowledge management tool for sharing resources between the partners and the different IOs.

In the second phase a special selection of resources was curated that will be published and made accessible via the DaLiCo App (for details refer to IO1-Result_Description_Dalico_App). As Zotero offers the export into various machine-readable formats it will also be used to export data. After examination by a responsible person in Hamburg resources can be added to the DaLiCo App.

DaLiCo references will also be made accessible via the DaLiCo Learning Space in viaMINT.

External target groups

External target groups will normally access the suggested resources via the DaLiCo App (for details refer to IO1-Result_Description_DaLiCo App). Relevant target groups are

1. educators who are either looking for general information on various aspects of data literacy education, re-usable teaching materials, support for curriculum development
2. learners from institutions of higher education who wish to get an overview on data literacy issues, who are looking for learning material to improve specific competencies or who are looking for data sources to use in their own data projects
3. multipliers for data literacy
    a. The information is passed on via word of mouth to interested colleagues at the partner institutions. In Hamburg this are for example the colleagues from several departments (social work, economics) who cooperated in the requirements analysis phase of the project.
    b. The information on the resource collection is also passed on to university-wide facilities that support digital literacy as well as data literacy like
    c. The University Library in Debrecen may integrate the resource collection into their Dataverse repository.

Learning outcomes

The resources collected concern all learning outcomes addressed within the DaLiCo in Context project.

Data literacy competencies

The competencies concern all data literacy competencies addressed within the DaLiCo project (expressed in terms of the DaLiCo dimensions the following six competence-fields are addressed: Data identification, Data understanding, Data use, Data reflexivity, Data managing, Data communication). A focus of the collection is on general resources that address general data literacy competencies that are applicable for various subject areas. Detailed subject or domain specific competencies as well as advanced competencies from various field of data science are less represented.

Usage and Impact

The DaLiCo references will be used as one tool of DaLiCo partners to foster collaboration beyond the end of the project.

Dissemination

As stated above, the resource collection in Zotero mainly serves internal purposes and the content is not systematically disseminated. The procedure to use a reference management system like Zotero as an easy starting point for an internal knowledge management project has already been passed on (e. g. HereWeGrow 2022).

Evaluation

The achievements are,

- a simple procedure for the participatory creation of a collection of references
- a collaboratively created and maintained collection of references of currently about 500 reusable literature recommendations on various data literacy education aspects with a focus on teaching and learning aspects-

Sources

DaLiCo Team (2022). *DaLiCo Glossary*. Online: https://www2.bui.haw-hamburg.de/tematres/vocab/. Retrieved: 2022-11-07

Gläser, Christine; Spree, Ulrike (2020). IO1 – Working paper. Part 2: Results from Data Literacy Master Course in Hamburg. Unpublished working Paper. University of Applied Sciences Hamburg

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