

Domain **Ontology** for **Grounded** **Theory**

@aleadorjan



Research Question

RQ: How to model **qualitative
research** Grounded Theory
methodology ? An **Ontology
approach**

Methods

Interview with Domain Experts
Participant Observation in the Field
Modelling and **Prototyping**

Adorjan, A. (2023, August). Towards a Researcher-in-the-loop Driven Curation Approach for Quantitative and Qualitative Research Methods. In *European Conference on Advances in Databases and Information Systems* (pp. 647-655). Cham: Springer Nature Switzerland.

Adorjan, A., Vargas-Solar, G., & Motz, R. (2022, December). Towards a human-in-the-loop curation: A qualitative perspective. In *2022 IEEE/ACS 19th international conference on computer systems and applications (AICCSA)* (pp. 1-8). IEEE.

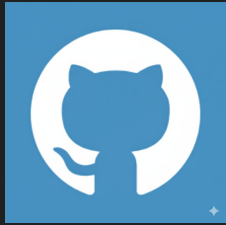
Use Case

Prácticas de **estudio** y de **lectura** de **estudiantes** de la **Licenciatura en Comunicación** de la Facultad de Información y Comunicación, Uruguay

Adorjan, A. (2023, August). Towards a Researcher-in-the-loop Driven Curation Approach for Quantitative and Qualitative Research Methods. In *European Conference on Advances in Databases and Information Systems* (pp. 647-655). Cham: Springer Nature Switzerland.

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Qualitative Research: Grounded Theory

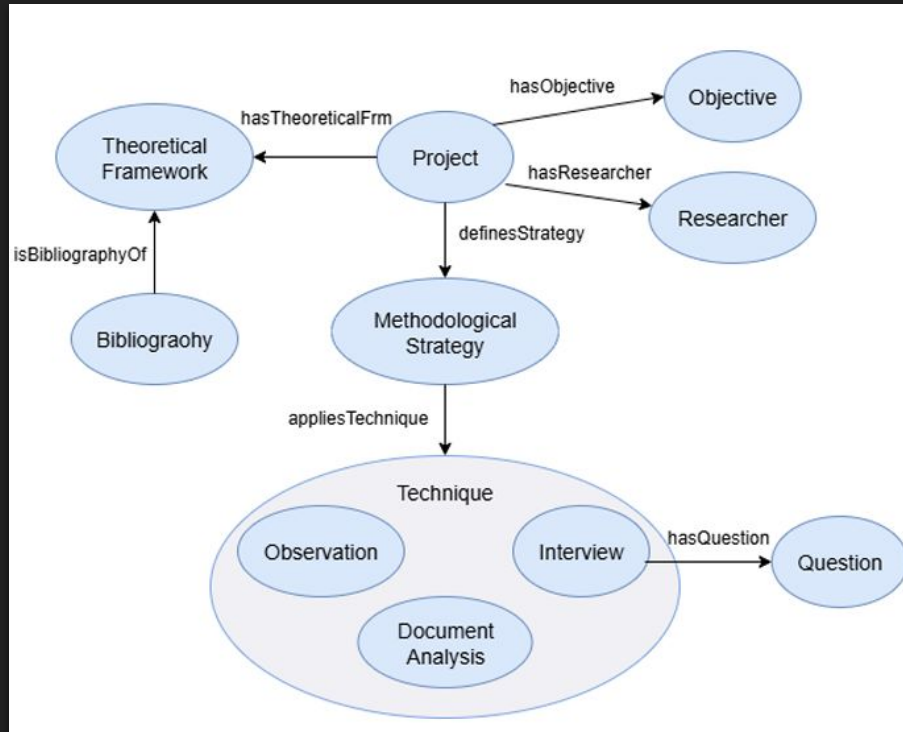


Generated Artefacts **Ontologies Development**

Protégé: A free, open-source ontology editor and framework.

Model

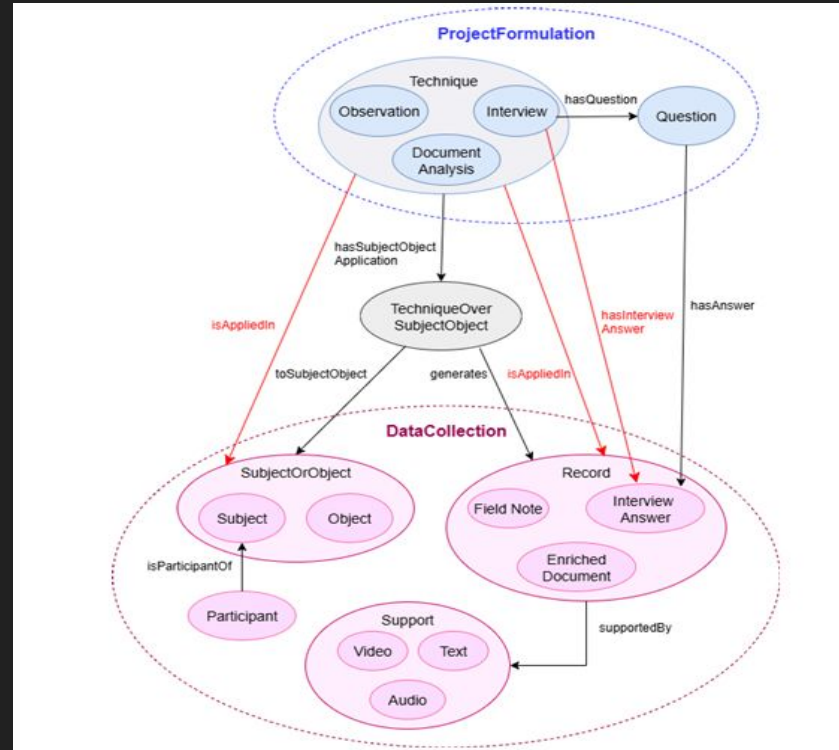
Project Formulation



Rohrer, E., Motz, R., Sandín, J. P., Méndez, E., Fleitas, F., & Pérez, A. (2025, September 10–12). *Domain ontology for grounded theory qualitative research: Bridging interpretation and structure in digital humanities* [Paper presentation]. FOIS 2025 Satellite events co-located with the 15th International Conference on Formal Ontology in Information Systems, Catania, Italy

Model

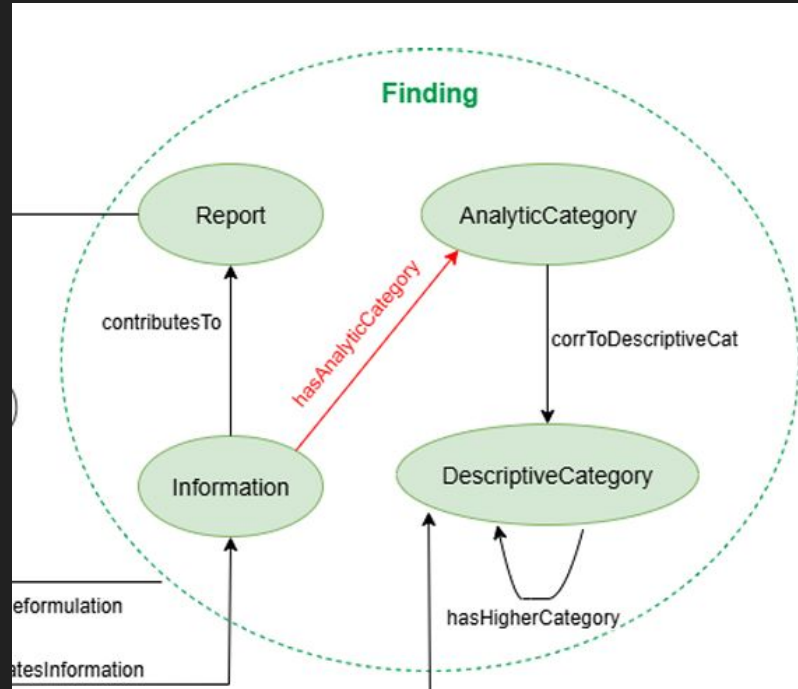
Data Collection



Rohrer, E., Motz, R., Sandín, J. P., Méndez, E., Fleitas, F., & Pérez, A. (2025, September 10–12). *Domain ontology for grounded theory qualitative research: Bridging interpretation and structure in digital humanities* [Paper presentation]. FOIS 2025 Satellite events co-located with the 15th International Conference on Formal Ontology in Information Systems, Catania, Italy

Model

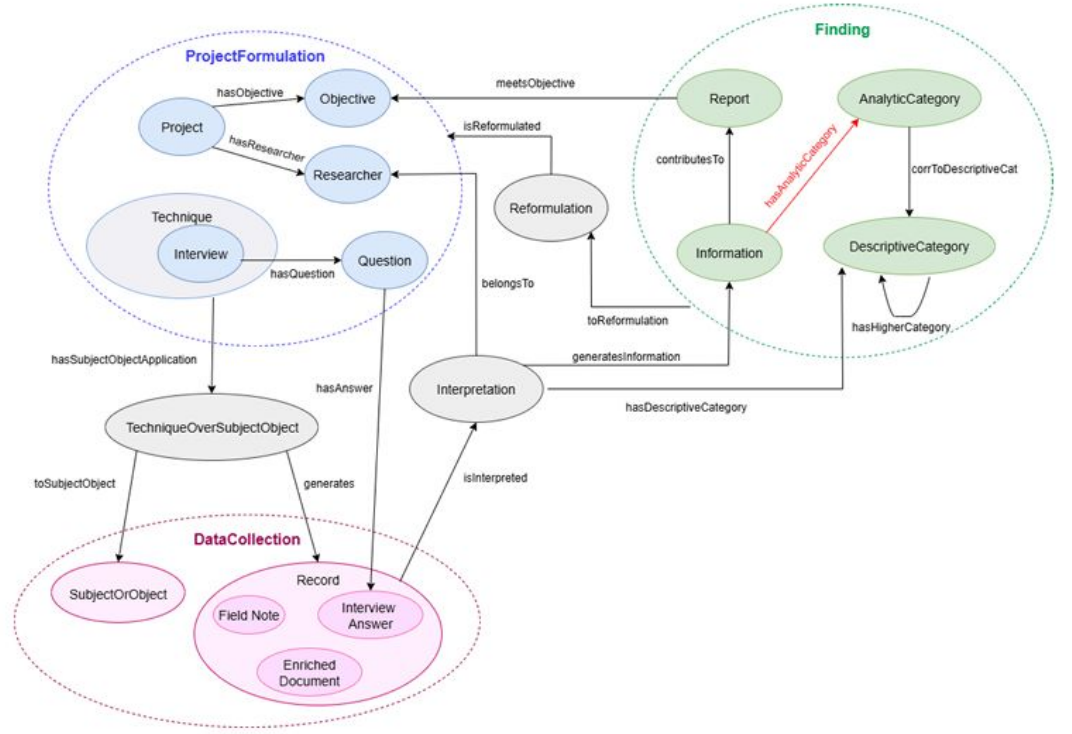
Findings



Rohrer, E., Motz, R., Sandín, J. P., Méndez, E., Fleitas, F., & Pérez, A. (2025, September 10–12). *Domain ontology for grounded theory qualitative research: Bridging interpretation and structure in digital humanities* [Paper presentation]. FOIS 2025 Satellite events co-located with the 15th International Conference on Formal Ontology in Information Systems, Catania, Italy

Model


Final Model



Rohrer, E., Motz, R., Sandín, J. P., Méndez, E., Fleitas, F., & Pérez, A. (2025, September 10–12). *Domain ontology for grounded theory qualitative research: Bridging interpretation and structure in digital humanities* [Paper presentation]. FOIS 2025 Satellite events co-located with the 15th International Conference on Formal Ontology in Information Systems, Catania, Italy

Open Source tool





Protégé Project

255 followers Stanford, California <https://protege.stanford.edu> protege-dev@lists.stanford.edu

Follow

Popular repositories

protege

Protege Desktop

Java 1.2k 259

Public

webprotege

The webprotege code base

Java 698 260

Public

protege-distribution

Build files for the protege distribution that includes 3rd party plugins

139 41

Public

cellfie-plugin

Protégé plugin for creating OWL ontologies from spreadsheets

Java 113 29

Public

swrlapi

Java API for working with the SWRL rule and SQWRL query languages

Java 101 41

Public


mapping-master

Library that supports the Mapping Master DSL for mapping spreadsheets to OWL ontologies

Java 58 10

Public

People



Top languages

Java Web Ontology Language CSS Dockerfile q

Most used topics

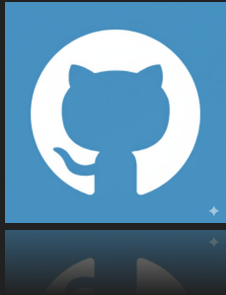
webprotege webprotege-library webprotege-service webprotege-api incubator

Deploy:

[Qualitative Research Ontology - Summary | TechnoPortal](#)

Qualitative Research: Grounded Theory

Actual Tools for **Ontologies Development**



Deploy: [Qualitative Research Ontology - Summary | TechnoPortal](#)

AI Tools to Generate Ontologies



Agents Editor grounded_onto

Search Agents

New Agent

AWAITING REVIEW

Download GitHub re... 23m

Download GitHub repository to Desktop Review

Now +673 -5 - Auto

push to remote

given this ontology create a protege project with all details

Creating a Protege OWL project from the ontology diagram. Analyzing the structure and creating the OWL file:

To-dos 3

- Create OWL ontology file with all classes from the diagram
- Add all object properties and their relationships
- Create Protege project structure and documentation

grounded_research_ontology.owl (new) +294

```
<?xml version="1.0"?>
<rdf:RDF xmlns="http://www.semanticweb.org/grounded_research_ontology#"
  xml:base="http://www.semanticweb.org/grounded_research_ontology"
  xmlns:owl="http://www.w3.org/2002/07/owl#"
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  >
```

Creating a Protege project file and documentation:

6 Files Undo All Keep All

Plan, @ for context, / for commands

Agent Auto

.gitmessage

```
1 # Conventional Comm
2 #
3 # Format: <type>(<sc
4 #
5 # <body>
6 #
7 # <footer>
8 #
9 # Types:
10 # feat: A new
11 # fix: A bug
12 # docs: Docum
13 # style: Chang
14 # refactor: A cod
15 # perf: A cod
16 # test: Addin
17 # build: Chang
18 # ci: Chang
19 # chore: Other
20 # revert: Revert
21 #
22 # Examples:
23 # feat(api): add i
24 # fix(parser): re
25 # docs(readme): u
26 # refactor(utills)
27 #
28 # Subject line:
29 # - Use imperative
30 # - Don't capital
31 # - No period (.)
32 # - Maximum 72 ch
33 #
34 # - Maximum 33 ch
35 # - No trailing
36 # - Don't capital
37 # - Use imperative
38 # subject line:
39 #
```

<https://cursor.com/>

<https://cursor.com/docs/agent/overview>

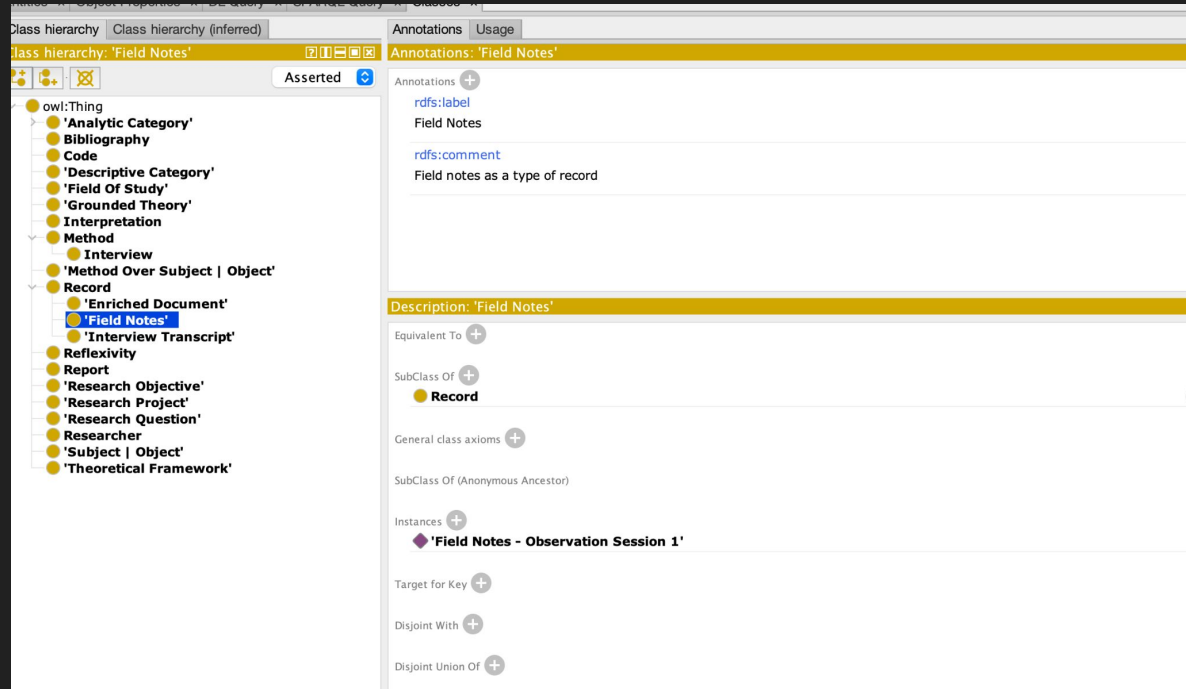
AI Tools to Generate Ontologies

<https://antigravity.google/download>

Protegé

Protegé

Protegé is an open-source platform for creating, editing, and managing **Web Ontology Language**



<https://protege.stanford.edu/>

[Qualitative Research Ontology - Summary | TechnoPortal](#)

Instances

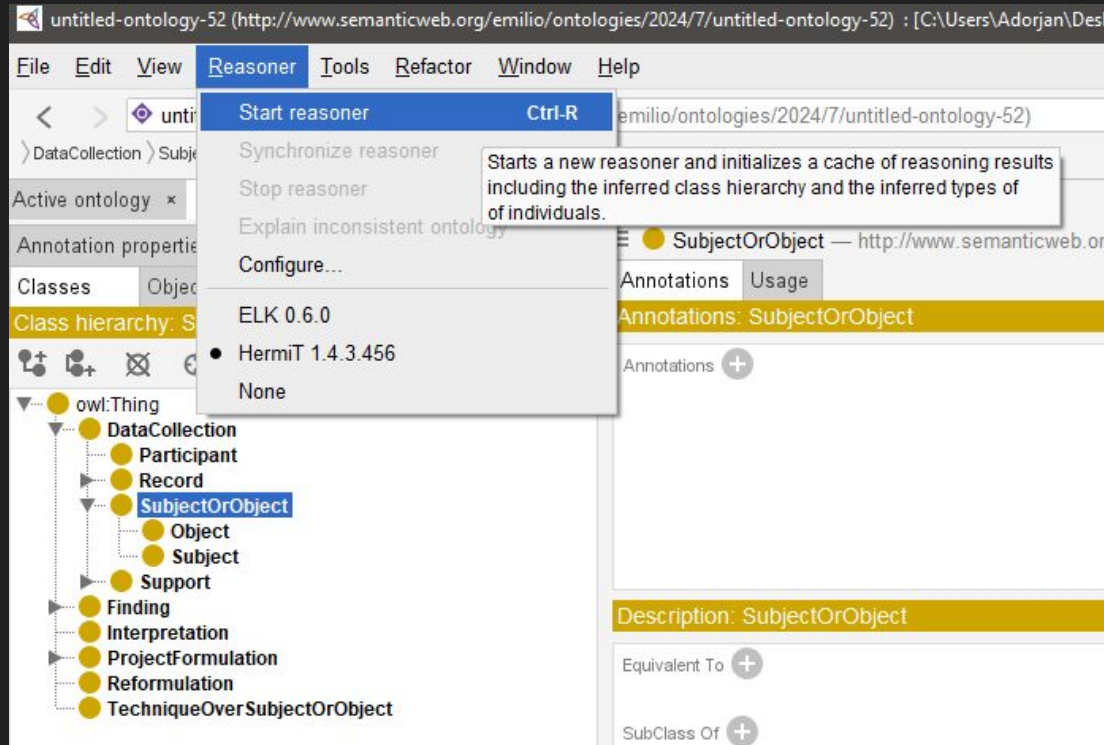
Protegé

The screenshot displays the Protegé ontology editor interface. The top menu bar includes 'Entities', 'Object Properties', 'DL Query', and 'SPARQL Query'. The main window is divided into several panes:

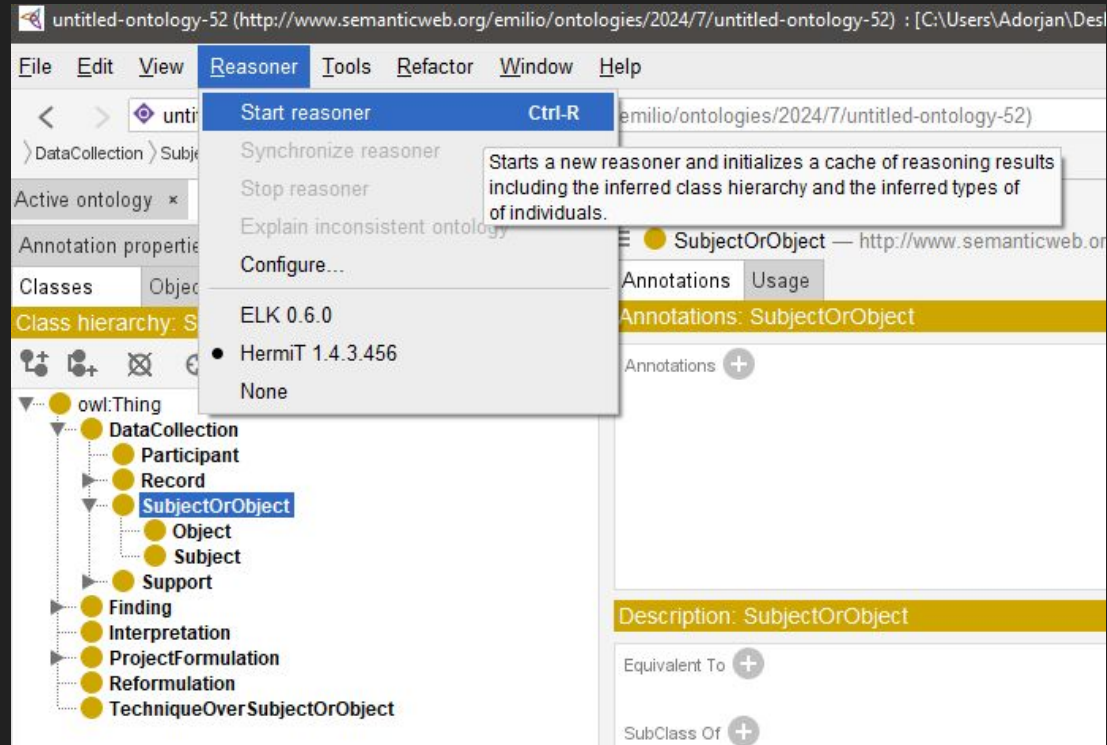
- Left Pane (Entities):** A tree view of the ontology. The 'Qualitative Education Study' class is selected and highlighted in blue. Other visible classes include 'Grounded Theory Framework', 'Higher Education', 'Initial Analysis Reflexivity', 'Initial Coding Interpretation', 'Internal Motivation', 'Interview Protocol Application', 'Interview Transcript 1 - Student A', 'Interview Transcript 2 - Student B', 'Intrinsic Motivation', 'Literature Review Bibliography', 'Motivation Dynamics', 'Motivation Factors', 'Peer Influence', and 'Published Study on Student Engagement'.
- Top Center Pane (Usage):** Shows the 'Usage: 'Qualitative Education Study'' tab. It indicates that 11 uses of the class were found. A list of instances is displayed, including 'Qualitative Education Study' with various properties like 'hasObjective', 'hasTheoreticalFramework', 'Type', 'rdfs:label', and 'hasResearcher'.
- Bottom Left Pane (Annotation properties):** Shows the 'Annotation properties' tab. It lists 'Classes', 'Object properties', and 'Data properties'. The 'Qualitative Education Study' class is selected.
- Bottom Center Pane (Description):** Shows the 'Description: 'Qualitative Education Study'' tab. It lists the types of the class, including 'Research Project'.
- Bottom Right Pane (Property assertions):** Shows the 'Property assertions: 'Qualitative Education Study'' tab. It lists the object property assertions for the class, including 'hasObjective', 'hasTheoreticalFramework', and 'hasResearcher'.

<https://protege.stanford.edu/>

Protegé



Protegé



Protegé

show: ☒ this ☒ different

Found 340 uses of eca1

advanced_student_of_communication_sciences

DifferentIndividuals: bibliography1, E1, E11, E12, E17, E18, E19, E20, E21, E25, E3, E30, E31, E

Bibliografia3

DifferentIndividuals: bibliography1, E1, E11, E12, E17, E18, E19, E20, E21, E25, E3, E30, E31, E

Description: eca1

Property assertions: eca1

Types

AnalyticCategory

Same Individual As

Different Individuals

bibliography1, E1, E11, E12, E17, E18, E19, E20, E21, E25, E3, E30, E31, E32, E37, E4, m studyStrategyResearch, res researcher3, researcher4, descriptive_manual_of_Can descriptive_manual_of_Mag descriptive_manual_of_Sole

Object property assertions

- correspondsToDescriptiveCategory ecd11.2
- correspondsToDescriptiveCategory ecd11.2.1
- correspondsToDescriptiveCategory ecd11.2.2

Data property assertions

- value "Practices and representations regarding study habits."

ecd11.2.1 hasHigherCategory ecd11.2

correspondsToDescriptiveCategory o inverse (hasHigherCategory) SubPropertyOf: correspondsToDescriptiveCategory

eca1 correspondsToDescriptiveCategory ecd11.2

Entities x Object Properties x DL Query x SPARQL Query x

Snap SPARQL Query:

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

Query 1: List all records
Description: Returns all record instances regardless of type

```
SELECT ?record ?recordType
WHERE {
  ?record rdf:type ?recordType .
  ?recordType rdfs:subClassOf :Record .
}
ORDER BY ?recordType ?record
```

Execute

?record	?recordType
:Record_PublishedStudy1	:EnrichedDocument
:Record_FieldNotes1	:FieldNotes
:Record_Interview1	:InterviewTranscript
:Record_Interview2	:InterviewTranscript
:Record_FieldNotes1	:Record
:Record_Interview1	:Record
:Record_Interview2	:Record
:Record_PublishedStudy1	:Record

Ontologies Classes Object Properties Data Properties Annotation Properties Individuals Datatypes Clouds

Contents

- grounded_research_ontology
- Classes (25)
- Object Properties (26)
- Data Properties (2)
- Annotation Properties (2)
- Individuals (28)
- Datatypes (2)

Ontologies Classes Object Properties Data Properties Annotation Properties Individuals Datatypes Clouds

Individual: 'Contextual Factors'

Types (1)

- 'Analytic Category'

rdfs:label

- "Final Research Report"

isReported

- 'Student Motivation Model'

Usage (3)

- 'Motivation Factors' hasRelativeAnalyticCategory 'Contextual Factors'
- 'Motivation Dynamics' hasRelativeAnalyticCategory 'Contextual Factors'
- 'Student Motivation Model' hasElaboratedTheory 'Contextual Factors'

Ontologies Classes Object Properties Data Properties Annotation Properties Individuals Datatypes Clouds

Individual: 'Student Motivation Model'

Types (1)

- 'Grounded Theory'

rdfs:label

- "Final Research Report"

isReported

- 'Student Motivation Model'

Usage (1)

- 'Final Research Report' isReported 'Student Motivation Model'

rdfs:label

- "What factors motivate university students to engage in their studies?"

isReformulated

- 'Initial Analysis Reflexivity'

Usage (1)

- 'Final Research Report' isReported 'Student Motivation Model'

rdfs:label

- "Field Notes - Observation Session 1"

A Final Thought

..is not about **technology** is about
methodology

Thanks !!

@aleadorjan

