**Comment on Children’s Rights In Relation To Emotional AI And The Digital Environment**

**On behalf of The Emotional AI Lab**

**Contributors**

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On behalf of The Emotional AI Lab, this submission discusses technologiesthat gauge child biometrics to infer emotion and other qualitative states. It focusses on(1)children’s toys and services; and (2) educational technologies (edtech).

Paragraphs addressed are: 2, 14, 21, 25, 39, 42, 43, 56, 70, 76, 107.

**Key insights**

* Emotional AI technology is not yet in widespread use in children’s products, but is expected to increasingly appear in the 2020s.
* Parents have mixed feelings about emotional AI used with their children: they see benefits, and they are wary.
* Experts in child development, child privacy, education technology, online safety and emotional AI see serious potential harms to the introduction of emotion and mood detection to children’s products.
* Current data protection and privacy law is very focused on adults. Such regulations are likely not comprehensive enough to address the potential harms of child-focused emotional AI.
* Policymakers should consider a ban on using children’s emotion data to market to them or their parents.
* The use of emotion detection technologies, and the storage of data about children’s moods and emotions, could have long-lasting impacts and cause children to be treated unfairly, both in childhood and later in adulthood.
* The UN’s Convention on the Rights of the Child is valuable to guide the governance of children’s emotional AI technologies, but careful interpretation of §1 Art. 29 (on development of the child to their fullest potential) is required.
1. **CHILDREN’S TOYS AND SERVICES**

**The technologies**

Emotional AI entails use of affective computing and AI techniques to sense and ‘feel-into’ human emotional life. Using weak AI rather than strong AI, machines read and react to emotions through text, voice, computer vision and biometric sensing. These technologies *do not* authentically understand emotion, but do have scope to simulate understanding and respond appropriately[[1]](#footnote-1). Emotional AI and wider affect-based human-state measurement is an emergent phenomenon appearing across diverse devices and life contexts.

Emotional AI is not yet in widespread use in children’s products, but we expect it to increasingly appear across the 2020s. These build on longstanding usage of mechanical automata in play (reaching back to the 1800s), transistors and circuit boards (1970s), networked communication in internet connected toys (2000s), and smart toys (sensors, voice and/or image recognition software, self-learning algorithms, scope for interaction, late 2010s). Emoting and emotion profiling in toys and home social robots, such as Sony’s *Aibo* (1998, 2018) and Anki’s *Cozmo* (2016), are in time likely to possess additional sensors, including heart rate, skin conductivity and blood flow sensors. The use of emotion and biometric sensing raises privacy concerns, but they also engender care and entanglement with synthetic personalities.

Emotional AI currently involves a broadly global and homogenous view of what emotions are, although it may allow for regional variations regarding intensity of the expression of a given ‘basic emotion[[2]](#footnote-2)’). What it does not *currently* allow for is heterogenous and context-specific accounts of emotion, as required by critique that emphasises social and communicative dimensions of emotion. In brief, the nature of what emotions are remain keenly debated and the assumptions built into emotional AI are highly limited.

In particular, the issue of children’s expression raises a range of problems for the application of basic emotions and facial coding to children. Children are, by definition, at an earlier stage of emotional and communicative maturity, which means adult expressions and algorithms cannot be applied without question to children.

**The research**

Research by The Emotional AI Lab focused on child-directed products: toys (what we sometimes call ‘emotoys’), safety wearables, edutainment and entertainment products, baby care devices, and general family products that could collect household data, like televisions. We conducted expert interviews, national UK surveys and focus groups with parents. Much of what we find aligns with the Draft Comment ‘Children’s rights in relation to the digital environment,’ but there are areas we feel could be improved upon, especially regarding parents, e.g. Part E on privacy and VIII on family environment.

**Issues**

In general we urge *realistic* *support for parents*that recognises time, emotional, cognitive and literacy pressures in lived domestic contexts. This is because emotional, empathic and affective technologies aimed at children are likely to affect parents – not only *as* parents, but also in their own interactions with the products in which such technology is embedded, and within family dynamics. Further, *parents are vulnerable and themselves maturing*. From the birth of a child onwards, parents are learning how to be parents, and learning about themselves. They are also exhausted and seeking connection with others. And, they are concerned about their children learning and taking full advantage of the digital world around them. Children’s products that can detect emotions, moods and biometrics *could* promise to help with parenting, but we have concerns, not least regarding the following:

* *Reductionism:* devices that claim to understand how and why a child is communicating – for example, distinguishing between a fussy cry and a hungry cry – are bound to oversimplify or may be wrong.
* *Offloading parenthood:* Relying on an external device (which is likely to be inaccurate) ‘offloads’ parenting in a way that could deny a parent vital skills development and maturation.
* *Marketing to parents based on vulnerability*: parenting is a vulnerable, challenging time. Products that promise to do some of the work have the potential to prey on that vulnerability. This is worsened by the likelihood that such products will not be able to do what they promise.
* *Parents being unaware of the scope of data collection*: thereis much research showing that most people do not read privacy policies. However, they remain the primary vehicle for disclosing a product’s amount and type of data collection. Collecting biometrics and emotional data from children will be, for most parents, a new development. The poor state of privacy policies coupled with the high likelihood that parents won’t seek out deeper information about a device’s capabilities suggests that parents will not be well informed about the data collection and downstream use of emotional AI children’s products.
* *Marketing based on children’s emotion data.* Parents should not be marketed to through data that a toy or related product collects. For example, if a child expressed sad thoughts to her toy, it would be unethical, exploitative and a violation of privacy for parents to then be advertised products to make their child happy.

**Parental attitudes**

We sought survey insights from parents[[3]](#footnote-3) regarding: (1) the acceptability of emotional AI in child-focused technologies; and (2) by what terms use of these intimate technologies in toys should be governed. In the UK, we found:

* Just below half (48%) of all parents with children aged 15 and younger are uncomfortable with the idea of internet-connected toys for children that process data about a child's emotions. A further 20% are unsure either way.

* The number of parents who feel uncomfortable with the idea of an internet-connected toy processing data about their child’s emotions is similar across all three child age groups; Under 5 years old (49%), 5-10 year olds (46%) and 11-15 year olds (45%)

* Over four in ten (43%) parents would feel comfortable giving their child an internet-connected wristwatch or wearable that reports insights on their emotional state back to them both daily and over a longer period of time.

* Eight in 10 (80%) parents would be concerned about who has access to the insights on their child’s emotional state. Meanwhile, six in ten (59%) people would find this type of device to be intrusive. Three in ten (30%) disagree with the claim that such a device would help them develop a stronger bond with their children and help to understand them better.

* When asked to rank the means by which parents should be informed of the types and methods of data collection for these toys, parents preferred ‘Stating it on the box’.

* Most parents (53%) feel uncomfortable with the idea of emotional data collected about their child through internet-connected devices being used to help shape which products and services are marketed to them. Contrastingly, males are significantly more likely to be comfortable about this compared to females (32% vs 20%).
* When asked if companies who collect emotional data from children have a duty to report to appropriate authorities if they think that a child might be being abused, self-harming or otherwise highly distressed, over half (54%) agreed.

**Recommendations for children’s toys and services**

The following recommendations regarding usage of emotional AI in many cases replicate existing European law, but have been flagged by interviewees and primary carers/parents (in our focus groups) as in need of close attention[[4]](#footnote-4). Other principles are novel and are recommended for internal governance purposes and consideration for adoption by relevant regulators.

*Purpose*

* The primary purpose of any usage of emotional AI in toys and related child services is for the clear benefit of children, followed by benefit of parents.

*Privacy*

* All personal data about children is de-identified by experts, such as professionals from the statistical confidentiality community.
* Identifying data of the parents is restricted to a limited number of staff who have signed confidentiality agreements about this information.
* All non-identifiable child data (e.g. audio recordings) are held in encrypted, secured formats, and datasets are never released. If shared, they remain in a secure, privacy-preserving enclave that partners can query but not download.
* Parents can easily delete all data about their child.
* Children of an appropriate age can easily delete all data about them without parental help or approval.
* There are data retention policies in place to automatically delete all child-related data within a set number of years.
* Emotional AI systems uses edge processing rather than cloud processing.

*Choice & Agency*

* Product packaging should clearly state that biometrics, mood and/or emotion data are collected.
* Parents should be able to return products within a reasonable period after reading privacy policies.

*Marketing*

* Children’s emotion data or biometrics should never be used to market to either the child or the parents.
* Children’s devices should never advertise directly to children.

*Disclosures & Notifications*

* Manufacturers should use plain-language notifications and innovative graphics on product boxes to help parents understand the degree of a product’s data collection and use.
* Regulators and manufacturers should incorporate best practices from disclosure comprehension research, labelling and consumer protection.

*Relationships*

* Products should not abuse the trust of children and their willingness to engage with non-human actors.
* Manufacturers must have policies in place if the technology detects ill mental health or harm.
* Products should avoid stereotypes and assumptions about emotion that may materially affect a child, e.g. girls as passive and boys as active.

*Play*

* Emotional AI should seek to amplify a child’s imagination.
* Data about children’s play should not be used to commercially, developmentally or socially exploit children, or negatively influence them in any way.
* Children may trust that only they/their parents will know specifics of their play.
* Any social media sharing functions must be defaulted to Off.

*Parents*

* Parents are also vulnerable – products should never take advantage of that.
* Parents are under stress and so product disclosures and interactions should seek to reduce that without reducing their agency.
* Products should not nudge parents to share their child’s emotions, utterances or play on social media.
* All data sharing options should be exclusively opt-in.

*Training data*

* All training data should be collected with the supervision of child psychology experts.
* Training data must be de-identified by experts.
* If to be shared with partners, de-identified training data should be held in encrypted, secured formats, and datasets never released. Instead, they should remain in a secure, privacy-preserving enclave that partners can query but not download.
* Training data should be specifically designed to be diverse and inclusive.

*Design*

* Design process should identify scope for harm at the outset and as part of ongoing product refinement.
* Manufacturers should seek external ethical review in cases of ambiguity.
* Products should not be designed to nudge children in commercial directions.
* Products should be designed with the best interests of the child as their primary goal.
* Manufacturers should evolve their products to automatically identify and segment children’s data from adults’.
1. **Is EdTech using emotional AI in tension with the UN’s CRC stance?**

Education Technology (EdTech) companies are deploying emotional AI to quantify social and emotional learning. In education, especially in the global North, the application of emotional AI promises to assist with personalised learning, development of social and emotion learning, to understand if students are struggling with class material, and which students need to be challenged further by class content.

These technologies and educational practices are already on an upward curve, now accelerated by the impact of COVID-19. This entails increase in online learning, involving cameras and student monitoring, mediated student feedback, the need to increase quality of participation, session recording, and tracking of attention engagement.

The idea of computers tracking emotion is not new, it reaches back to the development of computerised tutors that attempted to track emotion and affect in 1988. Similarly, EdTech is not new either: examples include Edison’s vision of film as an educational technology (1920s); Pressey’s “machine for testing intelligence” (1920s); and Skinner’s mechanical and electronic "teaching machines" that, following logics of operant conditioning, sought to speed-up student feedback.

Concern about emotional AI in EdTech is two-fold: first is method, especially given scope for material effects on students; second are ethical and legal concerns.

**Relevant UN articles**

There are at least six relevant articles in the CRC, including:

* + the need to act in the child’s best interests (Art. 3);
	+ the child’s right to freedom of thought (Art. 14) and to privacy (Art. 16):
	+ the child’s right to physical, mental, spiritual, moral and social development (Art. 27);
	+ the child’s right to dignity when being disciplined (Art. 27);
	+ the development of the child’s personality, talents and mental and physical abilities to their fullest potential (§1 Art. 29);
	+ the child’s right to liberty (§2 Art. 29);
	+ and the child’s right to be protected from economic exploitation and from performing any work ‘likely to be hazardous or to interfere with the child’s education, or to be harmful to the child’s health or physical, mental, spiritual, moral or social development’ (Art. 32).

We pay special attention to §1 Art.29 of the Convention because it raises a counterargument to our critical position.

It could be argued that applications of AI in the classroom will help a child’s ability to reach their ‘fullest potential’. This argument would also be based on accusations of ideological antagonism to market involvement in education and that luddism blocks scope for children’s development and flourishing.

Connected, §2 Art.29’s interest in non-interference to ‘establish and direct educational institutions’ could also be seen as having scope to provide a normative defence for EdTech companies.

Anticipated, we argue that: a) the science of emotion needs to be sound; b) evidence of scientific foundations (independently verified) needs to be provided *before* deployment; and c) even if these are established, privacy, choice and spiritual wellbeing need to be respected.

We suggest the following considerations for any deployment of emotional AI by educators, whether this be based on facial analytics or a different sort (see Figure 1):

**Figure 1 Considerations for deployment of emotional AI by educators**

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| **Concern** | **Issue** |
| *Scientific scrutiny* | Does the technology do what its proponents claim? Has the data been trained on a suitably diverse dataset? Has independent scientific scrutiny been solicited? |
| *Universality* | Proponents of facial coding are adamant that basic emotions are universal, but what of: a) ethnocentric considerations; b) representative training data; c) location variation in emoting; d) individual-level variation in affective reactions and emoting? |
| *Methodological expediency* | Emotions are articulated in a way that makes sense to machines. Has consideration been given to the risk of creating an understanding of emotional life that suits data analytics, but not people? |
| *Relationships with self* | Has due consideration been given to how these technologies may impact on students’ own emotional understanding? |
| *Mental health* | Are policies in place if the technology detects ill mental health and how will these be balanced with duty of care by schools, and privacy and data protection concerns? |
| *Disavowing self-reporting* | Will students be believed if they complain that they *were* paying attention, especially if engagement records are kept? |
| *Teacher input* | Are firm policies in place so input from actual in-situ teachers is prioritised over feedback from automated systems? |
| *Students and parents: may they opt-out without penalty?* | Power asymmetries, lack of choice of online learning platforms, and lack of choice of schools conspire to make meaningful consent impossible. What is the policy and rationale if parents or children do not want to be subject to sensing by emotional AI? |
| *Trust* | Has the trusting nature of people and their willingness to engage with non-human actors been considered? |
| *Review* | What processes and checks are in place to review the implementation of the emotional AI application? Have suitable independent experts been solicited and are they available to assist where answers to this test are unclear? |

1. What emotions are, and the ability to read them, are highly contested terrains, especially when applied to children. See: ‘McStay, A. (2019) Emotional AI and EdTech: Serving the Public Good, *Learning Media & Technology*, 1-14. [↑](#footnote-ref-1)
2. E.g. happiness, sadness, disgust, fear, surprise, and anger. [↑](#footnote-ref-2)
3. Conducted in the UK in February 2020 by McStay and Rosner of The Emotional AI Lab, the demographically representative survey (n=1000) was segmented by UK region, work status, parental age and gender; parents were also segmented by the age of their children. [↑](#footnote-ref-3)
4. We conducted 13 in-depth interviews with child development experts, technologists and policymakers. With Dr. Kate Armstrong from the Institute of Imagination, we also conducted three focus groups with demographically diverse participants. These comprised 14 females and 5 males who are parents/primary carers. [↑](#footnote-ref-4)