



## A System for Collecting Commonsense Knowledge from Children

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**Abstract:** People acquire commonsense knowledge through everyday interaction and sharing of daily experiences in the form of stories. For computers to provide a more engaging and meaningful interaction with their human users, such as in interactive learning environments, they must be endowed with this same collection of knowledge. However, the manual process of building and populating computer systems with an adequately-sized body of knowledge is time-consuming and tedious. One approach to address this is to crowdsource knowledge from the public.

Story Sense is an online interactive learning environment that collects commonsense knowledge from children through computer-generated stories. It caters to three types of users, namely the teachers, the children/learners, and the adults/validators. Teachers use Story Sense to define story templates and the types of knowledge that they would want to collect from the children. The system uses the story templates to create stories with blanks for children to fill-up in an interactive environment. To motivate the children to continuously use and contribute new knowledge, gamification strategies such as leaderboards and achievement badges have been included. Simple social networking techniques are also used to allow children to read and rate (or like) the completed stories of other children.

Crowdsourcing can increase the rate of knowledge acquisition dramatically. This, however, does not guarantee that the collected knowledge is useful for Story Sense to further generate stories. A validation mechanism has been put in place to allow adult users to provide scores on the knowledge given by the children in order to help the system determine when knowledge is usable and when it should be discarded. Tests conducted among adults (aged 18 and older) and children (aged 7-10 years old) showed a high satisfactory rate both in terms of the amount and the quality of knowledge that has been collected.

**Key Words:** commonsense ontology; knowledge acquisition; crowdsourcing, story generation; gamification