

Why Not Ask Those Who Are Affected?

Development of an Instrument to Measure Students' Interests

Objectives

Aim of the project

- The scope of the project is to explore students' interests in the digital world in general and to investigate students' interests in the field of data more accurately.

Why?

Because ...

- ... interest is an important factor during the learning process and can influence the learning success in a positive way (Ainley, Hidi & Berndorff 2012, Naceur & Schiefele 2005).
- ... all students have to acquire competencies in the field of data literacy which can be seen in the "Digital Competence Framework for Citizens" (Carretero, Vuorikari & Punie 2017).
- ... results can help to design lessons that are more focused on the interests of students and could therefore be more motivating for them.

Interest Model for Data Literacy

Areas

- Data and Information
- Data storage and access
- Data analysis
- Data ethics and protection

Activities

- Data gathering
- Data modeling
- Data cleansing
- Implementing
- Optimizing
- Analyzing
- Visualizing
- Interpreting
- Sharing
- Archiving
- Erasing

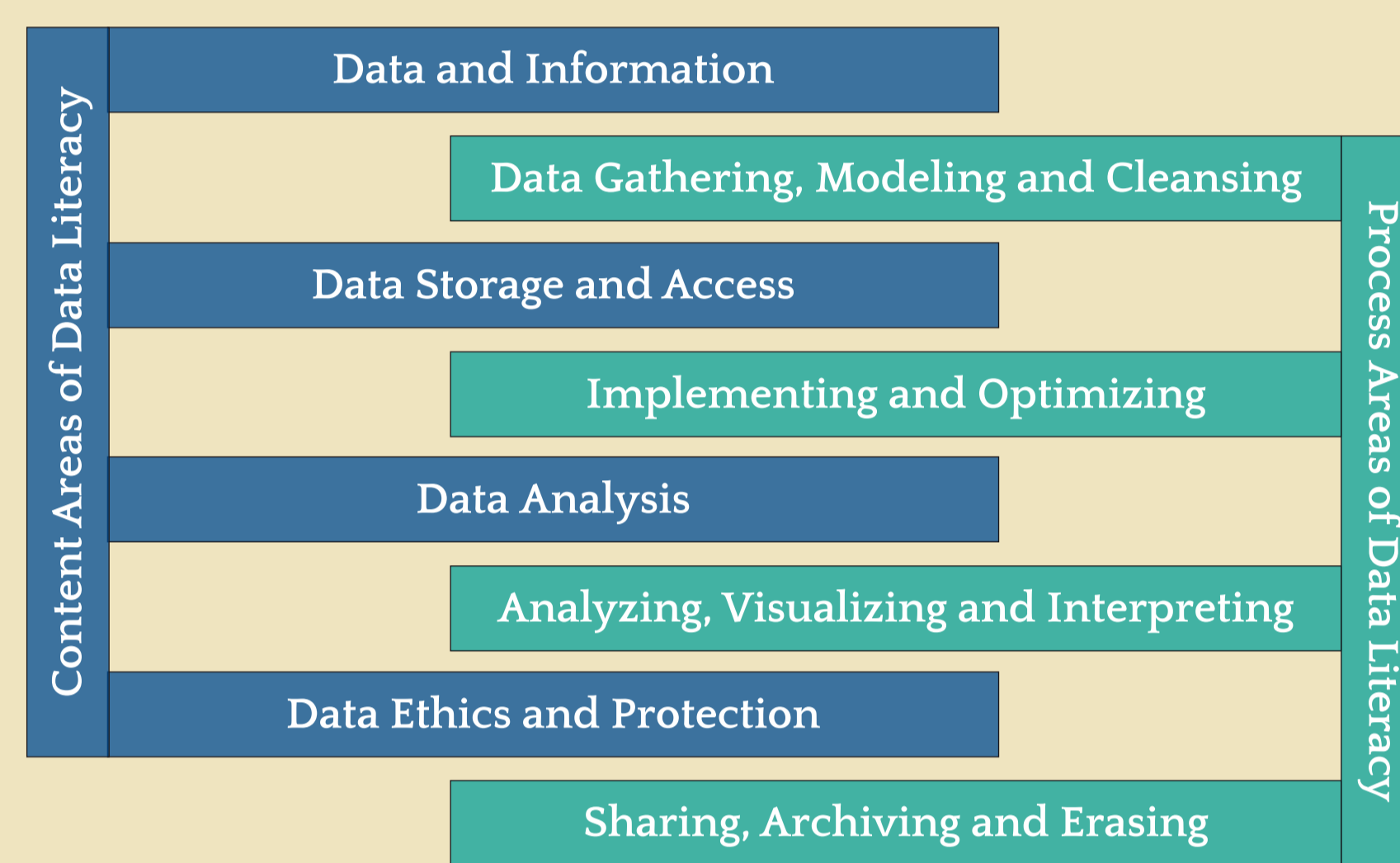
Contexts

- Personalized advertising and recommendations
- Electronic health record
- Traffic jam predictions and control
- Censuses
- Climate and weather recording and forecasting
- Tsunami warning systems

The model was developed according to the structure of the interest model of the IPN Interest Study Physics (Hoffmann, Häußler & Lehrke 1998). Areas and activities are derived from the data literacy competency model by Grillenberger & Romeike 2018. The contexts are just provisional. A survey with teachers is currently being conducted.

- The content areas are described briefly (4 items).
- Students have to indicate their interest on a 4-point-Likert scale.

"Data ethics and protection: How can privacy or personal data be protected (e.g. encryption)? Which data may be collected from an ethical or social point of view?"



Competency Model for Data Literacy from Grillenberger & Romeike 2018

- There are 3 items for each activity to represent its entire complexity (33 items).
- Students have to indicate their interest on a 4-point-Likert scale.

"Program a database to store data."

"Gain new information from data using algorithms."

"Share results from a data analysis with others."

Interest in Areas of Data Literacy

Interest in Activities of Data Literacy

- An open question is asked to gather topics students are interested in ("miracle question" from Borowski, Diethelm & Wilken 2016).

"Imagine meeting a person who can answer all your questions about the digital world, the internet and computers. What would you ask her/him?"

- Students have to rank their questions so that their interests become apparent.

Questionnaire to Measure Students' Interests

- Gender
- School grade
- Type of school
- Received CSE in years
- Interest in other school subjects
- Leisure time interests

Sociodemographic Data

Interest in Areas of the Digital World



"[...] State-of-the-art technologies are used to prevent **traffic jams**. The technologies can be used to display traffic jams in real time. [...]"

Interest in Contexts of Data Literacy

- Context characteristics from other interest research (Habig et al. 2018, OECD 2007) were used to identify possible contexts.
- Each student gets randomly three contexts.

- Short text to introduce context
- Items for measuring components of interest (cognitive/epistemic, emotional, value-related) (Krapp and Prenzel 2011)
- Items for measuring interest on areas and activities connected to the context
- Items for measuring interest on context characteristics

	Everyday life phenomena	Uncommon phenomena
Personal	Personalized advertising and recommendations	Electronic health record
Social	Traffic jam predictions and control	Censuses
Global	Climate and weather recording and forecasting	Tsunami warning systems

"[...] In the future, there could be an **electronic health record** for this purpose. It stores all data concerning the health of a person. [...]"

"[...] In order to better protect people's lives **tsunami warning systems** have been in place for several years. They ensure to warn people in affected areas early enough to leave the areas. [...]"

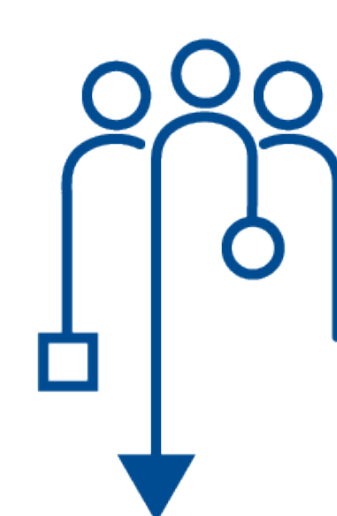


WANT MORE INFO?

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