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5th KidRec Workshop: Search and Recommendation Technology Through the Lens of a Teacher

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ABSTRACT

In this past year, the role of technology to support education has been more prominent than ever. This has prompted us to focus the 5th Edition of the International and Interdisciplinary Perspectives on Children & Recommender and Information Retrieval Systems (**KidRec**) around a major stakeholder when it comes to technology adoption for the classroom: the teacher. Much like in the previous editions of the workshop, our priority remains understanding what is *good* when it comes to information retrieval systems for children, this time from the perspectives of teachers. In order to control scope of our discussion and continue to advance knowledge in this area, we focus on technology that enables information discovery in the classroom context: search and recommendation systems. Expected outcomes from this workshop remain building community in this important area of work and extend the framework we have been defining to enable design and evaluation of *good* information retrieval systems for children.

CCS CONCEPTS

• **Information systems** → *Recommender systems; Web search engines; Personalization*; • **Web searching and information discovery**; • **Social and professional topics** → *Children*.

KEYWORDS

children, information retrieval, technology, design, human-computer interaction, classroom, teachers, search, recommendation, information discovery

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1 INTRODUCTION

Ever since its 1st edition, the goal of KidRec has been to advance knowledge in an important area of research: design and evaluation of information retrieval systems (including search and recommendation tools) for children. As summarized in Table 1, we started trying to understand the landscape of the area, in particular open challenges and needs. Every year after that, we have continued to explore different uses of information retrieval systems (e.g., for leisure vs. for education) and have aimed to define what is *good* when it comes to information retrieval systems for children. Previous editions of the workshop have contributed towards building a foundation by defining a *framework* that can guide the design, development, and evaluation of information retrieval systems for children from multiple perspectives: children's needs, assessment metrics, industry vs. academia requirements, and ethical and policy considerations [2, 4, 5, 7]. In this 5th edition of the KidRec workshop, we propose to expand this framework by fully incorporating yet another perspective, by viewing things through the lens of *teachers*, hence the theme for this year. We aim to better understand teachers' perspectives of the design and adoption of search and recommendation tools that can better support classroom-related information-seeking tasks. This will enable us to highlight one important voice, that of teachers; teachers, who have the lead role in contemporary education and possess the necessary skills to use technology fostering information discovery in order to enable students to learn more efficiently and be more satisfied with their education.

Different information retrieval systems cater to different information needs. To best take advantage of this edition of our KidRec workshop, we purposefully will only focus on *search and recommendation technology* and its applicability to the *classroom* setting (regardless of the fact instruction can occur in a traditional physical classroom or online, the latter more prominent given the COVID-19 ongoing pandemic). During this year's workshop, we will first provide some context by discussing various current approaches and research from around the world that are related to the field of

Table 1: Overview of KidRec Workshops

Year	Overview
2017	Co-located with RecSys 2017 in Como, started building a community that explores the constraints, limitations, existing strategies, and identify future research paths to nurture and advance the research on recommender systems for children [7].
2018	Co-located with IDC 2018 in Trondheim, explored research and industry efforts surrounding the algorithmic search and recommendation process for children [2].
2019	Co-located with IDC 2019 in Boise, initial outline of dimensions required for an evaluation framework that can be used to define “What does good look like?” [4].
2020	Co-located with IDC 2020 in London, and run online, expanded the framework to consider researchers and practitioners perspectives informing policy related to the design of good IRS for children, ethics being one of the driving considerations [5].
2021	Co-located with IDC 2021 in Athens, will particularly consider teachers’ perspectives informing the design, development, and use of search technology in the classroom. We anticipate that KidRec taking place online will make it easier for teachers to join in, thus fostering a more inclusive discussion.

classroom digitization [8]¹ and information discovery technology (i.e., tools enabling web search and recommendation). Via this initial synopsis, participants lightning round presentations, and group discussions, we will: continue to outline and expand on the open issues, dilemmas, and possibilities; identify more accurately the landscape of the current scientific research in the area; and map out future directions of research. In all of this, the primary lens will be that of the perspective of a teacher. It is important to note that we define teacher broadly as a teacher can be one that has a formal role of a school teacher or it could be a parent who has needed to assert that role of teacher (even more so now as school has gone remote or online due to the COVID-19 global pandemic).

We expect that workshop interactions will be focused on, but not limited to, the topics outlined below; we are of course particularly interested in discussing these topics while addressing the role and requirements of teachers.

- All aspects of teaching in a blended school environment. For example, the teacher used to be the omniscient storyteller, now the child is the protagonist, with teachers (and parents) providing necessary scaffolding for children to conduct online information discovery tasks.
- The changing roles of the teachers. The role of the parents in the extended classroom context. How to deal with parental influence or lack of? How to manage the consequences of the digital divide between rich and poor in this environment, both within a country and between countries and continents.
- All aspects of the use, design and implementation of information discovery technology in a blended school environment. For example, how are these tools developed, what are the roles of the child, the teacher and the designer in the design process? Which tools are capable of optimally supporting the learning process and how can this be measured?
- Actual examples, comparisons and analyses of search and recommendation tools used in the classroom (including the

extended classroom of the home due to the global pandemic). This includes those tailored explicitly to support classroom instruction like Google Classroom, Microsoft Teams, and WebforClassrooms, as well as generic tools that leverage search and recommendation technology such as robots, voice systems, etc.

- Further directions in research, tools and developments for the cornerstone of education, the teacher.

Outcomes from this 5th edition are twofold: (1) gather teachers’ input in the form of feedback, requirements, and needs, that can inform future directions related to the design, development, evaluation, and deployment of search technology supporting children’s teaching and (2) extend the framework that has been the cornerstone of KidRec for the past five years with a new important perspective, that of teachers.

2 ORGANIZERS

Below we include a brief summary of organizer’s background, all of whom have also been involved in prior editions of the KidRec Workshop. The main contact person for this edition of the workshop is: Monica Landoni.

Monica Landoni is a Senior Researcher at the faculty of Informatics at Università della Svizzera Italiana (USI). She has worked on a number of national and European projects investigating how technology can support children when searching, writing and reading for education and pleasure. While doing that she has happily survived the design and running of many collaborative design sessions in formal and informal settings. Carefully taking into account the different needs, requests, roles and points of views of parents, librarians, and children, but this time teachers should come first.

Theo Huibers has been researching information retrieval and human media interaction for over 30 years. Since 2002, he is a professor in Human Media Interaction & Computer Science at the University of Twente in the Netherlands and co-founder of an international eTech company called Wizenoze, founded in 2013. Following KidRec 2018 in Trondheim and KidRec 2019 in Boise, he is eager to participate in the new edition from both an academic as well as a business perspective.

¹As stated in [1], “The rise of digitalization in schools across the world means that ‘traditional’ teaching is evolving, and technologies are taking over classrooms [...] The digital revolution in the education sphere means students have access to the best resources at the click of a button in any remote location. In this current digital climate, technology takes the front seat, and the education sector is by no means behind.”

Maria Soledad Pera is an Associate Professor in the Computer Science Department at Boise State University. Sole's research focuses on IR and her work related to IR applications tailored towards children has been funded by the National Science Foundation. She has served as PC and reviewer for conferences and journals related to IR and was General Chair of ACM RecSys 2018. She was also one of the co-organizers of the 2016 International Workshop on Educational Recommender Systems, and previous editions of the KidRec Workshop. Thus, she is very much looking forward this new edition with teachers at its core.

Jerry Alan Fails is an Associate Professor in the Computer Science Department at Boise State University. Jerry's research is in the area of human-computer interaction, with particular focus on designing, developing, and evaluating technologies with and for children. Jerry has participated on and led participatory design groups where children and adults work together as design partners for the last 18 years. He has developed and evaluated several technologies for children. He has organized workshops and courses at CHI, and reviewed for and served on the program committee for CHI, IDC, and other conferences and journals.

3 WEBSITE

The workshop website will offer potential attendees information pertaining to objectives for the workshop, work submission and interest in participation details, contact information of organizers, important dates associated with KidRec, list of accepted papers, and outline of the program. URL: <https://kidrec.github.io/>

4 PRE-WORKSHOP PLANS

We anticipate a call for *position papers*, as well as a more general call with an online form for people to express *interest in participating*. We will reach out to experts in areas related to the theme of our workshop and invite them to submit their contribution/expression of interest, which will initiate the conversation concerning the challenges, limitations, and diverse perspectives that hinder design, development and evaluation of information discovery technology for children in a classroom context. Both position papers and responses to the website form will allow organizers to ensure that participants will be able to be active participants in the discussions that will take place during the workshop.

Position Papers. By defaulting to a traditional call for position papers, we seek to appeal to researchers and industry practitioners. Position papers are expected to be 2-4 pages long (on ACM single column template), and will be submitted via EasyChair. We anticipate contributions related to promising research directions as well as discussing needs and requirements inherent to the use of search technology in the classroom, primarily from a teacher's perspective. We also encourage researchers and introductory practitioners to share their vision on any of the topics outline for this edition of KidRec (see Section 1).

Expression of interest in participating. In order to appeal to a broader audience than those who submit position papers, last year we made available a form on the KidRec website where people could indicate their interest, by describing their background, and declaring the perspectives that they would bring to the workshop. This allowed us to recruit workshop participants who would not

regularly attend IDC, while expanding the community around the are of the study of our workshop. Given the success of the recruitment strategy via the interest form, and mindful of the fact that teachers and other interested participants (e.g., parents and children librarians) might be more comfortable expressing their intent to participate via this medium, we will make this form available once again.

Promotional strategy. We will promote the workshop at conferences (e.g., CHI), and online through social media (e.g., Facebook, Twitter), as well as sending CFP to forums like DBWorld and other relevant mailing lists (e.g., SIG-IRList, SIG-CHIList, Dev-Europe, ID-Research-UK and IDC email lists). We will also directly reach out to practitioners, industry experts, and most specially educators, through education contacts and educator-related social media pages, so that they can participate of the workshop. KidRec will take place online, which we expect will make the workshop more accessible for teachers to attend, for that we are also seeking additional sponsors to cover for registration fees.

5 WORKSHOP STRUCTURE

Given the restrictions imposed by the ongoing COVID-19 pandemic, we envision KidRec as a half-day, interactive online workshop, for between 15 to 25 participants. By allocating only half a day for this 5th edition of KidRec, we can accommodate workshop participants around the world, while avoiding the fatigue usually associated with online work gatherings [6].

We anticipate a call for *position papers* focusing on open challenges and promising research directions. We will also accept *informal submissions* (via online form) from practitioners, especially teachers, interested in participating. We will select accepted papers through peer-review, for which we will recruit a Program Committee comprised of experts in diverse – but children-related – fields.

We propose to facilitate a highly participatory workshop [3] in which attendees can discuss the limitations and challenges of *good search and recommendation tools for children in the classroom*, from a teacher's perspective. We propose to do so via an interactive format, including: community building exercises, informal interactions, facilitated group work, and lightning talk presentations of accepted contributions. The short lightning talk presentations of the accepted contributions will be utilized to identify elements needed for *good information discovery tools*, and form a basis for discussion on how the framework (which we have been enriched from multiple perspectives ever since the 1st edition of the KidRec workshop) can be enhanced based on the needs from valuable stakeholders: teachers. This will be done via a combination of small and large group activities. The proposed schedule of the workshop is as follows:

Welcome & Introductions. A brief welcome address, along with overview of activities planned for the workshop and tools that we will use to encourage interaction, e.g., Miro and Zoom's breakout rooms.

Overview. Overview discussing the history of the workshop and the outcomes thus far, in addition to sharing a synopsis of current studies focused on what is happening worldwide

in the field of classroom digitization, in particular search and recommendation systems.

Lightning Round. Showcase of accepted contributions (i.e., position papers and interest form); presentations will last for 5 minutes. These presentations will ensure that workshop participants are aware of each others' interests and areas of expertise, but will be short to keep the workshop flow vibrant and to allow for focused group work later in the workshop.

Discussion. Discussions in small groups to identify needs, requirements, and challenges related to the design and adoption of search engines to support classroom work, from a teacher's perspective. Thus, we will extract the main concepts at play and organise them in an affinity diagram on a digital board like that offered by Miro (<https://miro.com>).

Outcomes. Joint discussion to merge findings from small-group work.

Wrap. Final notes emerging from the day's group work. Plans for future editions of the KidRec workshop.

6 POST-WORKSHOP PLANS

Accepted contributions will be published on the KidRec website. As we have done in the past [2, 4, 5, 7], a report on discussion and findings from workshop interactions will be submitted to the ACM SIGIR Forum. We also plan to seek the opportunity for a special issue on KidRec in a journal such as ACM Transactions on Interactive Intelligent Systems or The International Journal of Child-Computer Interaction.

7 CALL FOR PARTICIPATION

Have you been teaching children how to seek for information online, either formally as a teacher in the classroom or as a parent at home to assist them with their school activities? Have you wondered how effective you have been in doing it? Whether you were using the right technology? How *good* is the available technology in supporting children in their education related information-seeking tasks? How to assess the resulting information-seeking experience?

Even though information retrieval tools are frequently used by children, they do not always provide *good* results and experiences for children. Identifying what is *good* for children when using this tools at school is challenging! Please join us for the highly interactive 5th KidRec Workshop in conjunction with Interaction Design and Children (IDC 2021) where you can share your experience and thoughts regarding information retrieval tools for children design, research, and practice and contribute to the ongoing research agenda in this area. This year, we are interested in advancing discussion by understanding teachers' perception of what is good when it comes to information retrieval tools supporting classroom instruction.

We welcome all to participate either via submitting a position paper or via the form at the conference website in order to highlight expertise, experience, and/or observed challenges pertaining this year's theme for KidRec. We invite *position papers* (2-4 pages), to be submitted via <https://easychair.org/conferences/?conf=kidrec2021>. All papers will be peer-reviewed, and at the time of submission, must not be under review in any other venue. You can also express

your interest in participating in the workshop (without submitting a position paper) by completing the interest form on the KidRec website that will ask you to briefly articulate your *perspectives* and *interest* in the workshop.

At least one author of each accepted paper must register and attend the workshop and main conference. For further information, see: <https://kidrec.github.io/>

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