

"Smart Things" in Child-Parent Interaction: Statement of Problem

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Abstract. This article is devoted to the problem of modes of interaction between parents and children in conditions of using digital gadgets. The relevance of the proposed study is that in the last few years, new media technologies are being adapted to specific groups. In recent years, the use of gadgets for parents with children of different ages is spreading. These gadgets monitor the child's physiological parameters and inform parents about them. Using the methodology of STS, we can say that the introduction of technological artifacts in the daily life of child-parent relations gives rise to the problem of disentanglement - increasing the number of technical intermediaries of interaction. These gadgets, like any other technological device, are a part of the "embodied ideology". This means that technologies outstrip the development of the users' interests, their attitudes, motives and practices in a particular way, direct and prescribe actions to their users. The study was funded by RFBR according to research project No. 18-011-00692 Parenthood in the era of "smart things": a sociological analysis.

1 Introduction

In 2017, one "nanny" which is very popular all over the world celebrated its eightieth birthday, this is a baby monitor. The main function of this device is remote listening to the sounds of the baby, and first of all, crying. Later, the version appears for video surveillance which provides parents with the opportunity to monitor the baby from another room. For a long life, this gadget has changed a lot: it acquired the ability to transmit a signal using Wi-Fi instead of radio frequencies, as well as many additional functions. Now the electronics market is full of various children's smart monitors fixing new types of information (heart rate, body temperature, breathing, physical activity of the child and much more). In addition, the outlook of displays has also changed; they can connect to the usual baby things. Everything that is used by a child becomes "smart": a smart jumpsuit, smart socks, and a smart diaper which analyzes its content and concludes about the user's health. For children aged two and older, the developers offer a "smart watch", this device is equipped with a GPS sensor and is mainly focused on monitoring the movements of the user, and therefore it is very popular among parents of primary school children. Digital abundance, the users' growth rate, and the technology instability contribute to the modality of these things in parent-child interaction [1].

2 How does it work?

Let us elaborate how to operate the new monitors tracking gadgets. The sensor on a jumpsuit (a sock or a waistband) monitors the temperature of the surface of the child's body, finds if the baby is sleeping or awake, in which position it is (e.g., face-down position). The docking station of this device transmits the collected information to the parents' smartphone via Wi-Fi network, to get the data they need to install a special application (and to configure the work of the docking station located on the jumpsuit via a special cable). The application keeps a log of collected data notifying about any change and is able to compare information with available statistics of other children. That is, using this gadget implies using a smartphone, a special program and excellent work of Wi-Fi. In addition, the child that has a special means of communication can connect to the networks of other smart things at home. The developers of the Mimo monitor notified of the imminent arrival of a special baby bottle heater that will be connected with the monitor and start to heat the milk according to the signal that the child is awake [2]. Now the child is endowed with a technical "crutch" that helps to acquire the language to share personal information, for example: "I woke up", and this information can be communicated directly to the baby bottle instead of waiting for mom. Smart watches also connect to your smartphone and inform parents about the child's location, are able to receive voice and text messages, some models are equipped with a device allowing you to discreetly listen to the child and other people around, for example, a nanny, caregivers or teachers.

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3 New risks

The first samples of the children's monitors posed a danger as they powered from the electrical grid, the abundance of electric wires led to suffocation of the children. Modern gadgets usually do not have wires, but they become a source of new risks. The users' reviews of these gadgets cover the information that these devices often "glitch" when start to be used, give wrong information, require some configuration and careful testing. However, later errors also happen, but rarely enough to abandon the gadget and quite often enough to become a source of new worry for parents. For example, monitoring child's breathing that shows no signal requires interpretation (the failure of the device or health problem of the child), personal involvement in verifying the information and, of course, causes panic. The tracker on the child's watch can provide an incorrect localization of the actual child's location forcing the parents to think that the child has been kidnapped or it has left school without permission.

But the problem of data interpretation collected by these devices occurs not only in the case of breakdown. These gadgets offer a large amount of new information to people that have never dealt with it. Parent-users often guess what to do with this information and how adequate the data are. For example, most parents have never seen the information on the heart rate of their baby before, and now getting it every minute they are forced to interpret it getting immersed more and more in medical books. If the parents have not known before how their child gets home from school, now the school system notifies parents through sms-service whether the child leaves the school, a smart watch draws the child's route in the parents' smartphone, and they learn that the way takes two hours though it needs only fifteen minutes. Two hours are spent on watching the shop windows and street posters, jumping in puddles, talking to a friend. Received by parents, this information is subjected to moral evaluation and is often classified as a disturbance and a deviation from the norm. Starting to wear a smart watch, the child ceases to deviate from the route. This situation can be interpreted in terms of the concept of power by Michel Foucault. The child becomes a "prisoner" of the panoptic surveillance [3]. This observation is always asymmetric: the child is "seen", but cannot see its observers and is not associated with them directly. The child never knows if someone is watching it at the moment, it is getting used to external control and starts to behave as the "observed" continuously. This is noted by the parents of the children who use these gadgets. The researchers studying childhood predict negative consequences of using such forms of control for the children; forming habits to be monitored, difficulties in the discovering urban space, dependence in actions and decision-making, and so on [4, 5, 6, 7, 8].

Another source of risk in a situation of using controlling gadgets is lack of control over the information collected by the devices. The Norwegian Consumer Council (NCC) [9] has analyzed the work of several models of smart watch and has identified the

following issues. The location which is typical for children, photographs, the parents' telephone number and other information collected by children's wearable electronics is considered personal information and should be protected by law. The right to privacy is enshrined in the European Convention on Human Rights by United Nations Organization, and children are granted with special protection in accordance with the Convention on the Rights of the Child [10]. Smart watch continuously collects children's personal information and transmits it to the application in the parents' smartphone. Data sent over the Internet must be protected by encryption; however, some of the tested gadgets transmit information to the server unencrypted. In most cases, service providers do not provide information about where the servers storing the collected data are. Therefore, unencrypted data can be stolen by hackers and used against the child or its parents. In addition to the above, the collected data are almost impossible to remove, some devices allow you to delete only the username but not the location history, others suggest automatic removal of history, but this does not happen. You cannot delete the user account after the termination of the use of the service, for example, before selling the device to another owner.

Another difficulty in children's gadgets is the uncertainty of the defendant. The market of smart things is heterogeneous, consists of products that are imported from different countries via specialized websites, and small companies are resold to large retailers. Many products are rebranded and sold under different labels, which further complicates the path from manufacturer to user. The consumer remains uncertain. The use of digital control tools raises the question of children's agency. Is the child a real user of the device? When loading the application-companion on the smartphone, the End User License Agreement is accepted by the parent, and the child may not even realize all the functions of its new device. For example, the interception function in some models of smart watch switches on seamlessly to the wearer, and the parents do not often inform their children even of the school age about it. Complaints related to the interception function primarily concerns violation of the rights of other adults that surround the child and whose conversations can be listened to without their knowledge and consent [9].

The idea of the agency of children is articulated in the framework of new sociology of childhood in the 1990s and is expressed in the criticism of the psychological and pedagogical ideas of the universal nature of the child and the mandatory nature of the "normative" childhood. In this new concept, children are understood as experts in their lives; they are able to participate in solving issues relating to their daily lives and have the right to express their views [11, 12, 13, 14]. Until recently, the asymmetry in the relations between children and adults was regulated by duties of the latter to perform a socialization function. This order is destroyed in terms of technology culture when the experience is too quickly becoming obsolete and everyone regardless of age occupies the position of a disciple. The use of baby monitors and other tracking

gadgets creates a situation of conflict between two modes – the rights of children to autonomy and parents' duties to take responsibility for the safety of their children.

4 Entanglement and disentanglement

The inclusion of digital devices in the implementation of control over the child may be considered through an appeal to the phenomena of technological entanglement and disentanglement of communications [15, 16]. At the first glance, the monitor connects what has been separated before: children's and parents' room, office and playground, baby's heartbeat and adult's smartphone. The flip side of the connection of everything with everything inevitably brings disentanglement. The increase of the technical intermediaries of interaction between a child and an adult makes each of them autonomous. The purpose of buying a monitor by a parent is not to control (or rather not to see) the child's condition in person, to come up to it less often, especially at night (some monitors are equipped with a set of "soothing" tunes which are enabled by the signals from the monitor sensors if baby gets awake). Smart watch waives parents' need to pick up the child from school or being at work to call and learn if the child is back from school and child's responsibility to call back and report. Technologization of interaction disentangles the worlds of the child and the adult allowing them to coexist in close proximity and possess some autonomy [17]. Using more and more technical intermediaries – a breast pump and formula, an automatically heating baby bottle, a device for swinging a baby cot, a baby monitor with soothing melodies and allowing parents not to come up to their child at night - we come to technological disentanglement of communication. Thanks to the disentanglement, there appears a long chain of technical intermediaries between the parent and the child. If the mother hears the baby crying and goes to get it to sleep, or meets the child at home after a walk and sees that it returns home in a bad mood, this means a strong entanglement. If she sees a notification from a smart watch on the monitor of her mobile that her child has reached the "home" zone, but does not receive any information about the state of its affairs, this means a weak entanglement with the help of a large number of technical intermediaries.

Consequences for the mental state of the child are a sphere of research interest for psychologists, and sociologists in this field study the ratio of the technical and socio-moral orders in the sphere of child-parent relations. So how does autonomization occur in the process of technological disentanglement? Does disengagement really lead to increased privacy of the child's world? On the contrary, the child becomes the user and the object of tracking by smart things and produces more signals coming outside the house. According to these data, it is possible to trace its movements, health, food, and leisure; the data collected by the child's gadgets are often used by service providers

for marketing purposes. Technical means destroy the sense of intimacy in everyday parent-child interactions.

For a long time the mother and child were flesh related, their communication was based on the sounds, smells, and tactile sensations. There has varied the time of mother's leaving the child and entering the work which depended on the dominant culture of motherhood; but in the initial period of the child's life, the mother was considered an expert in recognizing its signals thanks to continuous staying nearby. Technology makes distance irrelevant. Monitoring the child's condition at a distance removes the opposition between near and far, nothing is really remote in the technological world. Consequently, inevitable erosion of everyday life and blurring of the concept "home". In addition, the natural process of growing up and therefore childhood are threatened. Growing up seems gradual acquisition of the rights to independence and autonomy. First, the child gets the right to visit friends, neighbours or to exercise an order which does not involve crossing roads. Growing older children acquire the right to go to school unaccompanied, use buses and cycle along main roads [18: 77]. The space of a child's life like no other is divided into "far" and "close", "safe" and "dangerous". The acquisition of the right to independence is one of the attributes of adulthood, an exit from surveillance which is characteristic of childhood [18, 19]. Technical intervention in controlling children extends the period of dependence.

From the point of view of research in science and technology, technology is not simply the operator, but an agent of the social world. Like any technological artifacts, baby monitors are "embodied ideology". The technologies allow the development of users' interests, their attitudes, motives and practices in one direction, direct and prescribe the users' actions [20; 21]. Social construction of technology (SCOT) allows us to look at these devices like objects with coercive force, suggesting a specific user, his interests, skills, motives and behaviour. Therefore, these devices fix a certain type of parenting and the parent-child relationships. At the same time, the development of technology is understood as the result of the interaction between relevant groups which include groups of designers and engineers who construct these technologies and share similar ideas about a specific technology, groups of parents that use the proposed technology, share these views or do not share and enter into negotiations about the design and functionality of this technology. In this research the following question will be reasonable: why are these technological artifacts exactly the way they are?

5 Medicalization of childhood

The expansion of digital infrastructure over the area of childcare occurred in the last few years in terms of medicalization of the discourse on motherhood and childhood [2; 22, 23]. We can assume that this is what shaped the modern baby monitors and made them functionally similar to medical devices: physiological parameters and behaviour that can damage a child's life

(sleeping postures defined as dangerous) undergo observation. Being in this discursive field embodied in a technological artifact contributes to forming a medically vigilant parent whose new competence is immersion in the physiology of the child. The smart technology controls migration and the baby monitors strengthen the idea of the need for special treating children, primarily through ongoing monitoring. However, this idea contradicts the psycho-pedagogical discourse dominated throughout the twentieth century; it was based on developing children's autonomy and raising their responsibility for themselves and others. This is unavoidably due to a change in understanding risks. "Special" treatment from the standpoint of this approach is only applicable to "special" children suffering from serious illnesses, the disabled, etc. In the same discursive field, a permanent control of the child's migration was admissible in exceptional situations, namely in case of physical or mental illness of the child. Modern baby monitors and tracking devices as a technology are at the formative stage, it is quite flexible and its functionality is changing. Moreover, these gadgets have weak social embeddedness. However, it is clear that the ideology of childhood and parenthood is changing and new patterns of parent-child relationships will gain technological intermediaries.

6 Conclusion

Following David Rose, who in his book "The Future of Things: Design, Human Desire, and the Internet of Things" [24] draws a parallel between magical things in fairy tales and the Internet of things, we want to compare baby monitors that allow recording the child's condition and its migration with the magic mirror from the Grimm's fairy tales which answers where the person under interest is according to the speaker's inquiry and gives the opportunity to "spy" for him. However, unlike magic items, the smart control does not allow to know the mood, the state of affairs of the child, that is, nothing except its location or physiological characteristics. Parents are not able to affect the child's migration or its condition with the help of technological devices, they can only notice and record it. The growing popularity of smart things makes parents more and more responsible for children, making it personal. It relieves every passerby of the responsibility, if we are talking about children in the street, to control public order in range. In the new digital world, parents are bound to balancing between the need for interpretation of new information about the child and the morality of data disclosure, between immersion in the child's world due to the constant digital presence and private autonomy, between control and care.

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