

German Network for Educational Research Data

Building a Federated Research Data Infrastructure for Educational Studies in Germany

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Karoline Harzenetter, Marcus Eisentraut, Reiner Mauer
GESIS - Leibniz-Institute for the Social Sciences
Germany
Doris Bambey and Alexia Meyermann
German Institute for International Educational Research
Germany
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I. Situation for Researchers and Repositories in Empirical Educational Research

Researcher:

- Open access to research data
- Research data management
- Secondary use of qualitative data
- Undersupplied/underrepresented small scale studies

Research data centers:

- Inter- and multidisciplinary projects
- Mixed method approaches
- Variation of resources, topical scope, standards and workflows

On top:

- Complex legal and regulatory environment and sensitive data



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I. Situation for Researchers and Repositories in Empirical Educational Research in Germany

- Researchers have difficulties to find adequate repositories
- Repositories are confronted with types of data outside their scope
- Increasing need for consultation in research data management issues
- No central point of educational research data access and information
- No common standard for documentation and processing of educational research data

II. An Alliance for Empirical Educational Research: Verbund Forschungsdaten Bildung

Mission:

- Building a federated infrastructure: “VerbundFDB”
- Offering support and services for researchers
- Develop and establish common standards for research data management



Funder:

Federal Ministry of Education and Research



Partners:

- The German Institute for International Educational Research (DIPF)
- The Institute for Educational Quality Improvement (IQB)
- GESIS – Leibniz-Institute for the Social Sciences



II. An Alliance for Empirical Educational Research: Verbund Forschungsdaten Bildung

- **Focus first period (2013- 2016): building an Infrastructure**
 - Streamlined workflows for archiving and documentation
 - Archived 300 projects funded by BMBF
 - Offered workshops for research data management
- **Focus second period (2016-2019): broadening the network**
 - Expand the network and scope
 - Establish a central contact point for support and information
 - Train the trainers in research data management
- **Next steps: internationalization and international exchange**
 - Engage in international Networks (e.g. EOSC, RDA)
 - Provide services in English
 - Provide study documentation in English
 - Prepare for multilingual metadata

VerbundFDB Partners and Cooperations



III. Key Milestone: A Common Catalog for Educational Research Data

Establishing a central point of information about and access to educational research data

Requirements

- Metadata interoperability
- Adequate metadata quality
- Standardization and harmonization of metadata
- Presentation of metadata in retrieval system

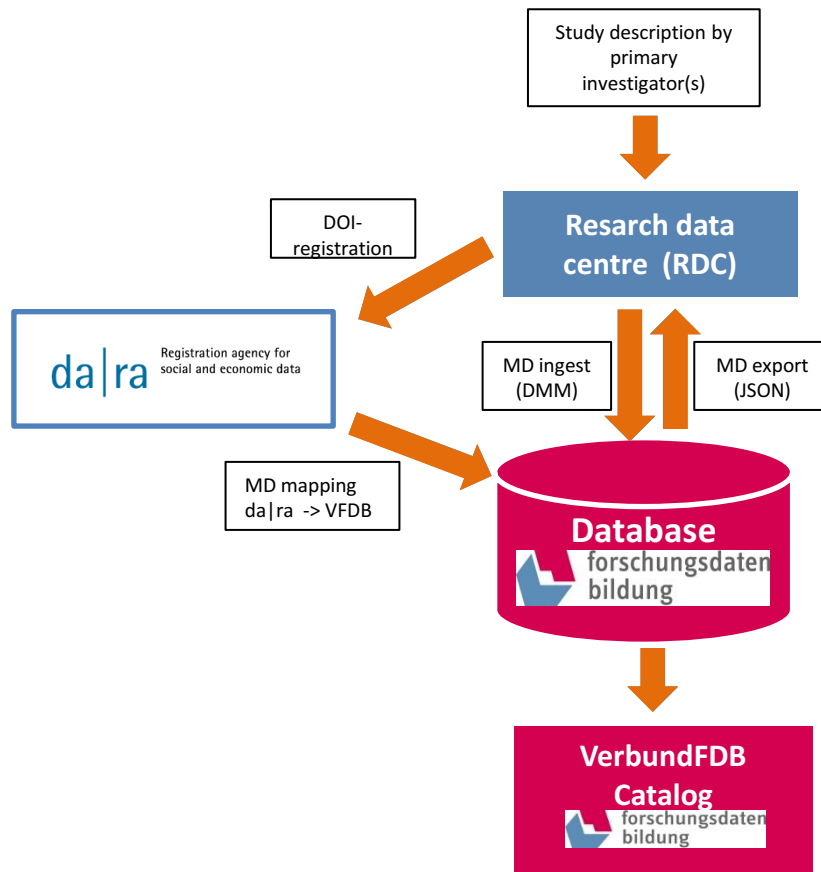
VerbundFDB Activities and Accomplishments

- Establishment and organization of a **VerbundFDB working group** for metadata
- Development of a tool to manage metadata: **Data Management Modul (DMM)**
- Definition and Approval of a **common standard for study descriptions** in DMM and da|ra
- Programming a **VerbundFDB-Harvester** (mapping/crosswalk)
- Provision and configuration of **retrieval system/catalog**

A Metadata Standard for Educational Research Community

- Common denominators for describing **qualitative** and **quantitative** data
- DDI, DataCite and da|ra based and **compatible controlled vocabularies**
- **Domain specific thesaurus** for indexing (FIS Thesaurus and TheSoz)
- ISO based **standard for abstracting** the content of studies
- Referencing **only research data with persistent identifier** (e.g. DOI)
- Agreement of a **core set of mandatory submitted metadata** (da|ra and VerbundFDB)

Two Solutions for Partner's Metadata Ingest



Option 1: Data Management Modul (DMM)

The screenshot shows the 'forschungsdaten bildung' interface. It includes a search bar, a 'DIPF' button, and a 'Projekt' tab. The 'Allgemeine Angaben zum Projekt' section contains fields for '1) Titel des Forschungsprojekts', '2) Verantwortliche', '3) *Mikroform bzw. Kurztitel (bis zu 30 Zeichen)', '4) Weitere Titel', '5) Projektlaufzeit', and '6) Projektbeschreibung / Abstract'. The 'Projektlaufzeit' section has 'von' and 'bis' date pickers. The 'Projektbeschreibung / Abstract' section has a text area.

Option 2: VerbundFDB-Harvester via da|ra

The screenshot shows the 'da|ra' Registration agency for social and economic data. It features the 'OAI-PMH Data Provider Beta' title and sections for 'What is this service?', 'Who can use this service?', and 'What is OAI-PMH?'. The 'What is this service?' section explains that the service exposes metadata stored in da|ra using the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH). The 'Who can use this service?' section states that the service is open to everyone and is meant to be accessed by OAI-PMH compliant harvesters or any application that issues OAI-PMH requests. The 'What is OAI-PMH?' section provides a brief overview of the protocol and its components.

Two Solutions for Partner's Metadata Ingest

Option 1: Data Management Modul (DMM)

- Metadata is directly controlled and curated by research center
- Quality assurance by VerbundFDB curator
- Metadata exportable in JSON format
- Full support for VerbundFDB metadata standard
- Metadata maintenance in parallel systems (manually or automatically)

The screenshot shows a web form titled 'forschungsdaten bildung' with a search bar and a 'DIPF' logo. The form is divided into sections: 'PROJEKT', 'STUDIUM', and 'ABSENDEN DES FORMULARS'. Under 'PROJEKT', there are fields for '1) Titel des Forschungsprojekts' (International Association for Social Science Information Services and Technology 2018), '2) Titelaussatz' (z.B. Unterricht, Förderphase), '3) *Kürzform bzw. Kurztitel (bis zu 30 Zeichen)' (IASIST), '4) Weitere Titel' (z.B. Alternativtitel, fremdsprachiger Titel), '5) Projektdauerzeit' (from 11.11.2011 to 11.11.2012), and '6) Projektbeschreibung / Abstract' (Richtwert ca. 250 Wörter).

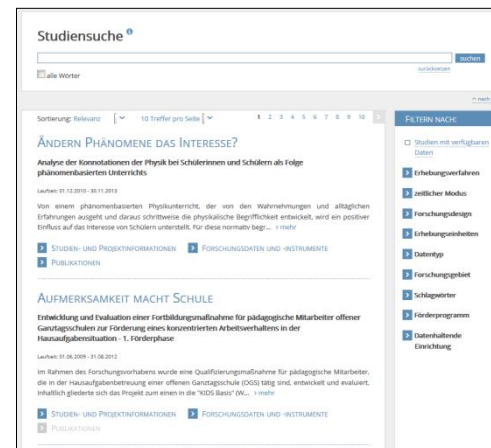
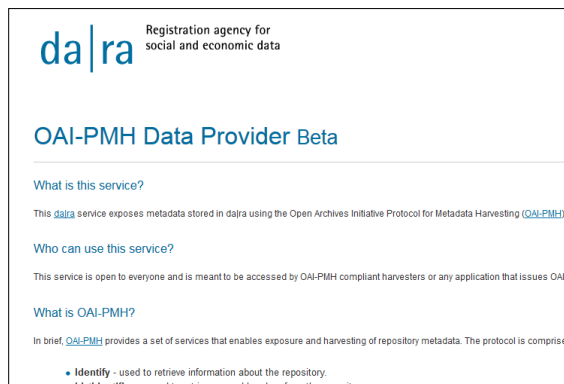


The screenshot shows a search results page titled 'Studiensuche'. It includes a search bar, a 'Suchen' button, and a 'Filtern nach:' sidebar. The main content area displays two search results. The first result is titled 'ÄNDERN PHÄNOMENE DAS INTERESSE?' and describes a study on the development of physical concepts in physics teaching. The second result is titled 'AUFMERKSAMKEIT MACHT SCHULE' and describes a study on the development of a training measure for pedagogical staff. Both results include a 'Laufzeit' (run time) and a 'Publikationen' (publications) section.

Two Solutions for Partner's Metadata Ingest

Option 2: Metadata Harvesting via da|ra

- Most RatSWD data centers register research data via da|ra
- da|ra metadata is licensed CC0 and provides a set for VerbundFDB
- da|ra already supports multilingual metadata
- Service level agreement guarantees provision of technical infrastructure and high quality metadata
- Metadata not specific to educational research
- Different registration practice (granularity, versioning of data and submission of metadata)



VerbundFDB Activities and Accomplishments

- Establishment and Organization of a VerbundFDB working group for metadata ✓
- Development of a tool to manage metadata: Data Management Modul (DMM) ✓
- Definition and Approval of a common standard for study descriptions in DMM and da|ra ✓
- Programming a VerbundFDB-Harvester (mapping/crosswalk)
- Provision and configuration of retrieval system/catalog

IV. Future Challenges and Objectives for Alliance and Network

- Documentation of other/new types of educational research data (log files, digital behavioral data, software etc.)
- Support individual technological solutions (API) for metadata ingest and access for data centers
- Link related objects (e.g. researcher, funder, instruments, publications)
- Coverage/inclusion of further metadata held by institutions outside the network
- Integration of non-German metadata

References

Literature (German):

- Meyermann, Alexia et al. (2017). Der Verbund Forschungsdaten Bildung – Eine Forschungsdateninfrastruktur für die empirische Bildungsforschung. RatSWD Working Paper 266/2017. Berlin: Rat für Sozial- und Wirtschaftsdaten. <https://doi.org/10.17620/02671.27> (01.05.2018).
- Harzenetter, Karoline (2017). Bericht vom ersten Netzwerktreffen des Verbunds Forschungsdaten Bildung. <https://www.forschungsdaten-bildung.de/vernetzung?la=de> (01.05.2018).

Websites:

- **ApaeK** - Archiv für pädagogische Kasuistik: http://www.apaek.uni-frankfurt.de/55817402/WEIII_AG_ApaeK
- **BIBB** - Federal Institute for Vocational Education and training: <https://www.bibb.de/en/index.php>
- **da|ra** - Registration agency for social and economic data: <https://www.da-ra.de/en/home/>
- **DJI** - The German Youth Institute: <https://www.dji.de/en/the-dji.html>
- **DGfE** - Deutsche Gesellschaft für Erziehungswissenschaft <https://www.dgfe.de/en/aktuelles.html>
- **DZHW** - German Centre for Higher Education Research and Science Studies: <http://www.dzhw.eu/en/index.html>
- **German Data Forum**: <https://www.ratswd.de/en/start>
- **IAB** - Institute for Employment Research <http://www.iab.de/en/iab-aktuell.aspx>
- **LifBi** - Leibniz Institute For Educational Trajectories: <https://www.lifbi.de/en-us/home.aspx>
- **Qualiservice data sharing**: <http://www.qualiservice.org/>
- **SOEP** - German Socio-Economic Panel: <http://www.diw.de/en/soep>
- **VerbundFDB** - Verbund Forschungsdaten Bildung: <https://www.forschungsdaten-bildung.de>
- **ZPID** - Leibniz Institute for Psychology Information: <https://www.zpid.de/index.php?lang=EN>

Merci beaucoup & thank you!

Forschungsdaten Bildung – German Network for Educational Research Data

- Team DIPF: Doris Bambey, Alexia Meyermann, Maike Porzelt, Dirk Weisbrod
- Team GESIS: Reiner Mauer, Marcus Eisentraut, Karoline Harzenetter
- Team IQB: Malte Jansen, Claudia Neuendorf, Lisa Pegelow

Web: www.forschungsdaten-bildung.de

E-Mail: verbund@forschungsdaten-bildung.de

Telefon: + 49 (69) 24708 - 311