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Internet of Toys: advantages, risks and challenges of a consumption scenario that is intriguing parents and researchers

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Bieke Zaman is Assistant Professor in Human-Media Interaction/Digital Humanities. She is Research Group Leader of the Meaningful Interactions Lab (Mintlab), which is affiliated with the Institute of Media Studies at the KU Leuven – imec in Belgium. She graduated in 2004 as a master in Communication Sciences (*summa cum laude*), obtained post academic degrees in Usability Design (2005) and Web Development (2007), and a doctoral degree in Social Sciences (2011, KU Leuven). At the KU Leuven, Zaman is lecturing courses on Media and Design, Human-Computer Interaction, Qualitative Research, Media Research and Innovation, and Emerging Technologies and Applications.

She is member of several academic editorial boards (e.g., International Journal of Child-Computer Interaction and Personal and Ubiquitous Computing Journal), international conference committees (e.g., as Vice-Chair of the ECREA TWG on Children, Youth and Media since 2017; Full Paper Chair in 2017, and Associate Chair of the Interaction Design and Children conference in 2013, 2015, 2016, and 2018) and international networks (e.g.,

EU Kids Online, EU COST Action IS1410 DigiLitEY). She is also a regular speaker at national and international conferences and events.

Bieke Zaman is passionate about innovation in media and communication studies. She pursues a research programme on Children, Digital Media and Design. Her research examines the intertwining role of digital media in families with children, and the way novel technologies can be (re)designed in a reflective and responsible (e.g., enjoyable, user-friendly, ethical, empowering) manner. Other areas of her research include gamification, parental mediation and the convergence of gambling and gaming. Bieke Zaman also researches progressive qualitative methods for research and dissemination.

In this interview[1], Bieke Zaman clarifies important information about the recent phenomenon of *Internet of Toys*, highlighting the possibilities but also the issues and risks of those technologies for children and parents. She reflects on the implications for media scholars and the Human-Computer Interaction research community as well as on the importance of the dialogue between academia and industry.

Revista Intercom – *The **Internet of Toys** encloses new digital and physical experiences for children offering interactive and personalised possibilities for activities, like playing and/or learning, but also raises new issues that challenge children's fundamental rights (e.g. security and privacy issues). Can you, please, explain us the issues and possibilities of this new scenario?*

Zaman – To understand this scenario, it is important to clarify the difference between Smart Toys and Connected Toys. Smart Toys come with some technological components, like a camera. Examples of this category are the Tamagochi and the Furby. Both toys can capture how their users interact with them (e.g. feeding the animal), but they do not have the internet component. Smart Toys are the predecessors of Internet of Toys, a new generation of toys. The Internet of Toys shares characteristics that we also see in the Internet of Things (IoT), and this category comes with more challenges. The IoT has the material object, the toy, connected to the Internet via Wi-Fi or Bluetooth. The IoT relies on smart sensors that detect and capture different sorts of audio and video information to generate different kinds of data: biological, visual, and temperature records, for instance. The possibilities here are enormous. It also makes interaction possible, which is particularly challenging when thinking of children interacting with the toy. Internet-Connected Toys often involve

1 The interview (in English) took place at the Meaningful Interactions Lab, in Leuven (Belgium) on the 30th November 2017. The interview was audio recorded and then entirely transcribed by the interviewers, both authors of this publication. In the final editing of the transcribed material, the authors reorganized the interview in question-answer format, in order to facilitate the reader's comprehension. The interview and this publication are a result of the on-going project entitled "Comparative Matrix of Qualitative Research with Users of Digital Technologies", funded by the Brazilian development agency CAPES and which was approved for the 2nd Call of the International Cooperation Program (PGCI, Call n. 02/2015). It promotes the cooperation among researchers from the Federal University of Pará (UFPA, Brazil), KU Leuven (Belgium) and UFRGS (Brazil). Thanks to this funding, Fernanda Chocron Miranda visited Mintlab-KU Leuven from December/2016 to May/2018, during a research stay along with Teresa Sofia Castro. On the date of the interview, Teresa Sofia Castro joined as an interviewer via Skype. She visited the Mintlab-KU Leuven as a result of a Short-Term Scientific Mission funded by DigiLitEY Cost Action, during February and March/2017.

artificial intelligence, which can open possibilities for individual responses. This is an important aspect to consider when talking about the risks that exist when data is transferred from one house over the internet to a data center somewhere else.

Revista Intercom – *In this scenario, how do you observe consumers lack control of their own privacy through interactions with Connected Toys, more precisely of children and families?*
Zaman – We have a different conceptual model of connected toys than we have for laptops or mobile phones. But actually, the data that connected toys can capture can be similar to a situation in which Skype would be open all the time at home. Connected Toys are like a portal to the internet where servers are processing all sorts of data going out of the house. And this happens after the installation of an app with parents consenting and agreeing to have "read and understood the terms and conditions", a legal disclaimer that no one actually reads. We are likely to press the "Yes" button without acknowledging the rules we are agreeing to in order to benefit from internet connected services. This often means that we accept our data being processed and, possibly, later on, sold to other partners. Moreover, by connecting to the internet our private data are vulnerable to hackers. We are used to have passwords for laptops, for mobile phones, but the thing is, with internet-connected devices we are not really thinking of the fact that we need a password to protect them, and that we regularly need to update its software. Toy companies typically add an access code, which is 1 1 1 1, or 1 2 3 4. Therefore, companies need to consider explaining parents that they should change the password immediately after installation. Parents can also block audio and video capturing. However, families who invest in an expensive connected toy, will not be inclined to disable half of its functionalities. It is therefore advisable to take a look on the site of the manufacturer and searching for more information before purchase.

Revista Intercom – *Despite of the challenges and issues that we are facing in the current consumption scenario, what are the advantages of this new configuration?*
Zaman – With every new technology there are obviously opportunities and challenges we have to consider. Connected Toys promote different types of interactions. Some of these interactions simulate human interactivity, see for instance a connected doll that responds to voice recognition and talks with your child. Toys-to-Life is another category that comprises of video games with physical action figures that are brought to life within a digital environment, like Skylander and Disney Infinity. To date, a proper classification of this variety of toys is lacking. For instance, it can also include puzzles or wearables. Thus, as online and offline become increasingly blurred it is not easy to draw the line. On the one hand, we can consider new opportunities linked to enhanced literacies and dimensions of storytelling in such a cross media environment. Imagine children having figurines in their hands, and building a story that is continuing in the virtual world, with feedback loops between online and offline; between the digital and the non-digital; the material,

the non-material; the public and the private; the local and the global. In such a hybrid media environment, there are clearly advantages regarding personalized play, physical and collaborative play. Moreover, connected play can motivate children to engage in learning activities and scaffold their learning. On the other hand, Connected Toys are very recent and this calls for proper media and psychological research over time in order to anticipate on its challenges and potential risks. In our research, we learned that parents see a lot of the benefits of connected toys, but they do not express themselves critical about what is being captured in terms of personal data. In Belgium, connected toys still have a relatively small market share, but it is rising. More and more companies have a data-driven business, so we can imagine that they are also interested in children's data as their youngest/future customers. We see it with respect to baby wearables and school analytics, for instance. Thus, when thinking about digital media and children it doesn't make sense to only focus on the time children are spending in front of screens. We also have to consider how the available media technologies operate both within and beyond the physical boundaries of the home, instead.

Revista Intercom – *Is the new General Data Protection Regulation (GDPR) of European Commission related to this configuration?*
Zaman – The new General Data Protection Regulation (GDPR) law, at the European level, is a response to concerns about what is being done with people's data. But still a lot of things have to be figured out, not only to delineate its implications for children's digital rights but also to anticipate on the regulation already during the design stage of new technologies. For instance, in the field of Human-Computer Interaction (HCI), researchers study how to anticipate on privacy concerns already at design time and build in *privacy by design* measures. In this context, I believe legal frameworks like the GDPR are very important, because it creates an awareness of users' rights and sets boundaries for what companies can and cannot do. The Alliance to Better Protect Minors Online is a self-regulatory initiative, launched in 2017, that in line with the European Commission Better Internet for Kids (BIK) strategy, brings together companies, broadcasters, NGOs, UNICEF and relevant stakeholders to working together to create a safe digital environment for children. In this sense, we have open forums to discuss these things in events like Safer Internet Day and Better Internet for Kids actions. For instance, during the 2017 event, companies were openly sharing their lessons learned.

Revista Intercom – *Based on your experience in research and teaching in Human-Computer Interaction (HCI), how do you observe the scientific production on this field in recent years? Are there visible contributions for the Children, Youth and Media research area?*
Zaman – The field on HCI research is often revolving around processes of Human-Centred Design. But we need to zoom out a bit to a broader perspective, understanding how technologies are situated in a broader context of people, devices, places, data. Such an

Ecology-Centred Design perspective would allow us to consider how systems are connected to other systems, how they are connected to business, how children are connected with other children in a cross media environment, etc. For instance, playing with a connected toy at home, may put children virtually in contact with friends, may involve storytelling both within and outside the house, e.g. at school, and may capture data to send back personalized responses based on the child's digital profile, a profile that parents, teachers, but also advertisers may be interested in. Thus, studying children's interaction with connected toys does not only pose questions with respect to their psychological and developmental needs. To produce relevant theoretical advancement, it is important to build a dialogue with other research fields, like for instance media, legal and technological design research. I have been involved in a couple of projects in which a multidisciplinary team of researchers also collaborated with industry. Although I strongly advocate the strength of this type of collaborations, I acknowledge that it is also a challenging endeavour to bring them all together in an effective manner. A multidisciplinary angle towards the research field on connected toys is also important to prevent us from considering them as a homogeneous category. We need to recognise their differences instead and acknowledge that these differences actually afford different opportunities and risks that are equally dependent on contextual and situational demands. Being a social scientist whose research is positioned in the HCI field, I believe my contribution is to critically make informed arguments about what might be a desirable, meaningful future state for connected toys and explore several alternatives in this regard. The critical-analytical knowledge that we are trained in can bring in a lot of value and open the debate about questions that are not functional, not technological in nature, questions that are complementary to what designers, engineers and manufacturers are concerned with but together these functional and non-functional questions make an integrated whole.

Revista Intercom – *As Vice-Chair for the Management team of ECREA Temporary Working Group on Children, Youth and Media – a European-wide network for researchers and educators interested in the analysis of all kinds of media and communication processes, related with the activities undertaken by, for and about children and young people –, can you tell us more about the TWG management team goals for this mandate?*

Zaman – When running for the Vice-Chair of the ECREA Children, Youth and Media Temporary Working Group (TWG) my core mission statement revolved around my passion for intellectual challenges that emerge in a collaborative mindset based on dialogue, both within academia crossing disciplinary boundaries and beyond academia. This is also reflected in my research that echoes the democratic values of participatory design, building on principles of mutual learning with various stakeholders. Furthermore, because each media channel comes with other opportunities, I find it very important to have various channels for information, communication and sharing experiences. In addition to the existing mailing list, we built a website (ECREA, 2018), and we are now also taking advantage

of social media. Furthermore, we encourage publications that emerge from our working group (for instance via a special journal issue) in order to bring our members together as a community in developing new lines of inquiries. We are also considering to promote research dissemination in progressive formats. Overall, I can tell we are experimenting and learning from all our initiatives and activities in the working group. That is also what I learn from working with people in design disciplines: never fear to learn from failures. Sometimes we have to try out certain things to see how it works and reflect on it, so we can move forward.

References

ECREA Temporary Working Group on Children, Youth and Media Website. Available at: <https://cymecrea.wordpress.com/>. Accessed on: 10 sep. 2018.

ZAMAN, B.; VAN MECHELEN, M.; BLEUMERS, L. When toys come to life: considering the internet of toys from an animistic design perspective. In: 17TH ACM CONFERENCE ON INTERACTION DESIGN AND CHILDREN, TRONDHEIM, Norway, p.170-180, 2018. **IDC '18 Proceedings of the 17th ACM Conference on Interaction Design and Children…** Available at: <https://dl.acm.org/citation.cfm?id=3202745>. Accessed on: 10. sep. 2018.

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