"What is it?": A Culture Sensitive Educational Game

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Abstract. When teachers want to introduce a discussion about the use of cigarette to a group of teenagers, it can be interesting to know what this group thinks about it in order to contextualize the approach to their profile. It is proposed here a framework to instance web game supported by common sense knowledge to approach the called "transversal themes" of the school curriculum, like healthcare, sexual education and ethic. The quiz game framework called "What is it?" is presented as a support for teachers in contextualizing the content to the students' local culture, promoting a more effective and significant learning, where a new knowledge is related to a previous one in the student's cognitive structure. Teachers can set up a web quiz game based on common sense knowledge in the prototype presented.

1 Introduction

"What is it?" (http://lia.dc.ufscar.br/jogo_lia/game) is an online common sense-based game framework being developed in the context of the Brazilian Open Mind Common Sense (OMCS-Br) Project [1] to collects and uses common sense knowledge. It is intended here to make possible the use of common sense knowledge in web-based educational games, aiming at stimulating the learning contextualization the knowledge's construction in the learning process. Furthermore, it intends to collect common sense knowledge from teachers and learners who use the generated games.

The use of common sense in the learning process is suggested by several educators who defend that by contextualizing the learning it is possible to promote

the meaningful learning [2, 3]. The "What is it?" ("O que é, O que é?" in Portuguese) is a project supported by FAPESP, CAPES and PDTA/FPTI-BR.

The game bear these issues by supporting teachers to work on themes related to the transversal themes [4], allowing teachers to have a picture of the language, believes and habits from a certain group considering these themes. The "What is it?" framework is divided in two modules explains in section 2 and 3, and in section 3 describes a future works and conclusion.

Fig. 1. Player's Module

2   The Player's Module

Figure 1 presents the "What is it?" player's module main interface. To illustrate the game's use, it was developed a game's instance considering the theme "Health". To start the game the player should, first of all, click on the dice, represented in Figure 1 by the letter "H" (by "Healthcare"), whose faces represent topics related to the transversal theme on which the teacher intent to work. Other topics which can potentially compose the "Health" theme's dice, according to the teachers' necessities, are "human development" and "risk factors". Also, the letters which represent the topics are presented to the player fast and randomly. When the player clicks on the dice it stops and says which topic the secret word is about and should be guessed. Each topic has a set of cards associated related to different secret words. These cards are defined by teachers in the game's editor module, using the support of a common sense knowledge base.

The clues play the role of supporting the player to guess which the secret word is. Each card can have a maximum of ten clues that can be selected by the learners clicking on a number into the "Set of Clues" area, which can be seen in Figure 1. After having the topic defined by the dice, a card with clues is presented to the player and, as s/he selects a clue, it is displayed on the blue balloon. The players can select as many clues as they consider necessary before trying to guess the word.

As the players try to find out the secret word, the system collects common sense knowledge, storing the relation between the word they suggested and clues that were already displayed. This collecting process is interesting (1) to teachers, who can identify possible misunderstanding by analyzing the answers that learners with the profile of their target group give to a specific set of clues, and therefore, approach those misunderstandings in classroom to clarify them; and (2) to the Brazilian OMCS knowledge base, which will increase the number of stored common sense statement.

3   The Game's Editor Module

The game's editor is a seven-step wizard to guide the teacher to create game's instances, which fit to their pedagogical goals. This module is supported by the common sense knowledge stored in the Brazilian OMCS knowledge base.

In order to create a new game's instance, the teacher must define three items: (1) the game's main theme, which should be chosen from the six transversal themes [4] available; (2) the topics, which are specifics subjects related to the transversal theme chosen (as it was previously mentioned, the topics compose the game's dice faces); (3) the cards, which have a group of clues related to a secret word from one of defined topics, an optional secret word's synonym list.
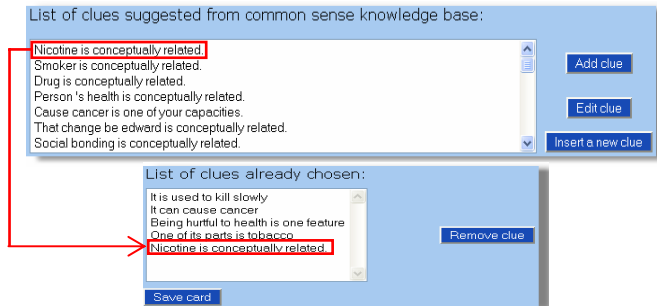

Table 2. Games Editor Module

During the cards' definition the teachers receive the support of the common sense knowledge. For that purpose, in the framework's editor Step 1 teachers have to define the population profile which should be considered in the search for common sense statements in the knowledge base. In this way, the system guarantee that the statements recovered to be offered to the teacher were gathered from people who have the desired profile to fit the game's instance to his/her pedagogical goals, i.e., the statements are contextualized to the target group. This process is called common sense filter definition. Once the filter is set up, the teacher can choose the secret words for each card. In the following, the teacher can define a list of synonyms for each one secret word, and these synonyms are also accepted as expected answers in player module.

The next step consists of defining the set of clues for each secret word. For each secret word defined, it is performed a search on the Brazilian OMCS semantic network, called ConceptNet-Br [1]. The ConceptNet's search mechanisms allow increasing the number of words associated with the secret work. The concepts associated with the secret word and their synonyms are presented to teachers as natural language statements and, based on these statements, teachers can compose the cards. For example, the relation "ConceptuallyRelatedTo nicotine, cigarette", found in the ConceptNet, is presented to teachers as "Nicotine is conceptually related". Then the teacher can select a common sense statement as a clue, adding it to the card's set of clue, edit a statement to make it suitable to the game's purpose, or just ignore the suggestions and compose others clues. It is worth to point out that the sentences edited or composed by the teachers are also stored in the Brazilian OMCS knowledge base as new common sense statement of that teacher. Figure 2 presents in the box "List of clues suggested from common sense knowledge base" some statements retrieved from the OMCS knowledge base which can be used as clues, as it was explained before. Those statements are related to the secret word "cigarette". The box "List of clues already chosen" lists the clues already chosen to compose the cares.

4   Conclusions and Future Work

This paper shows "What is it?", an educational game framework whose purpose is to help teachers to work on the transversal themes proposed by the Brazilian Secretary/Minister of Education: sexual education, ethics, healthcare, environment, cultural plurality, market and consumers. The intention is to give teachers some support for teaching these themes concerning their students' context and culture through common sense knowledge usage, and at the same time promoting a way of learning with fun. As future works it is intended to being planned to perform a case study with teacher and students from the Brazilian public education system, in different cities, in order to assess the game's usefulness and to gather new requirement to fit it to the teachers and learners necessities.

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