Opening the Door to Philosophy for Teachers with GYM-Author

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Introduction

Can a system have the ability to dynamically generate, on demand, a large number of self-learning and self-assessment exercises in order to supplement a learning environment in philosophy?

We addressed this issue within the **Phi-GYM** project and its **authoring tool (GYM-Author) for tutoring systems in philosophy**.

Motivation in designing GYM-Autor:

(1) Find an effective way to **semi-automatically generate a wide range of exercises**, and;

(2) Provide philosophy teachers with an **easy, autonomous, and collective way to create exercises** related to classical philosophical texts without **worrying about any technology**.

Related Work

The **2000s** saw AIED and ITS research communities interested in **authoring systems**, and **their classification** [1-5], as they addressed **the problem of the generation of learning materials**.

Authoring systems do **not support the learning itself**; their purpose is to **support the design and generation** of learning materials for the ITS environment, and, often provide means to **generate this learning semi-automatically and even automatically**.

As highlighted by [6], "semi-automatic generators of exercises combine the advantages of [the automatic and manual] classes of generators", which is why **we chose to design GYM-Author as semi-automatic exercise generator**.

We believe these to be **the most adaptive**, and they fit one of our primary goals to help teachers in a **more efficient** way.

Design & Architecture

GYM-Author is a web based pedagogy-oriented authoring tool in philosophy

Project's originality: (1) **There is currently no such an authoring system.** (2) Also both **the learning environment (GYM-Tutor)** and **authoring environment (GYM-Author)** are designed as an integrated one and developed in parallel.

Design Methodology of the Phi-GYM system: we have adopted a **participatory design approach**, based on **short iterative cycles** of **conceptualization, development and evaluation**.

Domain (Philosophy): **in the Phi-GYM** the learning experience is made through the **reading** of **philosophical texts** and the **writing of text productions** about these philosophical texts.

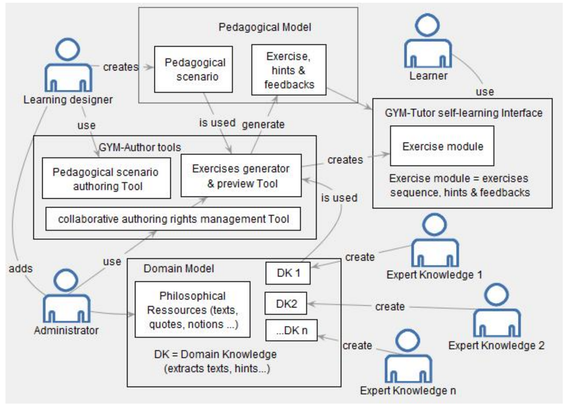

Fig. 1. GYM-Author's architecture

GYM-Author's architecture owns the main tools (exercise generation, scenario authoring, collective edition and preview) **that support the authoring process, the domain model and the pedagogical model.**

GYM-Author and GYM-Tutor's architectures share some components. Both share: (1) **the same Domain Model** populated by philosophical texts, quotes, notions and related contents; (2) **the same Pedagogical Model** (pedagogical scenario, hints, feedbacks) but they use different parts of it when needed.

While **GYM-Author owns an Author Model** (**profile, scenario building rights, collaboration rights**), **GYM-Tutor has a Learner Model** (**profile, progression, performance, philosophical text annotated**).

Actors: GYM-Author provides **two roles to teachers**.

(1) The ***learning designer*** is responsible for the **edition of various pedagogical scenarios** according to the objectives and the contexts of learning.

(2) The ***knowledge expert*** is responsible for **creating contents and exercises** in philosophy following a predefined pedagogical scenario constrained by the types of questions offered: **Multiple choice questions, Tagging, Cloze test and brief answer**.

Fig. 2. GYM-Author's interface

Usability Evaluation

We conducted an **evaluation by inspection** followed by **scenario-based qualitative tests** with eight potential end-users.

The results of our data analysis has shown that several aspects which **seem obvious to us were not for users on their first try** but **the system appears to be well-mastered, memorized and pleasant after a full exploration: the user quickly becomes effective** with the system and manages to **generate perfectly usable exercises.**

These results are already considered in the next iteration and further tests are planned including with GYM-Tutor.

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