

Agility, Work and the Quantified Self: *Colliers* Quantified Workplace Experiment Initial Findings.

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1 Project outline

From 2014-19, over 13 million wearable and self-tracking technological technologies will be incorporated into workplaces as part of corporate wellbeing initiatives (Nield, 2014). Companies' initiatives are designed to promote and help to improve workers' health and wellbeing as well as to promote agile work environments. *Colliers* is one of the first to introduce such an experiment with its employees in its Rotterdam and Amsterdam offices, inviting them to opt in to a year-long project called The Quantified Workplace, where *Fitbit Charge HR* armbands (physical movement and heartrate sensor devices) and *Rescue-Time* (PC worktime tracking software) have been provided to as many *Colliers* employees as were interested. Participating employees were also invited to respond to daily emails that ask them to rank their moods, including stress levels, and individual perceptions of productivity. Forty-five employees from all status levels across the offices took up the challenge. *Colliers'* goal is to gather data to make links between employees' health and happiness, and employees' productivity - both as perceived (subjective well-being) and as billed (what *Colliers* is calling well-billing). The project will result in a product that *Colliers* can share with clients who may also be considering integrating such a project.

We are three academic researchers in the United Kingdom who are interested to find out to what extent such corporate experiments promote workers' wellbeing and agility (lead social scientist Dr Moore, Middlesex University Law School; co-investigator Dr Piwek, University of the West of England Behaviour Research; co-investigator Dr Roper, Middlesex University Business School). In this light, we are working on a project we have called Agility, Work and the Quantified Self (AWQS) funded by the British Academy and the Leverhulme Foundation. We are setting out to look at the impact of *Colliers'* experiment, and attitudes towards it held by participating employees, managers and consul-

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tants of the project over the course of one year. We will identify how managers perceive the benefits for investing in employees in this way. We will gain valuable information about how employees respond to such interventions. We plan to reflect on the diverse viewpoints we receive about the project from all participants including those involved in setting up and managing the project. The ultimate goal is to work towards an evidence-based design model that other employers can use to implement wearable and self-tracking technologies into workplaces: a model that is most likely to be desirable for workers and management alike. Existing work design models are normally geared toward improved productivity and effective performance management but interest in employee well-being for work design is a more recent initiative. There are two workplace characteristics typically researched in work design literature: interpersonal and social aspects, and contextual characteristics. Contextual characteristics involve ergonomics, work conditions and equipment use (including technology), and the use of technology in workplaces is the least researched area (Morgeson and Humphrey 2006: 1324). Our cross-disciplinary research project takes into account workplace and workforce composition changes as well as accommodates the gap in research on work design models that experiment with interventions of technology.

In terms of emerging social change, our project sits alongside headline stories about invasion of privacy and insecure data and the rise in technologies that allow surveillance in new and creative ways, requiring a renewed dialogue around the potential consequences of a ‘big brother’ society and the changing meaning of privacy as well as control of personal data. Our extremely timely research looks at the implementation of self-tracking technologies for agile working environments and will test to what extent the use of devices and daily logging enhances organisational and workers’ agility and productivity as well as wellbeing. Companies have been quick to try to integrate agile organizational design methods that allow for rapid technology advancements particularly seen during the dotcom bubble and beyond, but these work design models largely overlooked workers in this process (CIPD 2014). AWQS looks at how new technologies are now introduced to promote workers’ adaptability and improve workers’ productivity and wellbeing in agile organisations.

2 Research methods and initial results

We have employed a mixed-model, multidisciplinary approach with both qualitative and quantitative elements in the first months of our research looking at the *Colliers’* Quantified Workplace experiment. We distributed an initial survey and carried out preliminary in-depth interviews during the first weeks of the project with project participants, applying grounded theory (phenomenon, causal conditions, intervening conditions, and consequences) to the interview process, meaning that we start from the investigative position with the intention to devise a theory about the use of self-tracking interventions for an agile work design model. See Appendixes in section 4 below for the survey template and interview questions.

2.1 Results from initial survey

Twenty-one *Colliers* employees completed the initial survey (60% male, 40% female). Basic questions on the use of technology and QS solution showed that all participants have smartphone (60% *Android* phone, 40% *iPhone*). All except one person use social networking sites, and 53% of participants (11 out of 21) use some quantified self solution (specifically: 4 use *Runkeeper* app, 3 use *Strava* app, 3 use *Fitbit* device, 1 use *Myfitnesspal* app). The majority of participants rated their productivity as being at the ‘very good’ or ‘good’ level (86%) (Figure 1a). Over 68% also rated their health as being ‘very good’ or ‘good’, as seen on Figure 1b. Overall, they reported a broad range of definitions for what they understand as ‘productivity’ with the leading concepts being ‘quality work’ (19%), ‘reaching goal’ (17%), ‘time management’ (13%) and ‘billability’ (13%) (see Figure 1e for more details). Participants reported feeling most productive at work (52%) and home (24%) see Figure 1d. Finally, they reported a broad range of goals associated with AGQS project with the leading ones being ‘insight into work/life behavior’ (19%), ‘increased productivity’ (19%), ‘exploratory data collection’ (11%) with only 8% reporting that ‘increased physical activity’ was their goal (see Figure 1f for details). Figure 1c also shows distribution of participants’ reported position in the company.

2.2 Results from interview

We initially set out to identify what are employees’ initial impressions and experiences of *Colliers*’ experiment? Using *NVivo*, we coded interview responses with 12 *Colliers* employees who are not involved in managing or consulting the project to identify their impressions and experiences in the first weeks. Interviews reveal 20 responses indicating that employees had good first impressions about the project. Responses include such comments as:

- ‘There is a kinda excitement, ok we will try, see what will happen’
- ‘It’s good to just experience yourself, like, ok, what will it mean to to wear it?’
- ‘I think it is interesting to see if we can do something with the information.’
- ‘I think it’s helpful. It gives the extra dimension to have sounding board to do with how you’re living your life. If you’re being healthy, or doing sports so yeah so it’s a little help.’

There were several responses indicating that some employees had negative reactions in the initial stages, or felt that the technology had not met their expectations (at all/yet). We coded 40 critical or unsure responses in all. Overtly negative responses include: ‘I don’t find it really interesting to be honest’; ‘I don’t really see the purpose of it’; and ‘I am quite critical’. One respondent indicated that ‘a big question for me and for a few others as well, is uh, how reliable the FitBit is’. One comment indicated that an employee originally thought that

more participants were going to ‘complain about privacy’ and someone indicated that they were ‘afraid that some kind of competition will start’. Whereas other responses show that employees are simply interested in seeing something different from the project such as ‘this thing [FitBit] might be more intelligent than just recording my data’ or one employee who indicated that they ‘think the only interesting thing is that you can maybe you can set up goals for the group, like climb the mountain’. It was felt that the reason group goals had not happened is that ‘the internal communication of [company name] is not, uh, um, 100 per cent. So as long as that is not 100 per cent, it is quite difficult to uh to set up something like this. So I think you need someone who is dedicated, responsible for that and who keeps the everyone motivated’. One employee stated that: ‘if more guidelines were given’ then it would be more straightforward ‘to manage your own work and be more productive’. Another comment shows that an employee thinks that ‘I think you need to wear it for a longer time to find out if the information is interesting’. There was a lot of interest in finding out more from the devices than employees feel they were able to depict in the initial stages, and one employee stated that ‘there is a long way to go before we can use it to measure stress’.

With regards to the category of ‘Causal conditions’, we wanted to know whether employees felt any specific behavior change in the first two months of FitBit and RescueTime use. There were six responses indicating that employees felt they had already experienced some behavior change. Interviewees expressed such ideas as:

- ‘It is a stimulation to make sure I make enough steps in a day.’
- ‘It stimulates me to go exercise when I am tired after a long day at work.’
- ‘It’s a trigger for me to wake up a little bit earlier and relax in the morning.’

Furthermore, we wanted to identify whether employees had set initial goals and did they feel that *Colliers’* Quantified Workplace project was helping them to meet their goals? The initial survey showed that employees had set up on aggregate, 21 goals, including:

- Growing awareness
- To stay healthy
- Getting insight into my personal work-life balance
- Getting insight in the *Colliers* drivers of wellbeing
- Getting insight in the *Colliers* drivers of productivity
- The right balance between productive and health
- To improve my working and personal life and make it more effective
- Create a balance between work and private

Only a number of weeks later, during interviews only five responses indicated employees felt their goals were being met. Given the project had only been underway for a short period of time, this was probably not a surprise. Several employees did not recall the goals they had set in the surveys.

In the section on ‘consequences’, responses were based on whether employees felt there was any change to autonomy, motivation, relationships, and self-awareness. All employees interviewed felt that they already have a high percentage of autonomy in the workplace so this was not seen as being affected. Five responses indicated that employees are concerned that results of the experiment may be used for performance management reasons. Two responses indicated that employees would like coaching and two indicated that employees would like competitive games to be organized. Five responses indicated that the experiment was helping to improve employees’ motivation and interestingly, 18 responses indicated increased self-awareness. Responses included:

- ‘I’m sure it makes you aware of things you do.’
- ‘I see when I’m frustrated my heartbeat is higher.’
- ‘You want to learn more about yourself.’

Seven responses indicated that employees felt that relationships were changing as a result of the experiment, both with clients and other colleagues. For example, employees noticed that:

- ‘Exchanging experiences make you aware about the way other work. And sometimes you can learn from each other’
- ‘It helps in connecting’
- ‘I’m noticing the last weeks that, uh, especially if we have appointments with our clients and two three of [company name], they see us wearing it and it’s always the subject (laughs) and it’s very nice.’

Thirteen responses indicate that employees felt that their productivity was improving as a result of the project, and employees indicated such things as:

- ‘I feel that I have everything under control.’
- ‘Sometimes I can feel productive even when I have a day off.’
- ‘Creativity is not measured in time or in space, it depends on the input you are getting but then again you have got to be creative, so you come up with your own input but its not during office hours, so creativity can also be part of I think measuring productivity because you come up with new ideas when you’re talking to people or you are sharing ideas.’

With regard to ‘intervening conditions’, we wanted to know whether there were any difficulties in using the technologies. Ten responses indicated that there have been some issues; most of the responses in this area had to do with reading results, not knowing whether devices were working accurately, not understanding the technology or not knowing whether one is using the technology accurately. One employee explained that they ‘don’t really see uh the connection between the things I do on the computer and my heart rate’. Employees expressed that they found the *FitBit* uncomfortable and too big to wear to sleep in for example. Eight responses indicated that employees had stopped using the technology either for a period of time or simply altogether.

3 Conclusions

The findings so far show a fairly balanced set of employee responses as they become accustomed to participation in *Colliers’* Quantified Workplace experiment. Results show that employees are to some extent satisfied with the project, though some discomfort, unsure-ness and critical responses were revealed. Some employees wished for more device functionality including an exact measure for stress, others desired further guidance to understand what the purpose is for the project, while those employees who had used some kind of self-tracking devices previous to the *Colliers’* project tended to feel more satisfaction and purpose for the project. Several responses indicate that employees are experiencing intensified feelings of self-awareness and even in some cases, awareness of productivity and their own personal wellbeing with regards to health. We will soon conduct the second round of interviews to identify updated experiences from employees.

As increasing numbers of employees in many companies begin to use self tracking-devices at work and create increasing amounts of data, future research questions will include: should companies providing the means to do so be increasingly regulated to avoid ethically questionable activities? Or does further regulation lead to increased unwanted surveillance and obstacles to innovation in further work design? At a micro-level, are there specific features of contemporary everyday life that have led to a drive toward personalised health care, self-management and self-monitoring? Is the rolling back of public spending on health care or the fragmenting of real-time communities forcing individualized experiences? As we have pointed out elsewhere (Moore and Piwek, 2015), research is needed that operates at the interface between social and scientific disciplines, looking critically at corporate projects that have been inspired by the quantified self movement and drawing on two overarching themes, health and wellbeing; and security and ethics. The *Colliers* project is an ideal foundation to begin to consider the impacts on health and wellbeing in the first category and then to begin to think about looking at the ethical and security related questions that are already emerging. Our unprecedented work design model will provide a start to thinking about these important concerns.

4 Appendix

4.1 Initial Survey Questions

1. Name
2. Sex
3. Age
4. Job title
5. Do you use a mobile phone?
6. What kind of phone do you use?
7. Do you use any online social networking sites?
8. Do you happen to already use any mobile apps or devices that help you to track your health or productivity?
9. Which apps or devices do you already use?
10. How would you rate your own health?
11. What does 'productivity' mean to you? List some terms or words that reflect your interpretation of this concept.
12. How would you rate your own productivity, generally?
13. Where do you feel you tend to work most productively?
14. How much do you agree with the statements below?
 - (a) Consumers have lost all control over how personal information is collected and used by companies.
 - (b) Most businesses handle the personal information they collect about consumers in a proper and confidential way.
 - (c) Existing laws and organizational practices provide a reasonable level of protection for consumer privacy today.
 - (d) I like to have personal control and independence over my work.
15. What goals have you set for yourself in the quantified workplace project?
16. Which of those goals is the most important to you?

4.2 *Colliers* Interview Questions

1. When did you start using wearable and self tracking technologies (WSTT)?
2. How did you find out about the Quantified Workplace (QSW) experiment at *Colliers*?
3. Did you use any WSTT before QSW?
4. (If Yes to 3) What kinds did you use?
5. Which technologies are you using now? (e.g. FitBit, RescueTime)

6. What does it feel like to use WSTT?
7. What were your original thoughts about QSW?
8. Was there a trigger that inspired you to get involved in QSW?
9. What are your reasons for continuing to use WSTT?
10. When do you mostly use WSTT?
11. Why this time and why not at other times/contexts?
12. What goals did you set in using WSTT?
13. Have you ever experienced any difficulties in using WSTT?
14. (If Yes to 14) What were those difficulties?
15. Did you find that you stopped using WSTT at some point?
16. (If Yes to 19) Why did you stop?
17. (If Yes to 19) For how long did you stop?
18. Do you feel that WSTT has helped you to meet your goals?
19. (If Yes to 23) Which goals, and to what extent?
20. (If No to 21) Why not?
21. Do you feel that using WSTT at work is helping you feel satisfied with your work?
22. (If Yes to 26) Why and how does it help you?
23. (If No to 26) Why doesn't it help you?
24. Are there any changes to your feelings of autonomy? (and please explain)
25. (If Yes to 29) What changes?
26. Has the use of WSTT improved your sense of productivity?
27. (If Yes to 31) How has it improved?
28. In what ways has the use of WSTT affected your motivation? (please explain)
29. In what ways has the use of WSTT affected your mood or emotions? (please explain)
30. In what ways has the use of WSTT affected your relationships (with other users or existing friends/non-users)? (please explain)
31. In what ways has the use of WSTT affected your self-efficacy in relation to various tasks (e.g. if used for exercise, do you believe that you exercise better)?)? (please explain)

good	81%
fair	14.3%
very good	4.8%

(a) How would you rate your own productivity?

good	57.1%
fair	33.3%
very good	9.5%

(b) How would you rate your own health?

Consultant	29.2%
Senior Consultant	20.8%
Project Manager	12.5%
Director	12.5%
Real estate agent	8.3%
Stagiaire	4.2%
Secretary	4.2%
Interior Architect	4.2%
Account manager	4.2%

(c) What's your job title in the company?

office	52.4%
home	23.8%
road	9.5%
part home part office	4.8%
depends on the activities	4.8%
combination of places, depending on activities	4.8%

(d) Where do you feel you tend to work most productively?

quality work	18.8%
reaching goal	17.2%
time management	12.5%
billability	12.5%
rewarding feeling	9.4%
collaboration	6.2%
hard work	4.7%
quality work environment	3.1%
quality sleep	3.1%
low stress	3.1%
problem solving	1.6%
meaningful	1.6%
initiative	1.6%
eating well	1.6%
distraction free	1.6%
creativity	1.6%

(e) What does 'productivity' mean to you?

insight in work/life behaviour	19.4%
increase productivity	19.4%
exploratory data collection	11.1%
tackle stress	8.3%
increase physical activity	8.3%
stay healthy	5.6%
business opportunities	5.6%
become leader in QS workplace	5.6%
achieve high performance	5.6%
higher personal control	2.8%
discipline	2.8%
comparative insight	2.8%
collaborate	2.8%

(f) What goals have you set up for the QS workplace project?

Figure 1: Percentage of participants (n=21) who rated their (a) productivity, (b) health, (c) reported their job title, (d) reported most productive work location, (e) what they understand as 'productivity', and (f) goals they have with QS workplace project.