# Conclusion

In this paper we presented Yum, an online environment that addresses issues children face when using popular search engines to conduct information seeking tasks. In doing so, Yum can facilitate the learning that can occur while reading resources that are retrieved as a result of an online child-initiated search. As part of our ongoing research efforts, we leverage the use of popular search engines, and search intent and query suggestion modules we have already developed, with a readability-based filtering strategy and a novel tracking strategy, to enhance the search-for-learning tasks conducted online and informing teachers of the progress of their students, in term of reading and comprehension. As part of our ongoing research work, we conducted an initial assessment using queries written by children in K-9 grades. The results of our analyses demonstrated the need for environments such as Yum.

We plan to extend the functionalities and usefulness of Yum by implementing a number of enhancements: we are aware that the Flesch readability formula, currently used in Yum, is not precise enough. Therefore, we will build our own readability assessment tool which will go beyond counting terms and syllables, and instead will consider web page specific metadata as well as more depth language information such as syntax and semantics. We would also like to explore different filtering strategies based on web page authority and matureness of the content retrieved, so that retrieved documents are more adequate to children. Finally, we would also like to conduct more in-depth studies for better understand, quantify and showcase the correlation between learning and information discovery tasks conducted using enhanced web search environments, such a YUm. Since the developmental stages and information needs of children K-9 are broad, we will conduct these studies based on more specific age ranges, such as 6-8 and 9-12.

In the future, we envision Yum as an environment a child could use independently of the information discovery task pursued. For doing so, we plan to extend the range of the documents Yum can retrieve, including searches in local catalogues such as school libraries or dictionaries. We also aim to add support for multiple languages so that children that know different languages can use their Yum account both at home and at school. Finally, we would also like to explore and incorporate new ways of collaborative searching between various students and the teacher, which could further enhance the learning while searching.

In this paper we presented Yum, an online environment that addresses issues children face when using popular search engines in order to facilitate learning while searching. As part of this ongoing research to enhance web search environments, we conducted an initial assessment using queries written by children which demonstrated the need of strategies implemented in Yum.

In the near future, we plan to keep improving Yum. We are aware that the Flesch readability formula, currently used in Yum, is not precise enough. Therefore, we plan to build our own readability assessment tool which will go beyond counting terms and syllables, which will consider web page specific information such as metadata, as well as more depth language information such as syntax and semantics. We would also like to explore different filtering strategies based on web page authority and matureness of the content retrieved, so that retrieved documents are more adequate to children. Finally, we would also like to conduct a more in-depth study for better showcasing the learning children would obtain by using Yum.

In a further future, we imagine Yum as an environment a child could use independently of the information discovery task pursued. For doing so, we plan to extend the range of the documents Yum can retrieve, including searches in local catalogues such as school libraries or dictionaries. We aim to add support for multiple languages in Yum so that children that know different languages can use their Yum account both at home and at school. Finally, we would also like to explore and incorporate new ways of collaborative searching between various students and the teacher, which could further enhance the learning while searching.