Embedding digital technologies in the school practice: Schools as agents of technology integration

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Whilst, digital education is becoming a reality for schools there is a role for CCI research to move beyond researcher-led school engagements to other types of research that support schools and their staff to lead on the appropriation of digital technologies. One way to advance our understanding of this issue is to examine and consolidate reflections from cases of school technology appropriation. This workshop seeks to capture the enabling practices as well as those that posed barriers within the school. The work will be oriented to further identify necessary changes at different levels: e.g., the organizational level (school), the level of the practitioners (teachers) the level the school community. The mind-set of all the involved actors will also be explored aiming to identify the structures and mechanisms that can support a culture of participation and of collective responsibility by including also students and their families in the process of technology integration and appropriation

CCS CONCEPTS **Human-centered computing • Human computer interaction (HCI) • Empirical studies in HCI**

Additional Keywords and Phrases: School driven integration of technologies, participatory culture, edTech.

1 BACKGROUND

Child computer interaction (CCI) research has contributed a range of novel technologies, which have often been designed for children's learning in the formal education context. This work has led to new ways of thinking about the role of technology in children's learning, whilst seeking to bridge the new opportunities digital technologies may offer with the realities of everyday teaching practice. Although based in the school context, very often the use of technology has been coordinated and led by the research teams in recognition of the practical and pedagogical challenges involved when inviting teachers to appropriate digital technology [3]. In support of this, past work has shown the turbulence and disruption digital technologies can introduce in the school context.

This workshop intends to bring CCI research on children's digital learning into the domain of school practice. The role the CCI community could play in accelerating the use of research-informed approaches to digital learning has been particularly highlighted during the covid-19 pandemic. The recent challenges education faced due to school closures have

* Place the footnote text for the author (if applicable) here.

also stressed the role of the schools as agents of change in the appropriation of digital technologies. The need to transition to a digital/blended mode of learning has been reflected in the policy context through initiatives such as the recent Digital Education Action Plan (2021-2027) of the European Commission [2], which not only stresses the importance of the school as a key factor in the integration of digital technologies, but it also puts forward in its first strategic priority the need for educational institutions to develop a digital strategy. These extrinsic imperatives have had direct implications on schools who have taken active measures to integrate digital technologies and developed digital strategies. For example, during the last school year (2020-2021) 97% of Portuguese schools embarked in creating their digital strategy using SELFIE, a tool designed by the European commission to support the collective reflection of the school community on the use of digital technologies within the school life [1]. Similar initiatives have been taken up by Spain for this school year (Ministry document) showing that there is a strong momentum towards the direction of school-driven integration of digital technologies. The CCI research community could play an important role in this changing landscape. Whilst schools can benefit from the expertise of our community in the domain of digital learning, through collaborations with schools the CCI community can establish increased societal impact. Taking this role, however, suggests the development of an additional research programme whose aim is to support schools in the process of appropriating digital learning technologies for children.

2 AIMS OF THE WORKSHOP

In summary, whilst digital education is becoming a reality for schools, there is a role for CCI research to move beyond researcher-led school engagements to other types of research that support schools and their staff to lead on the appropriation of digital technologies. Recent research has shown the challenges of school-led technology initiatives ranging from coordinating new processes to care for the technology to identifying staff who can mentor their teaching peers in this transition [3]. One way to advance our understanding of this issue is to examine and consolidate reflections from cases of school technology appropriation.

Thus, this workshop seeks to capture the enabling practices, as well as practices that pose barriers, to the process of appropriating digital technology within the school. The work will be oriented to further identify necessary changes at different levels: e.g. the organizational level (school), the level of the practitioners (teachers, teaching assistants), the level the school community. The mind-set of all the involved actors will also be explored aiming to identify the structures and mechanisms that can support a culture of participation and of collective responsibility by including also students and their families in the process of technology integration and appropriation. Participants will be invited to discuss both planned/structured and emergent approaches they have taken or researched, which aimed at embedding and using digital technologies involving actors and actions at different levels: a) A technology leader or coordinator; b) Group of technology leaders; c) The school community (school leaders, students, teachers, parents); d) Networks and collaborations between schools (school mentorship initiatives).

3 ORGANIZERS AND RELEVANT EXPERIENCE

The workshops will be organised by researchers who have experiences in supporting schools to appropriate digital technology. We introduce the focal projects that will inform the facilitation of this workshop, alongside the team and their relevant roles.

H2020 *iRead project – Professor Vasalou, Dr Benton, Dr Ibrahim*

iRead (2017-2021) was an EU Horizon 2020 project which focused on the development of personalised learning technologies to support reading skills. The project developed the Navigo game which was co-designed with teachers,

students and was used over 2.5 years with over 5,000 children and their teachers, in six countries in Europe. Among other research findings the project shaped a perspective that recognises the importance of understanding and mitigating the complexities involved when introducing technologies in the classroom. The project comprised 15 partners from across industry and education in 8 European countries.

Dr Asimina (Mina) Vasalou is a professor of Interaction Design at University College London (UCL), UK. She was the coordinator of the iRead project. Mina also led a workpackage concerned with training teachers as well as supporting them to use personalised technologies developed within the project across eight pilots. **Drs Seray Ibrahim** and **Laura Benton** are researchers at UCL with an interest in digital technology for learning and communication. In iRead they acted both as key contacts with the teachers, developed training materials and supported the school to use the project's technologies over a period of 2.5 years (including during the period of the pandemic).

SELFIE – *Dr Nikoleta Yiannoutsou and Dr Caroline Pulfrey*

SELFIE is a self- reflection tool designed by the European Commission to support schools to develop their digital strategy. SELFIE collects the views of the school community (school leaders, teachers and students) on the use of digital technologies. SELFIE is available in 39 languages, it is free and online. Since its launch in October 2018, it has been used by 2.3 million users. A number of EU-Funded projects are including SELFIE in their research. One of these projects is MenSI which focuses on the concept of school mentorship for school improvement coordinated by the European School Net.

Dr Nikoleta Yiannoutsou is a scientific officer at the Joint Research Centre of the European Commission and Project leader of SELFIE. Her work focuses on the impact of digital technologies in education, the engagement of the school community in the digital capacity of schools. She has been working closely with ministries of education across Europe and the European Training Foundation for the piloting and implementation of SELFIE at scale. **Dr Caroline Pulfrey** is a Senior Researcher and Scientific Collaborator at the Centre for Learning Sciences LEARN, Ecole Polytechnique Fédérale de Lausanne. Her research interests focus in the areas of Educational Psychology and Organisational Behavior (in particular organisational culture, values). She is currently carrying out research in the context of the Canton de Vaud EduNum project, using the SELFIE project to study Digital Cultures in schools.

H2020 funded project iHubSchools – Dr. Mutlu Cukurova and Dr Samira Alirezabeigi

iHubSchools (2021-2023) is an H2020 funded project that will propose mechanisms to accelerate whole school digital innovation in and across schools through establishment of Regional Innovation Hubs. It aims to develop a whole-school mentoring model that is locally, methodologically and technologically adaptable. The IDC workshop insights and collaborations will be shared extensively with existing national stakeholder networks and other partners of the project to exploit the results and practical outcomes of the workshop to foster the spread of good practices among teachers, trainers, students and school leaders.

Dr. Mutlu Cukurova is an Associate Professor of Learning Technologies at University College London, UK. His research focuses on the design, development and adoption of Artificial Intelligence and Analytics solutions to support learning. Mutlu is engaged with UNESCO's unit for Technology and AI in Education, UCL's Grand Challenges on Transformative Technology, Editor of the British Journal of Educational Technology and Associate Editor of the International Journal of Child-Computer Interaction. **Dr Samira Alirezabeigi** is a researcher at UCL working on the iHubSchools project.

4 WEBSITE

We will use a free platform like word press to create the workshop website. The website will publicise the call for contributions, the results of the workshop and we will use the website as a point of reference and communication with the participants before, during and after the workshop.

5 PRE WORKSHOP PLANS

The audience of the workshop will be researchers working in the field but also practitioners, schools and policy makers. We will use the website to publish the call for participation in the workshop and we will use this website as a reference for further communication through a) the social media and b) the networks of organizers.We will use the network of the three projects, SELFIE, iRead and iHubSchools as well as the network of the three organizations, UCL- Knowledge Lab, JRC-European Commission and EPFL to disseminate the call of proposals and engage participants.

6 WORKSHOP STRUCTURE:

The one day workshop workshop will be structured around short presentations and discussions. Specifically, the workshop will be organized as follows:

- Short **introduction** on the scope, the structure and the outputs of the workshop by the organizers (10 minutes).
- Short activity for the participants **to get to know each other** and the focus of their work (i.e discussion – in pairs for five minutes and then one peer presents the other in the assembly discussion). Duration: depends on the number of participants. However, the basic idea would be to take five minutes for the discussion in pairs and then each participant takes up to two minutes to present their colleague.
- Short **presentation of the contributions** 5-10 minutes each. The contributions will engage in presenting a case of technology appropriation and integration. During the presentation the rest of the participants will engage in analysis of the case, using a card where they will take notes with reference to the focus of the presentation (i.e. challenges, actors, student engagement). **Discussion in groups 15-20 minutes**: The presentations will be followed by a discussion in small groups where the participants will combine and discuss the analysis of the cases presented. At the end of their discussion they will be expected to identify and prioritise the challenges, the key actors – approaches involved identifying, complementarities, inderdependencies, pros and cons in each approach.
- **Assembly discussion 20 – 30 minutes:** Group discussion will be followed by an assembly discussion where the groups will present the results of their discussion. The focus of this discussion would be to identify, implications for the field of CCI, key research questions, themes and topics which will become the basis for the post workshop plans (i.e. post workshop white paper and proposal for a policy round table).
- **Resources**: no special resources are needed.

7 POST-WORKSHOP PLANS

We will put together a post workshop white paper to be published in the workshop website. Depending on the output, the workshop leads may seek to develop a publication for next year's IDC, in which case the workshop participants will be invited to contribute to this output. The same report will be the basis to organize a Round Table with Policy makers facilitated by JRC through Dr Yiannoutsou's role.

8 CALL FOR PARTICIPATION

Digital technologies are not new for schools but their integration in the school life poses many challenges which are related to a variety of issues from professional development to available resources, infrastructure, student and teacher digital competence etc. After the recent school closures owing to the pandemic, the demand for schools to use digital technologies has grown. How do the schools face this challenge? What are the barriers and what are enablers for the integration of technologies in the school life? How can the school community be involved in the process? How can we engage students and parents as well to cultivate a culture of participation and collective responsibility? **Format and goals of the workshop**: The main goal of the workshop is to identify the common strategies for facilitating the integration of technology at the school level, the challenges and the implications. The format of the workshop is going to be an interactive exchange between participants, it is going to be online or face to face depending on the format of the conference. The **contributions** will involve short presentations of cases – examples from schools in the form of a short reflective paper up to three pages or in the form of a 5-minute self-reflective video. The papers will be **submitted** via email to the organisers, and they will be **reviewed** according to their relevance and contribution to the topic.

REFERENCES

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[3] Seray Ibrahim, Asimina Vasalou and Laura Benton. To appear. Understanding the Situated Practices of School Technology Leaders in the Early Stages of Educational Technology Adoption. In CHI '22 Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems.