From Design to Difference: Increasing impact of IDC Research

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ABSTRACT
This workshop aims to identify and generate critical pathways to more sustainable impact, that maximizes the value of IDC research in children's everyday lives. Whilst the importance of collaboration between research and practice has been well established, and notably embedded into IDC research, the most effective strategies to maximize subsequent sustainable impact are yet to be fully explored and realized. To achieve this, we need a clearer understanding of the audiences that will benefit from IDC research, and how best to reach them beyond current forms of knowledge exchange, infrastructuring, and industry links, to not only ensure sustainability, but also to foster the growth of impact. This workshop will bring together IDC community members together with practitioners and industry to identify and develop ways to sustainably maximize the impact of their work, to make a difference in children's lives, as we look ahead to design for the future.

KEYWORDS
Impact; Collaboration; Partnership; Commercialization.

CSS CONCEPTS
• **Human-centered computing~Interaction Design; (HCI)**; Interaction Design Process and Methods

BACKGROUND

A shared goal of IDC is to make "better interactive experiences for children"[1], for which the field holds great potential: from sharing findings and methodologies to inspiration from novel designs. In order to maximize the value of our work, the community recognizes the importance of collaboration between research and practice, most importantly working with children as design partners [3], and through research-practice partnerships. However, whilst the value of such collaboration is evident in the process and outputs of a project, it is not always clear how this value extends and grows *beyond* the project end, or what the most effective strategies are to increase subsequent impact in the most sustainable way. As we have illustrated in Figure 1, design-based (DBR) research is typically iterative [5]; however, what are the key factors that shape the sustainable impact of particular design projects for children? How can we better foster impact that can continue to grow beyond project completion?

The overarching goal of this workshop is to share participants' experiences of, and thinking around, strategies to maximize the impact of IDC research, notably with a focus on what happens after a project ends. This goal should appeal to IDC community members who wish to increase and ensure the positive impact of their work in children's lives, as well as to those who want to know more about how IDC research might benefit their practice.

[1] (https://idc.acm.org/2020/privacy-policy/).

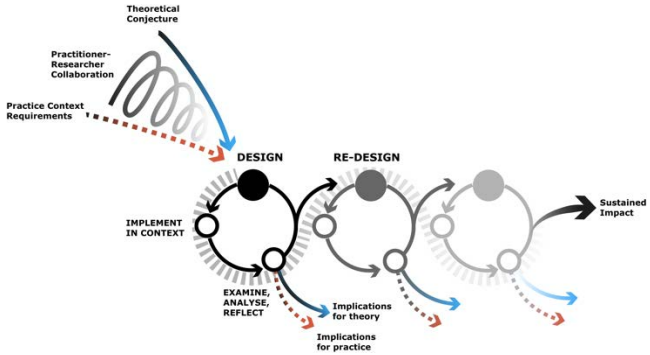

Fig.1. Design-Based Research.

The workshop builds upon much existing IDC work in building relationships with communities, including the creation of intermediate knowledge for designers [1], notions of 'Infrastructuring' (creating the resources for groups that can be acted up, e.g. teachers; museum practitioners) [2], co-development of practice guidelines (e.g. [6]), and approaches to bridging design knowledge to industry [4]. The contribution of this workshop will be to map the diverse, but critical, pathways to impact, and identify the best strategies adopted before, during, and significantly, after a project to maximize the positive impact of IDC research. A key step to this process is identifying the range and needs of audiences that may benefit from IDC research, and understanding what our research offers them in their context. How can we enable designers to find and draw upon guidelines? How can we help teachers and facilitators develop their practice? How can we make our work practically useful to parents? How can we enable the successful commercialization of a design? In summary, what potential does each IDC project have to make a difference in children's lives, and how can we maximize

this potential? Looking ahead at the longer-term impact of IDC research is pertinent to this year's conference theme of designing for the future.

WORKSHOP GOALS

The overarching goal of the workshop is to share experiences, successes, and challenges, and to encourage thinking on how to develop critical practices that increase and prolong the impact of our work for children. Workshop outcomes will include:

- Increased awareness, and identification, of diverse ways IDC research can have impact
- Increased critical understanding of challenges to building/sustaining impact of IDC research
- Greater critical reflection of ways to increase impact of participants' own design research

A collateral benefit of the workshop for participants will be clearer thinking when planning the potential impact of proposed research for funding applications.

Workshop outputs

- Visualization of impact routes for IDC research
- Collaborative documentation of participants perceptions of challenges and strategies
- List of 5 key grand challenges for IDC research to increase impact during and beyond projects

ORGANIZERS

The workshop organizers have been selected based on their diverse experience in developing the impact of IDC research with different communities.

Andrew Manches directs the Children and Technology group at the University of Edinburgh and draws upon his previous career as a teacher, founder and director of an EdTech start-up company (Pling Ltd), as well as his current academic role as Knowledge Exchange director (Industry focus) in the School of Education. He currently leads the UK in $2.4million UK-US practitioner-researcher grant, Move2Learn, that is exploring ways that embodiment research can inform science center exhibit design and facilitation. His efforts in bridging research and practice have led to the 2020 Tam Dalyell prize for public engagement with science.

Karen Davies is head of Learning Research and Resources at the Science Museum in London and has over 25 years of experience of devising novel ways of communicating scientific and technological ideas and concepts using interactive exhibits; objects, online resources and programming. She works with the Museum Leadership, Development and Project teams to maximize Learning's input across the public offer ensuring that audience needs are addressed, and learning products are properly integrated and delivered. She works with a range of academic partners, including King's College, London and UCL, on large-scale learning projects, for example the Science Capital 'research to practice' work that can be found on the Transforming Practice blog: https://transformingpractice.sciencemuseum.org.uk/. She will share what she has learnt from partnership working.

Sara Price is Professor of Digital Learning at UCL Knowledge Lab. She brings experience of designing and developing materials derived from research for informing educational practice and research, such as, GeoScieTeach configurable app; independent training course for researching 'embodiment' as part of MODE

project, and guidelines for designing 'embodied' science learning experiences. She is Co-PI on UK-US Move2Learn, exploring how embodiment research can inform science exhibit design; and on InTouch, which explores the social implications of digital touch technologies for communication.

Shuli Gilutz is an instructor at Tel-Aviv University and at Shenkar's Toy Invention program, and is a board member of the Designing for Children's Rights Association. She brings a wealth of industry knowledge and insight, and founded and moderates the Child-Computer Interaction research Facebook group with over 1,000 members world-wide. She works to combine research and practice with startups both at Google Launchpad and MindCET accelerators.

Alexia Revueltas Roux is a PhD candidate based in the Digital Education Research Group at the University of Edinburgh. She has experience working with children in scenarios where research merges with practice, particularly children and interactive technologies. She has taught robotics to children as well as teaching practitioners on how to teach robotics to children. Additionally, she has had experience at Science communication events working with the Edinburgh Science Festival. Her current doctoral research focuses on innovative approaches to measuring children's dynamic engagement in science centres, which is supervised by Dr Andrew Manches and is part of the Move2Learn research project.

Minna Orvokki Nygren is a PhD candidate based at UCL Knowledge Lab working with Prof Sara Price to understand methodological approaches to designing movement-based interaction to support young children's embodied and playful meaning making. Her work is part of Move2Learn research project that studies designing for embodied learning in museums. As part of her doctoral research, Minna has conducted a number of co-design workshops with young children and their families, as well as museum practitioners. In her study she addresses accessibility of embodied learning technologies across different media, and in this work she draws from her background in science communication and sci-art practice.

Bieke Zaman is Associate Professor in Human-Computer Interaction / Digital Humanities and research group leader of the Meaningful Interactions Lab (Mintlab), part of the Institute of Media Studies at the Faculty of Social Sciences, KU Leuven, Belgium and affiliated with IMEC. She has substantial experience in the field of IDC where her research programmes encompass Children and Technology, Player-computer interaction, and Progressive Methods including creative forms of research outreach.

WEBSITE

A website will be posted on the University of Edinburgh's Digital Education Research Centre https://www.de.ed.ac.uk/IDC2020Workshop_Design2Difference. This website will also share position papers and outputs of the workshop.

PRE-WORKSHOP PLANS

We will aim to recruit up to 20 participants, from academia and key non-academic communities, e.g. Science Museum, EdTech exchange, teachers/school

community. Participants will be recruited through an open call for papers through the IDC website, our respective organizations' websites, relevant HCI and CCI mailing lists, and personal communication channels.

Submissions for participation will be reviewed by the organization team using criteria outlined in the Call for Participation, and selected by the organizers on the basis of quality and relevance to the scope and goals of the workshop. Accepted submissions will then be brought together with introductory reading materials into a single document and shared with participants as preparatory reading.

Participants will be asked to create a single slide and one-minute summary of their work and interest in the workshop theme for introductions at the start of the workshop.

WORKSHOP STRUCTURE

The workshop is planned for half a day to encourage focus and efficiency, and will draw upon technologies where appropriate to engage debate (e.g. anonymous real-time whole-room idea sharing). Discussions will be small group (with changes to maximize idea sharing / new collaborations), with short succinct whole room feedback and documenting.

- 1 Min introductions, workshop aspirations (20mins)
- Scene setting from organizers. DBR model (20mins)
- Collaborative activity: mapping impact routes: from research to children's lives (30mins)
- Practitioner perspective and questions, London Science Museum (20mins)
- Break- with interactive set-up (20mins)
- Collaborative activity: Key challenges and strategies (30mins)
- Commercialization perspective and questions, Pling Ltd (20mins).
- Collaborative activity. Next steps. Theory of Change to visualization personal plans. (30mins)
- Summary. 5 key priorities. White paper collaborative interest (20mins).

POST WORKSHOP PLANS

The three identified outputs from the project will be posted on the workshop page and widely circulated. A white paper will be created based on the workshop, presenting to the community the key challenges for increasing IDC research impact. Aligned with discussions and expressions of interest from participants, a collaborative working group will be set up to apply for Knowledge Exchange funding for a series of workshops that mobilize some of the strategies discussed.

CALL FOR PARTICIPATION

Title

From Design to Difference: Increasing impact of IDC Research

The format and goals of the workshop

This will be a half day workshop, with collaborative discussions to ensure productive participant contribution, and interspersed with short relevant keynotes, that will help guide the discussions. The workshop goals are:

- Increased awareness, and identification, of diverse ways IDC research can have impact
- Increased critical understanding of challenges to building/sustaining impact of IDC research
- Greater critical reflection of ways to increase impact of participants' own design research

Submission
2-page submission paper using CHI Extended Abstracts format https://idc.acm.org/2020/chi-proceedings-format/ should be submitted via the workshop page or sent directly to the workshop lead a.manches@ed.ac.uk by TBC.

Requirements for position papers
Participants should outline their research, and use as a basis to describe where IDC research could have greater potential to increase impact in children's lives, identifying challenges and strategies for realizing this impact. Papers should end with a vision for the impact of IDC research, and personal aspiration for what is to be addressed in the workshop.

The participant selection criteria
All position papers will be reviewed according to quality, relevance and potential contribution to the workshop, and diversity of background/experiences.

Important dates
- TBC 2020: Workshop participant submission deadline
- TBC 2020: Participants notified of acceptance
- TBC 2020: Day of workshop

Requirement
At least one author of each accepted position paper must attend the workshop; all participants must register for both the workshop and the main conference.

Workshop URL
https://www.de.ed.ac.uk/IDC2020Workshop_Design2Difference/

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Disclaimer: Any opinions, findings and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the view of NSF, the Wellcome Trust, or ESRC.

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