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DIGITAL SELF-TRACKING AMONG RUSSIAN STUDENTS: PRACTICES AND DISCOURSES

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DIGITAL SELF-TRACKING AMONG RUSSIAN STUDENTS: PRACTICES AND DISCOURSES[2]

The article analyzes how Russian students interpret and practice digital technologies of self-tracking (fitness trackers, apps and wearables), that allow to collect biometric and activity data. It is based on the results of reflective thematic analysis of students' essays on this topic. How do students describe their experience in using self-tracking technologies? What discourses of self-tracking are represented in their essays? How do they imagine the digital future and further development of the systems of self-surveillance?

The research demonstrated that many students have certain experience with quantified self-tracking, whereas some tend to limit it or refused from it for some reasons. Based on the students' stories (former and active users), the author offers to distinguish three styles of self-tracking: 'gamer', 'manager' and 'transformer'. A 'gamer' is looking for the feelings of thrill, pleasure and novelty; a 'manager' aims at putting one's head and life in order; a 'transformer' wants to change one's life and mind radically. In reality any self-tracker combines all three roles, though one of them might dominate. According to the students, the existing technologies of self-measuring cannot give strong enough motivation for self-optimization, but in the future their effectiveness may increase. This study also resulted in defining four types of discourse on self-tracking: 'progressivist', 'pragmatic', 'critical' and 'anti-utopian'. They represent the differences in conceptualization of self-tracking as a cultural phenomenon. Some students are prone to optimistic or balanced evaluation of the potential of self-tracking technologies; others focus on risks and hazards of 'datafication' of people and social life. The outcomes of the study develop the previous research on styles of quantified self-tracking, providing additional analysis of the reflections of (non-)users, concerning self-tracking as a cultural phenomenon.

JEL Classification: L82, O33.

Keywords: self-tracking, digital technologies, «Quantified self» (QS), Russian students.

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Introduction

Developments in the industry of mobile and wearable technologies and increasing datafication and metrification of social life (Beer, 2016; van Dijck, 2014) have led to a growing proliferation of digital self-tracking. This concept defines quantitative measuring of physical and behavioral characteristics by means of personal digital devices (Lupton, 2016; Neff, Nafus, 2016). They can be used to track the steps, calorie expenditure, water consumption, duration and phases of sleep, blood pressure and pulse, stress level etc. In many cases there is no need to download fitness applications to collect this data: for example Apple Health and Samsung Health programs are installed in the corresponding smartphones by default. Smart watches, fitness bands and fitness accessories, jewelry and clothes with sensors also perform the function of self-surveillance. Although self-tracking is primarily associated with monitoring health and physical activity, in a broader meaning it includes control over any routine actions, emotional conditions and cognitive processes. Task management apps, mood trackers, habit journals, brain-training apps – most of them are gamified, they offer statistical visualizations of the users' progress. Self-tracking spreads beyond the boundaries of biometrics into different lifeworlds. Practically any qualitative experience nowadays can be quantified: food, work, reading, walking, socializing, meditation and even grief. Such an all-penetrating self-tracking is a part of the fundamental process of 'deep mediatization' (Couldry, Hepp, 2016), which is transforming all the segments of social life.

The pioneers of self-tracking are the editors of the American journal 'Wired' Gary Wolf and Kevin Kelly, who in 2007 created the international online community 'Quantified self' (QS) with its slogan 'self knowledge through numbers'. The supporters of QS have different ambitions – from better understanding themselves to improving sports performance, treating diseases and biohacking. They call the practice of tracking and analyzing individual metrics 'everyday science'. The QS movement forms and promotes 'dataist paradigm' inviting us 'to rethink life in a data-driven manner' (Ruckenstein, Pantzar, 2017). At the moment the term 'quantified self' is applicable not only to the Society members, who frequently get in the spotlight of researchers (Nafus, Sherman, 2014; Sharon, 2017; Sharon, Zandbergen, 2017), but also to everyone, who practices tracking of certain aspects of their lives.

By using the electronic systems of 'personal analytics' (Ruckenstein, 2014), people strive to be healthier, more conscious and productive. This aspiration to become 'a better version of oneself' is supported by neoliberal discourse, in which 'self-management' and 'self-optimization' are presented as the key factors of achieving social success (Lupton, 2016). From this perspective the technologies of self-tracking work as tools of biopedagogy by disciplining

and motivating citizens for systematic 'care of the self' (Fotopoulou, O'Riordan, 2017; Williamson, 2015). This optimization of individuals who avoid unnecessary risks with the help of smartphones and smart gadgets serves the interests of different social organizations (employers, banks, insurance companies, medical and educational institutions). Although self-tracking is mostly a personal choice, some corporations can put effort into promoting or even obliging people to use it (Lupton, 2016; Moore, Robinson, 2015; Till, 2019). Besides the data generated by self-trackers is of commercial value for many private and state structures. This fact is associated with numerous discussions about legitimacy of using lively data as a product of voluntary digital labour serving third persons' interests (Till, 2014; McEwen, 2018). Commodification of self-tracking turns it into a part of the eco-system of digital economy and, eventually, into the system of 'knowing capitalism' (Thrift, 2005).

Self-tracking tools, according to Neff and Nafus (2016, p. 124), 'are designed for consumers who are young and already fit'. A number of recent studies are devoted to self-tracking practices among young people, primarily associated with developing a healthy lifestyle (Goodyear at al., 2019a; Goodyear at al., 2019b; Lupton, 2018; Montagni at al., 2018; Pang at al., 2019; Radovic at al., 2018; Ridgers at al., 2018; Schaefer at al., 2016). These authors reveal the motives, opportunities and barriers in using healthcare apps and wearables among schoolchildren and students.

The present study also addresses young (non)users of QS-technologies. It is based on the results of the analysis of students' essays and aims at discovering how digital self-tracking is understood and practiced by Russian students. It is worth noting that these students are in Media and Communication program, which can mean higher interest to media technologies in general and activity-tracking devices in particular. Nevertheless the data received indicates that the degree of involvement in self-tracking among students is highly variable as well as the strategies of digital self-monitoring. It is possible that their main difference from other self-trackers is the presence of specific reflections about QS-culture in general. The presentation of the results of the study is preceded by the review of literature, covering the studies of motivation and styles of self-tracking. Further the research design is justified. The main part of the article describes the types of non-users and users of QS-technologies among the essay-writing students and the discourses they develop on self-tracking as a cultural phenomenon. In the conclusion I formulate the key outcomes and limitations of my study and outline its further perspectives.

Practices of quantified self-tracking: literature review

In this part I'm giving a review of a number of studies devoted to self-trackers' motivation and styles of digital self-monitoring. This will allow me to reveal diverse research strategies of constructing typologies of self-tracking practices and later to understand how my results correlate with the previous conceptualizations.

In the studies of self-tracking it is important to answer the question, what moves people to do it. German researchers Gimpel et al. (2013) conducted an exploratory survey with 150 respondents and developed a model of self-tracking motivations, including: self-entertainment, self-association, self-design, self-discipline, and self-healing. The first two factors are not connected with the need for self-improvement; in this case self-tracking is motivated by the desire to 'play' and share data. 'Self-design' implies the urge for self-optimization and control over certain aspects of life, while 'self-discipline' makes it possible to reach awarded behavior and avoid unwanted consequences. Finally 'self-healing' reflects the growing health-awareness and desire not to depend on traditional medicine. In spite of the fact that this study was conducted among patients, the factors of self-tracking it revealed were rather universal. At the same time individual motives of self-surveillance cannot be strictly categorized: for example, it can be a desire to become a role model for other members of the family (Ruckenstein, 2014).

The difference in the aims and motives of the users provides the basis for the typology of self-tracking styles, suggested by the British researchers Rooksby et al. (2014). Based on the results of 22 unstructured interviews they defined several modes of self-tracking: directive (goal-driven), documentary, diagnostic, collecting rewards и fetishised. Through analyzing the stories of self-trackers, the authors come to a conclusion that the former don't act as rational data scientists. When people dwell in data, 'they are not building a description of their lives, but are wayfaring in information' (ibid., p. 1171). Tracking is connected with strong emotions and social relationships, its character and regularity depend on many circumstances, but in most cases it is used in the short term. The researchers also note that the practices of self-tracking are prospective rather than retrospective.

The typology of Rooksby and colleagues (2014) allows us to understand the intentions of self-trackers, but doesn't consider subjective character of the relations between people and devices. Australian scholars Lyall and Robards (2017) conducted eleven in-depth interviews to find out three non-conflicting roles attributed by the users to their activity trackers: 'tool', 'toy' and 'tutor'. On the one hand we can see a connection with the previous studies: for example 'toy' as a source of pleasure is associated with Gimpel's 'self-entertainment' (Gimpel et al., 2013), as well as Rooksby's 'collecting rewards' and partially 'fetishised' QS-styles (Rooksby et al.,

2014). On the other hand, Lyall and Robards (2017) demonstrate that regardless of the goal of tracking (achieving a certain result, recording events or search for connections between certain moments of life) the users can themselves ‘tune’ the type of relationships between them and the digital device (pp. 113–120).

According to Gerhard and Hepp (2018) the analysis of self-tracking must include three overall contexts: further practices, of which self-tracking is a part; social figurations the self-trackers are involved in or related to, and societal discourses about the self in present societies (p. 683). Considering these contexts while conducting qualitative interviews in the north of Germany, the authors identified two fundamental types of self-tracker, ‘pragmatists’ and ‘enthusiasts’. While ‘pragmatists’ use tracking only for certain goals, without any joy and often secretly, for ‘enthusiasts’ this is an inspiring part of their healthy lifestyle, which they share with others. This approach allows us to see two different ‘orientations in practice’, but it has its limitations. It’s rather obvious that ‘enthusiasts’ group comprises, apart from QS members, all health nuts and sportspeople, while ‘pragmatists’ unites all others. Those ‘others’ can have different motives, emotions, circumstances and degree of openness. As for ‘enthusiasts’, it wasn’t the gadgets that led them to an active lifestyle, although often gadgets are an attribute of this lifestyle. They are primarily enthusiasts of wellness, not self-tracking. That might explain why they are less dramatic in relation to using fitness-trackers (tension, guilt, stress, rejection).

As was shown by the Danish researchers Gorm and Shklovski (2019), regular prolonged self-tracking is a rather unique case. In reality usual people often interrupt this practice or quickly refuse from QS-applications and gadgets. Expectations of consistency in self-surveillance are formed by the developers of QS-technologies and integrated in their design, these are ‘temporal technologies’, involving people in a ‘flow’ (Lomborg et al., 2018). But many people are prone to ‘episodic use’: mistakes, omissions and individual modifications of the ‘prescribed’ forms of self-surveillance. For example, a self-tracker can pay attention to the pedometer only when going for a long walk or substitute walking by playing piano, which is counted as steps by the device. Gorm and Shklovski (2019) view ‘episodic use’ as application of flexible ‘logic of care’, which takes into consideration real needs and capacities of a person as opposed to rigid marketing ‘logic of choice’. The latter inflames the feelings of frustration and guilt in people because they can’t follow the imperative of constant self-tracking. The reasons for interrupting and quitting self-surveillance as well as ‘life after self-tracking’ have been described in earlier works (Epstein et al., 2015; 2016), but this direction is still understudied.

The research by Hand and Gorea (2018), based on 25 in-depth interviews with Canadian students, focus on the phenomena of iTime (Agger, 2011) and temporal datafication. The authors

reveal three temporalities of personal analytics, including the following dynamic elements: 'syncing, intensification, and balance'; 'elasticity, disruption, and regimentation'; and 'flexible attachment and ambivalence'. The first temporal pattern is typical for self-trackers, immerged in iTime and leading a healthy lifestyle, similar to Gerhard and Hepp's 'enthusiasts' (2018). In this case self-tracking does not transform, but reproduce the existing temporal structure of the practices. The second category of users intentionally strives for temporal reordering to make changes in themselves and their lives. This way they are similar to goal-oriented 'pragmatists' (Gerhard, Hepp, 2018), what makes them different is love for competitions and public presentations of achievements. The third style of personal analytics is partially similar to the 'logic of care' and 'episodic use' (Gorm, Shklovski, 2019), but oriented not so much to adaptation, but rather to resistance of the users to what is imposed by iTime devises.

Most studies see self-tracking as a personal choice, although they underline that this is a communicative practice, included in the context of interaction with the others (Lomborg, Frandsen, 2015; Kent, 2018). As was demonstrated by the Australian sociologist Debora Lupton (2016), self-tracking can be not only 'pushed' (for example, by parents or peers) but can also evolve into more obligatory modes, become 'imposed' or 'exploited'. Looking ahead, let me note that this future of self-tracking became a focus of the reflections and imaginative forecasts in some students' essays.

Research Design

This article presents a qualitative analysis of 112 essays written by BA students of an university in Moscow in March 2019 as a part of a course on Media Studies. The average age of the authors is 20 years old, female students comprise 83%, male students – 17 % of the pool.

The essay task suggested three different directions to choose from: a) the culture of self-tracking; b) personal experience in self-tracking; c) the future of self-tracking. The task indicated that this division is rather artificial since one text can cover all three aspects. Suggested reading list was provided as a part of preparation to writing.

The decision to analyze the essays as empirical material in studying self-tracking was made retrospectively (with the writers' consent) and appears justified. Firstly, the students can be seen as (non)users of self-tracking technologies, and their texts – as informants' reports on their consumer experience or reasons for its absence. Many essays contain descriptions of personal practices of self-tracking and from this viewpoint they are partially comparable with the data of in-depth interviews conducted by digital anthropologists. Secondly, these students can be seen as future professionals and researchers in media sphere. Some of them might work in developing or

promoting this kind of technologies in the future, others might write academic papers on the topic. This context makes the students' current thoughts about digital self-tracking highly interesting for research.

It is also worth mentioning the features of the texts under study, which create difficulties and lead to 'resistance' to analytical procedures. First of all, those are course assignments, written according to certain requirements and subject to evaluation. The essays contain a theoretical background section, often quite symbolic, but still giving the direction for further interpretation. These are 'catchlight texts' in which individual meanings are partially affected by light spots of 'authoritative' discourses (similar to a phenomenon of socially approved answers in opinion polls). Besides these works have significantly different styles – from philosophical speculations, social analytics and literature reviews to creative essays and personal stories. Qualitative analysis of such texts would see some obstacles. Notwithstanding the mentioned problematic features, these essays provide heuristically plentiful material for study.

I formulated the following research questions:

- What is students' experience like in (non)using QS-technologies, how can the described practices of self-tracking be conceptualized?
- How do students understand and imagine QS-technologies, what discourses of self-tracking are represented in their essays?

To get the answers to these questions I used reflexive thematic analysis in the version of Virginia Braun and Victoria Clarke (Braun, Clarke, 2006). This approach treats coding as an open and flexible process, in which the codes come to life during reading and interpreting the texts. At the same time if a code catches one meaning or idea, the theme appears as a result of clusterization of similar codes. The themes are conceptualized as recurrent patterns of meaning, organized around the key concepts. A researcher here is rather a storyteller who needs to tell a proper story, coherent and persuasive, about a set of data, acknowledging that one brings in personal experience and subjectivity.

'Why self-tracking is (not) for me': students' QS-experiences

Half of the authors of the essays (50%) mentioned or gave a rather detailed description of their experience in using self-tracking technologies. At the same time we cannot claim that the other students don't have such experience: they could choose to develop their writing in a different direction, for example, analyzing QS-culture in general or imagining self-tracking of the future. Moreover it turned out not quite easy to realize if one was a self-tracker or not. As

Elena (29)[3] notes, some biometrics are generated by a smartphone 'completely without the owner's awareness', and 'only the laziest person has never opened the pedometer on iOS phones'. Many of those, who reported their usage of activity trackers, described it as 'trial', 'episodic' and 'passive' and were not sure about their status of self-trackers. Possibly the students who didn't mention their experience of self-tracking simply didn't attribute their unnoticed and sporadic practices as self-tracking. This blurred line between using and non-using is largely defined by naturalization of wearable technologies and their conversion into 'everywear' (Gilmore, 2015).

Nevertheless the degree of interest and involvement into the practice of self-tracking among students varies, and it allows us to name the following statuses:

Avoiding

A number of students intentionally refer to themselves as non-users of QS-technologies, while choosing alternative ways for self-knowledge and self-optimization. As a rule, they had had some experience with mobile applications and fitness-trackers and were not inspired by it. To fulfill their goals now they start bullet-journals and take challenges in social media, invent their own systems of carrot and stick and prefer people as coaches and physicians. In general the non-users of QS-technologies believe that in managing one's life it is better to rely on one's mind, feeling and will, 'which cannot be programmed, downloaded in App Store or Google Play' (Evgeniya, 104). They see the practices of quantification of body and human activities as indicators of 'the crisis of corporeality' (Elina, 7), as well as 'the crisis of human cognitive ability' (Denis, 101). Apart from that, some of them strive to reduce their smartphone time, which conflicts with daily self-tracking (Angela, 15). At the same time they do not always consider the use of iPhone 'Screen time' function for this purpose as a form of quantified self-control.

Rejection

Another category of students also avoids digital self-measuring, but for different reasons. Their essays contain stories of refusing from the practice of self-tracking, which had turned out traumatizing for them. They reported addiction, stress, fears, anxiety, panic attacks, eating disorders and associated them with using QS-technologies. For example, Nikita had been using a whole range of self-tracking tools for three years: Apple Watch, Health on iPhone, calories counter LifeSum, smart alarm-clock Sleepzy, sleep tracker Pillow, mood tracker Daylio, task manager Todoist, time-tracker Timeular. For him 'the worst-case scenario was to skip a day in one of the applications and to break the statistics', which is why he was living 'in constant

[3] All students' names are anonymized. The number in parentheses after the student's name indicates the serial number of the essay in the analyzed body of works. Essays were numbered in alphabetical order of authors' surnames.

tension' (Nikita, 73). Some people got disappointed in the idea of self-tracking itself and came to a conclusion that 'this is absolutely a waste of time and clogging up the brains with numbers, that can only be understood theoretically' (Svetlana, 14). These students stopped the QS practice at least for some time and went back to 'normal' life: 'learned anew to idle, lie on the sofa and watch films' (Alena, 13).

Suspending

Some students stopped using certain fitness-apps after they developed the necessary habit – for example, learned to keep a diet or water balance. For this reason Inna (62) refused from the application Lifesum after three months of using and did not delete it 'only out of fear to gain weight again'. Polina (9), who had been using FatSecret, also points out that after some time 'you start keeping in mind the nutrition info of the products and can calculate it approximately by yourself'. The students underline the benefits of using fitness-apps at early stages of achieving the goal, when they can get new knowledge about themselves and their routine practices. In the meanwhile apart from fitness-apps and devices other resources can be employed to keep the nutrition and training plan (for example, Instagram, Youtube). Availability of alternative means of self-discipline also reduces attachment to digital tracking. In general, even though the users in 'suspended' status have no need to use QS-tools at the moment, they remain open to this experience and find it quite useful.

Current / active usage

The segment of those who can be called adepts of self-tracking is quite non-uniform. There are users with many years of experience (up to five years) in the background and those who regularly experiment using different devises and apps. For some 'applications and data helped to return to life' (Natalia, 3) and make a 'major breakthrough' in self-cognition (Dina, 4). Others took a long and complicated road of relationships with fitness-devices: 'I still use several apps […] but I don't let them influence my emotional state and try to take easy the failures on my way to a healthy lifestyle' (Olga, 46).

Based on students' arguments and stories, we can model several styles of self-tracking. Depending on the motives and peculiarities of using the tools, a self-tracker can be seen as a 'gamer', 'manager' of 'transformer'. These are ideal types, rather than an empirical typology of real-life experience. Gamers are fighting the routine, they prioritize the feelings of thrill, pleasure and novelty. Managers are fighting the chaos, their task is to bring discipline to life and to increase their productivity. Transformers are challenging imperfections, longing to approach what they consider perfect.

Gamers

Ultimately all users of digital self-tracking technologies are gamers in a broad sense at least because these technologies have been gamified (Whitson, 2013). This feature is highly attractive for a generation that 'grew up on video games, that's why its cognitive settings are close to gaming algorithms' (Elizaveta, 106). 'Gamer' as a specific type of self-tracker is someone who plays with her data to gain self-cognition and/or entertainment by competing with the virtual self and other digital twins.

> Gadgets for self-measuring are becoming something like Tamagochi toys from childhood. Except for now a pet on the screen is the user himself. In the same way, he feeds himself, takes out for a walk and monitors the change of parameters after certain actions. The users do it not because they really want to know all that – sometimes they have no idea what whose figures mean […]. They do it because it is like a game […]. They set themselves goals and challenges. This is like a computer game, but the main character is you (Alla, 34).

These reflections of Alla, describing the experience of self-tracking from outside are supported by the words of another student, Zarina:

> I learned nothing new about myself. But watching the graphs in the app was very exciting – I felt like a character in a game with indicators of health, hunger and sleep, which changed accordingly to how a character spent her time.
> […] My brother and I use smart scales together […]. These indicators can be easily interpreted into game levels and it turns a competition into measuring who upgraded their character better. […] Unfortunately, one gets tired of simple video games soon, and monotonous self-tracking lost its appeal for me pretty fast (Zarina, 56).

When self-tracking is still in the game, it gives positive emotions to the user. For example, Ilya, who uses an online platform Wikium for developing attention, memory and thinking, describes his impressions:

> After all we are talking about a game, and the platform always compares your results with the colleagues' […]. Won a game? Outrun a competitor? The brain is satisfied anyway […]. One feels like tracing the achievements and the so-called 'index of productivity' endlessly, and improving results gives immediate joy […]. I enjoy using Wikium trainers. First of all, it's a great way to start a day (Ilya, 32).

A specific feature of a ‘gamer’ is that he/she usually doesn’t practice ‘focused’ self-tracking (Rooksby et al., 2014) for solving specific problems. A ‘gamer’ is moved by an interest to oneself as a real and virtual object. Such users want to know ‘the limits of their capacities’ (Larisa, 5): ‘how far I can go’ (Aleksey, 61), ‘for how long I can hold […], what it can give me’ (Alena, 13). They research and test not only themselves, but also their digital gadgets. ‘Gamers’ are experimentators, who like to test new developments of self-tracking technologies on themselves.

Managers

This type of self-trackers strives to cope better with everyday tasks, while enduring high speeds and loads, associated with studying, working and active life in a megapolis. They need self-discipline and self-management to become more self-aware, improve wellbeing and increase social productivity. Among other tools of self-tracking for ‘managers’ a special place belongs to task planners and apps for forming good habits.

> My days now are very much like a to-do list, which needs to be done completely and with maximum speed and efficiency. On those rare moments when all the tasks are completed on time, I feel satisfaction at the end of the day and finally go to sleep peacefully to get up the next morning and fulfill all the tasks of the day again. […]. But things are never perfect. […] If you take Asana service, for example, the one I use at work, an overdue task flashes in red and looks very aggressive, and if you complete the tasks on time you get unicorns with rainbow jumping on the screen. I definitely prefer the second variant (Camilla, 87).

The author of this essay generally views her experience of using activity trackers as negative, but the reasons to that are beyond technologies. According to the student, her ‘main aim was not to do the job well or be more active and not waste time, but to feel better – not a useless lazy-bones, but a person in control of everything’ (Camilla, 87). But breaking the schedule and constant comparisons with ‘over-productive’ friends from social media gave her feelings of anxiety and dissatisfaction with herself.

Another student, a daily user of HabitBull, also noticed the disciplining effect, connected with clear visualization of sanctions and rewards.

> Every day I can come up with thousands of excuses to stay lying in bed, order pizza instead of cooking, put off the task in French till tomorrow or have a beer with friends. But the applications

> are merciless: they are unaware that a user can be tired at the end of a week or he/she had a bad day. If the goal is not fulfilled – the day will be marked in red. […] It gives a feeling of responsibility. After a certain amount of time this responsibility practically becomes separate from the applications: a user simply feels, what is 'red' and what is 'green' (Veronica, 99).

According to Veronica, even though one can ruin 'the mood and the nerves' in the struggle for 'neat charts', in general fitness-apps motivate her to take care of herself and to do it systematically. Other authors also note that 'self-tracking helps to focus on required goals and reflects the progress, often becoming one of the main motivators' (Dina, 4).

For 'managers' it is important not to loose the balance in a dynamic life flow, 'keep everything in the head' and effectively do the tasks. Self-tracking here is first of all a way to create order out of chaos and to take control over one's time. Unlike a 'gamer', who tests her own and her gadget's limits with curiosity, a 'manager' strives for 'normalization' of many aspects of her activity. Self-tracking become a practice, helping to become more successful under the conditions of 'life instability' (Camilla, 87), 'learn to organize time and distribute the workload properly' (Natalia, 3). Still people who 'turned their lives into a system' (Galina, 97), as well as 'gamers', can one day start having doubts that this is really necessary for their self-development.

Transformers

Probably the purest examples of 'transformers' are biohackers (Yetisen, 2018; Ruckenstein, Pantzar, 2017). They follow the aim of becoming 'super-people' and try to change their bodies on the levels of biochemistry and genetics. Biohacking is closely connected with the ideas of transhumanism and preventive medicine, aimed at overcoming ageing and fighting death. Digital self-tracking is an integral part of this practice. At the same time this approach requires regular medical check-ups and tests with hundreds of biomarkers, which can be made only in medical clinics.

As an extreme manifestation of 'transforming', biohacking demonstrates its essence very clearly: aspiration for an ideal of a 'super-person'. While 'gamers' are interested in exploring their limits (which can just as well be below the 'norm') and 'managers' need to be in a good shape, 'transformers' intend to step far outside the limits of humane. But as long as biohacking is a narrow domain of its adepts, it makes sense to broaden the understanding of the category of 'transformers'. In the context of this study 'transformers' are people who aspire to radically change themselves, their bodies and lives by using the systems of self-tracking. Radicalism of those changes is not a strict marker, it rather reflects subjective feelings. Presumably the first

major category unites the activities for body transformation and health promotion – weigh reduction, recovering from a condition, inhibiting ageing, achieving outstanding results in a certain activity etc.

Among my students there are no strongly marked ‘transformers’, judging by their own descriptions of experience. But one of the essays (Arina, 55) was based on interviews with QS-practitioners, and the image of one of the respondents, as rendered by the author, definitely falls into that category. The story of the responded, according to her own words, was canonical among Instagram blogs on healthy lifestyle.

> In high school the respondent was overweight which defined her adolescent insecurities and numerous problems with social adaptation. After entering the university she started a diet, took up sports and lost 15 kilograms. According to the respondent, external transformation (‘ugly duckling into a beautiful swan’) lead to life-changes and a different perception by the society. She kept using the practices and behavioral patterns from her ‘transformation’ time.

Arina’s informant has been living an active life for the last several years, doing sports, actively using a fitness-band, FatSecret application and special food scales.

> Now she keeps watching the intake and expenditure of calories. […] Every time when she gets a notification from her fitness-band or nutrition plan app she gets upset. She believes that she is not active enough and eats too much. The worst message she gets is this: ‘Well-done! You’ve made 10000 steps today. But you can do better’.

The author of the essay reflects on the role of self-tracking technologies in cultivating ‘obsession with a perfect body’ (Arina, 55). She uses the results of her interview as evidence of such influence. The main character of her story is a ‘transformer’ not only on motivational level, there have been visible changes in her body appearance and lifestyle. At the same time the frustrations, connected with body identity, as demonstrated by the story above, have remained: earlier they were based on deviation from the ‘normal’, now – on unachievable perfection.

It is important to understand that practically any self-tracking user combines all three roles – ‘gamer’, ‘manager’ and ‘transformer’. The question is which of these roles dominates in their motivation. It is probably impossible to be a ‘transformer’ without competing with oneself and wanting to improve one’s life. For ‘gamers’ a game can only last under conditions of real changes of biometrical and social parameters. As for ‘managers’, playing with their data, they also change their way of thinking and life-patterns. Another question is what is the role of digital

technologies of self-control in achieving such 'self-optimization'. According to many students this role is secondary: 'no technology, even the most successful, can make us achieve a result unless we want to do so' (Elizaveta, 106). QS-tools by themselves are not a reason for desired changes and transformations, and in many cases they are still unable to support or strengthen the user's motivation. But in the future the efficiency of self-tracking systems might increase significantly – which is another theme in students' essays.

'What I really think about self-tracking': students' reflections

An important goal of the research was analyzing the student's perception of self-tracking as a cultural phenomenon. What meanings and problems do the students actualize, when digital self-tracking becomes an object of their reflections? In what way, in what directions and modes does this reflection work?

The analysis of the student essays identified four types of discourse about self-tracking: progressivist, pragmatic, critical and anti-utopian.

Progressivist discourse represents the faith in beneficial potential of QS-technologies. At the same time the phenomenon of quantified self-tracking itself is considered 'without any doubts […] a part of logical evolution of society', since it's typical for people to strive for self-perfection' (Zhanna, 41). A modern person, according to Zhanna 'has received an effective instrument for working on oneself', and now 'there are no obstacles between a person and a better happier version of oneself'. This position is shared by another student, Kristina (64): 'we can correct practically anything in ourselves with the help of self-tracking, and improve our wellbeing in all spheres'. Critics of self-tracking, according to Egor (53) 'are simply afraid of QS-technologies' and, even though these technologies have real limitations and drawbacks, they will keep improving with time. Reflecting on a positive role of QS-technologies, the students primarily connect them with the development of medicine and health promotion (Sergey, 16). Constant monitoring of 'biodata', stimulation of physical activity, keeping mobile medical records, instant connection with a medical institution, extended diagnostics – all of these functions of wearable devices, according to students, enable progress in healthcare.

Pragmatic discourse of self-tracking exercises a balanced approach to this phenomenon. Here we can come across such rhetorical constructions as 'on the one hand … on the other hand'. This is an analytical discourse, which explicates both progressivist possibilities and regressive effects of digital self-tracking. It contains a typical point of view, that the development of self-tracking technologies cannot be stopped anyway, it's a given fact that has to be accepted. If we use QS-technologies reasonably, without becoming addicted to them, it can

bring significant benefits in terms of self-improvement. As Bella (6) writes, 'the result directly depends on the source of motivation: as long as it comes from a person, not device – the brilliant idea of self-tracking works'. Marina (59) also admits, that 'self-tracking is necessary in one way or another, and makes life much easier', at the same time it requires 'a critical look at the consequences of constant control over one's life'. Other authors encourage to 'treat self-tracking with interest, but without fanaticism' (Oksana, 81). Besides, 'reasonable' use of QS-technologies implies understanding that these technologies are still far from precision of medical devices.

Critical discourse problematizes the practice of digital self-tracking in a number of aspects. As was demonstrated in the previous part, many authors underlined traumatizing effects of this practice on psychological level (stress, guilt, addiction etc). Besides the value of self-tracking as a tool for self-cognition is undermined: self-tracking 'kills the sensual experience' (Tina, 27) and manifests 'the crisis of cognitive ability of a person' (Denis, 101). It is also suggested, that QS-technologies cultivate the idea of universal norms and standards (corporeal, mental, social), ignoring people's individual features and life circumstances (Serafima, 77). A number of the essays actualize the problem of confidentiality of lively data, which is reflected in the titles like 'Who and why needs our data?' (Anton, 54). Some students connect the practices of self-tracking with ideology, power and inequality. This can be illustrated by the essays titled 'New Panopticum: a critical look at the phenomenon of digital self-tracking (Darina, 63), 'The future of self-tracking through the concept of disciplinary authority by Michel Foucault' (Vera, 10). This works are marked by critical discourse in its academic sense with the foundation on corresponding scientific theories and sources.

Anti-utopian discourse of self-tracking is a development and broadening of the critical discourse. It is based on constructing an imaginary digital future, including QS-technologies. Since this scenario was present in many student papers, let us observe these futurological constructions in more details.

As was mentioned before, many essays writers express concern about protection of personal data, collected by activity trackers. By projecting this concern on close future Daniil, for example, suggests that third persons could misuse data:

> I can easily imagine a situation when a bank refuses to issue medical insurance, mortgage or credit only because that person's Apple Watch scanned him and verified possibility of a heart defect (Nikita, 73).

Students are also worried by the perspective that self-tracking in the future can become omnipresent and obligatory, can turn into an instrument of total surveillance over citizens by

state and private corporations. Digitalizing and quantification of personality are seen as the 'endpoint of interference into human life, leaving only one's thoughts in the realm of private' (Darina, 63). Apart from top-down tracking, every person would become an object of digital tracking by others:

> You […] find yourself in the area of total control. Your boss, having checked the application, will know when you will wake up. Your colleagues know, that instead of working on the project, you went to a bar last night […]. You are surrounded by monitors, which not only track you – they talk to you. 'Your pulse is over 120, try to calm down', 'your friends mentioned your name ten times […], and three time it was negative'. You will know everything. Everything about you will be known. […] Such control is a nightmare for any futurologist. […] Do we really need to track ourselves all the time, and does it really affect the success of business? (Galina, 97).

In this social model the all-penetrating self-tracking can change communicative practices between all social institutions. There are many speculations about 'digital doubles' because 'you are your data'. As one of the students writes, 'in hospitals there will be no need for personal medical journals, when applying for work one won't need to mention personal qualities. Even while choosing a partner there will be no need to tell about oneself' (Vera, 10). The choice itself in all these situations can be delegated to algorithms, based on personal data analysis, which will assign people to the most appropriate social positions and roles. Everyone will be in their places and at the maximum of productivity – a perfect object for disciplinary power in its neoliberal version.

The authors of some essays, while imagining the future of self-tracking, develop an idea, that QS-technologies will become ever more invasive. By reconstructing their descriptions, one can make a scale of penetration of self-tracking into a human body with four levels: 1) to be on the body (touch), 2) to make tactile contact and impact, 3) to penetrate the body, 4) to be implanted in body. Digital gadgets have already passed the first two levels – they are wearable (on wrists, hands, necks) and come into active tactile contact with the users (vibrations of smart-watches and bands). The next stage is under-skin penetration that will allow the sensor to make blood tests and infuse correcting substances in case of deviations from norms. Such a device, similar to insulin pump, could regulate not only physical, but also psycho-emotional state of the sensor carrier (Tamara, 83). In a repressive state the perspectives of using 'invasive' tracking technologies are ever more diverse: 'trackers can have built-in shockers, mechanisms, drugs, poisoning devices' (Igor, 85). Finally, in remote future there will be naturalization of self-tracking devices, for example, by means of neuro-interfaces, providing direct connection

between human brain and computer. Since such symbiosis is seen as very probable and even inevitable, ‘we need to learn to think of ourselves, our qualitative characteristics as of a set of data’ (Platon, 48). Participation in data collection ‘is not going to be a matter or personal choice, all of us will become an integral part of the cloud’ (Alexander, 69).

While developing anti-utopian discourse, the authors of the essays appeal to the sources of three types. Firstly, academic research, where the phenomenon of self-tracking is mostly seen through Foucault’s optics and appears as manifestation of biopolitics and disciplinary ‘care of the self’. Secondly, famous anti-utopia (novels, films, TV shows), whose plots allow to model the future of information technologies in nondemocratic political systems. Thirdly, media, covering the achievements in the sphere of mobile and wearable electronics, as well as social aspects of digitalization (for example, the system of social rating in China). There are also references to Soviet history in the context of reflections on the practices of ideological control in a totalitarian society.

Some students illustrate their vision of the digital future by the episodes from a British TV show Black Mirror, first released in 2011. The series explores the dark side of the bright future and became not only an outstanding cultural phenomenon, but also an object for critical media studies (Cirucci, Vacker, 2018). Black Mirror represents social fears and concerns, associated with the developmental risks of information technologies. At the same time it is perceived as a visionary project by the audience:

> Today, when you watch episodes of the TV series Black Mirror about under-skin chip implants, which record everything a person does, sees and hears (The Entire History of You), a clone of a deceased, comprised completely of his digital personality (Be Right Back), personal social rating, which allows you to be well accommodated in life (Nosedive) or a body implant to track children’s movements and actions (Arkangel) – they don’t seem very distant or utopian (Julia, 109).

Reflecting on the future of self-tracking technologies, the authors of the essays predict their development and deeper penetration in all spheres of our lives. Today QS-tools are ‘only a product of the so-called industry of ‘personal growth’ (Mila, 102), a digital version of life-coach, far from perfection. But while becoming smarter, more discreet and ever-present, such technologies are more and more likely to change the ontology of human and social life. Preventing technical progress is impossible, according to the students, but it is crucial to pose questions of social risks and consequences of using information technologies. As Darina (63)

concludes in her paper, ‘balance and critical approach to the process are essential: digital optimization of life is too close to limiting its freedom’.

Conclusion

The data received allowed to reveal the existing types of practices and reflections upon self-tracking among Russian students.

As the analysis of the essays demonstrated, the degree and character of students’ involvement in digital self-tracking vary. At the moment of writing the essays a significant number of authors did not use QS-technologies for various reasons. This supports the importance of studying ‘non-use in self-tracking’ (Gorm, Shklovski, 2019) and factors leading to rejection of this practice (Epstein et al., 2015; 2016). In particular, some students intentionally choose alternative tools for self-knowledge and self-discipline in order to be less attached to digital devices. Others travelled a pretty long way with self-tracking and refused from it, having faced traumatic effects or gotten disappointed in the very idea of ‘quantifies self’. The third group put self-tracking on pause having formed the necessary habits with the help of certain gadgets and apps, still they remain open for similar experience in the future. All these statuses are flexible, they change according to the inner needs and outer circumstances.

Half of the authors of the essays mentioned or fully described their experience of quantified self-tracking. Based on the students’ stories – former and present self-trackers – I suggest distinguishing three types of digital self-tracking. Depending on the motives and peculiarities of using QS-technologies, those are ‘gamers’, ‘managers’ and ‘transformers’. ‘Gamers’ appreciate thrill, pleasure and novelty; ‘managers’ strive for order in their heads and lives; ‘transformers’ want to change their bodies and minds radically. In reality any self-tracker one way or another combines all three of the above described roles, but one of them might dominate in his/her motivation. The present typology of self-tracking styles is partially similar to those, suggested in previous studies (Gerhard, Hepp, 2018; Gimpel et al., 2013; Hand, Gorea, 2018; Lyall, Robards, 2017; Rooksby et al., 2014). It is obviously lacking the modus of self-tracking connected with fitness and sports. As was mentioned earlier, this type of self-control is ‘natural’ for people, leading a healthy lifestyle (Gerhard, Hepp, 2018). In this case self-tracking doesn’t change the routine practices, but reproduces their structure (Hand, Gorea, 2018). If healthy lifestyle is something to be achieved through QS-technologies, this is rather the route of a transformer or a manager.

While the practices of self-tracking are actively studied, the discourses of self-tracking, developed by ordinary (non-)users of QS-technologies rather seldom become the focus of

researchers' attention. It refers not only to the way people perceive their gadgets and reflect on interacting with them. I mean conceptualization of self-tracking as a social and cultural phenomenon, which goes beyond the scope of reflections upon the experience of self-tracking. This study allowed to reveal the four types of discourse of self-tracking: progressivist, pragmatic, critical and anti-utopian. Presumably there is no strict correlation of a certain discourse to a certain type of (non-)user. For example, one of the students, not a self-tracker, in his essay advocated for progressivist vision of QS-technologies, since these innovations bring progress, and 'progress is good' (Egor, 53). On the other hand, we can speculate, that critical and anti-utopian discourses are largely typical for those who initially don't share the ideology of dataism or were disappointed in it. Still these suggestions need to be further empirically verified.

The students believe that the existing digital technologies of self-measuring cannot by themselves bring the user to self-optimization, their motivational impact is not significant. But in the future the efficiency of self-tracking systems can rise significantly, first of all in the fields of health and medicine. This is the primary direction for revealing the beneficial potential of self-tracking technologies according to the students. At the same time, while developing critical and anti-utopian discourses, they construct a number of problematic zones. This includes using lively data for the benefit of corporations, a perspective of obligatory self-tracking (or even total control), transformation of social practices and institutions under the influence of 'digital doubles' stepping in. By admitting inevitability of further technological development, the authors of the essay find it crucial to critically assess possible outcomes and risks of datafication of human and culture.

Indisputably this research has its limitations. The participants are young urban students from Media and Communication program. The interest to digital devices is present among them by default, both from the point of view of lifestyle and professional outlook. Still it was peculiar to discover that these factors by themselves do not define commitment to the idea of digital quantification. Apart from that, self-tracking was understood by the students in a broad sense, not only as monitoring biometrics, but also as controlling any kind of social activity. If the study was to be conducted only among people, who use devices and apps for health reasons, the typology of the styles of self-tracking could be different. Further studies of the practices and discourses of self-tracking will allow us to check and develop the data and assumptions presented in this article.

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