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MyWellnessCheck: Designing a student and staff wellbeing feedback loop to inform university policy and governance

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My Wellness Check

Designing a student and staff wellbeing feedback loop to inform university policy and governance

James Derek Lomas with Willem van der Maden

"My Wellness Check" is a wellbeing assessment system designed to help universities systematically support student and staff wellbeing. In this paper, we present a narrative describing the human-centered design process used to develop a context-sensitive wellbeing feedback system within a large technical university during the COVID19 pandemic. We share quantitative and qualitative findings from the first 2 feedback cycles, where wellbeing assessments were sent to over 30,000 students and staff. By involving community members and decision-makers in the qualitative data analysis, we successfully translated results into administrative policy and community action. Our ongoing design research project highlights the desirability and feasibility of wellbeing feedback loops within large complex systems.

Introduction: Wellbeing Objectives in Education and Society

Many complex systems use measurement and data to support improved outcomes. In the case of schools and universities, measures of student performance are gathered in various ways to assess overall system quality. One central aim of many educational systems is to enable students to perform well on meaningful and benchmark assessments. To support social equity and human development, we suggest that educational systems should also explicitly aim to support the overall wellbeing of their students and staff. The reason that large, complex educational systems should add wellbeing to their educational objectives is simple: education that enhances wellbeing is of intrinsically higher quality (Hattie et al., 2019; (Hawthorne et al., 2019), and optimizing systems for wellbeing is the morally right thing to do (Harris, 2011).

A personal reflection from one of the authors, Lomas: when my daughter started kindergarten in the Netherlands, her teacher told me: "It is hard to learn well when you don't feel well." Her role as a teacher, as she explained it, was to support the wellbeing and growth of all students. Her notion was based on the idea that when students are feeling well, they will naturally grow and flourish. Her idea is not unique—it is well supported by many psychological theories, such as the notion of "organismic integration" in Deci and Ryan's theory of intrinsic motivation (2010). It has been proposed that deficits in wellbeing may undermine learning and performance due to the presence of negative thoughts that can disrupt working memory (Hattie et al., 2019). Thus, wellbeing may be like an oil that enables the smooth function of large, complex socio-technical systems. When students and staff are well rested, well fed and well exercised, the educational system itself will be more effective (Riberto et al, 2016). Yet, our daughter's teacher didn't just view wellbeing as an input to the education, she saw it as an objective of education. To the extent that she could, she wanted her teaching to contribute to her students' wellbeing. Is that a reasonable objective for educators, or is her case simply unique to a Montessori Kindergarten teacher in the Netherlands? It seems that education may be of intrinsically higher quality when it enhances a student's present and future prospects for wellbeing. It is, of course, a choice whether we should make student wellbeing a formal objective of our educational systems. But, if we do, then should we also systematically assess wellbeing, like we assess other educational objectives?

Moreover, the objective of supporting student wellbeing might be insufficient. The wellbeing of staff may also be critical for facilitating optimal environments for learning — as it has shown to be in several studies (for review, see Adler, 2016). Unfortunately, there have not been nearly enough studies on the role of wellbeing in learning and in teaching— far more are needed (see Grabel, 2017 for review and Yu et al, 2018 for investigation in a university context). Yet, one need not wait for sufficient empirical efficacy studies to take a position that educational institutions should systematically support the wellbeing of its people — one can arrive at that objective philosophically, as an a priori principle of what "good" organizations do: they promote wellbeing.

> "That action is best, which procures the greatest Happiness for the greatest Numbers; and that, worst, which, in like manner, occasions Misery" (Francis Hutcheson, 1725, Inquiry concerning Beauty, Order, Harmony, and Design)

In fact, there have been many recent calls to shift national government priorities to the maximization of human wellbeing (Danielli et al, 2020), rather than, say, the maximization of economic growth. "Gross National Happiness" is one such indicator (Veenhoven, 2007), but in recent years, there have been numerous measures developed to assess various aspects of wellbeing (Mizobuchi, 2014, Kramer, 2010, Wang et al, 2014). These calls have been amplified following the massive social-economic disruptions caused by the onset of the COVID-19 pandemic. For instance, researchers at Utrecht University introduced the Better Well-being Index (BWI) to provide an alternative and better indicator to take society's complexity and multidimensionality into account than GDP (van Bavel & Boschma, 2021).

This paper describes a university-wide implementation of wellbeing feedback loops in order to support student and staff wellbeing during the COVID19 pandemic. We share evidence that we believe may help other institutions apply practical Human-Centered systems design approaches to implement cycles of wellbeing assessment to support governance and policy. We also show how wellbeing assessment data can inspire community-led design projects that contribute directly to positive action.

Cybernetics Perspective on Incremental Improvements in Complex Systems

Creating change in Universities is difficult due to their size, complexity, diffuse management structure and their tendency for consensus-based decision-making. The challenge of designing for large, complex socio-technical systems has been described by Norman and Stappers as DesignX problems (2015). As large, overarching plans have a tendency to fail, the authors advocate for a formal method known as "muddling through": small, incremental changes at many levels of the organization. In this section, we describe My Wellness Check as a cybernetic "wellbeing feedback loop" that can assess wellbeing and inform responsive action (Lomas, 2021; Dubberly and Pangaro, 2019 and 2010; Beardow et al, 2020)/ These feedback loops are visualized in Figure 1.

Within the university, our work focused on three overlapping stakeholder groups: university administration (e.g. policy-makers, academic board, deans), staff (e.g. teachers, researchers, PhDs, support, and admin) and students. We conceptualized each assessment/action cycle as a series of feedback loops that can occur at different levels:

1. A feedback loop to inform actions by the administration (e.g., to create new policy)
2. A feedback loop to inform actions by the researchers (e.g., to improve the survey)
3. A feedback loop to inform actions by the student/staff community (e.g., where reflecting on issues affecting their peers prompts local change)
4. A feedback loop to inform individual actions (e.g., where reflecting on one's own wellbeing deficits motivates change).

In theory, these loops would all have a virtuous and/or stabilizing effect–i.e., improve wellbeing in detrimental situations and promote situations that are already conducive to wellbeing. Our hypothesis was that wellbeing-data feedback loops could help universities "muddle through" and make incremental improvements to address wellbeing.
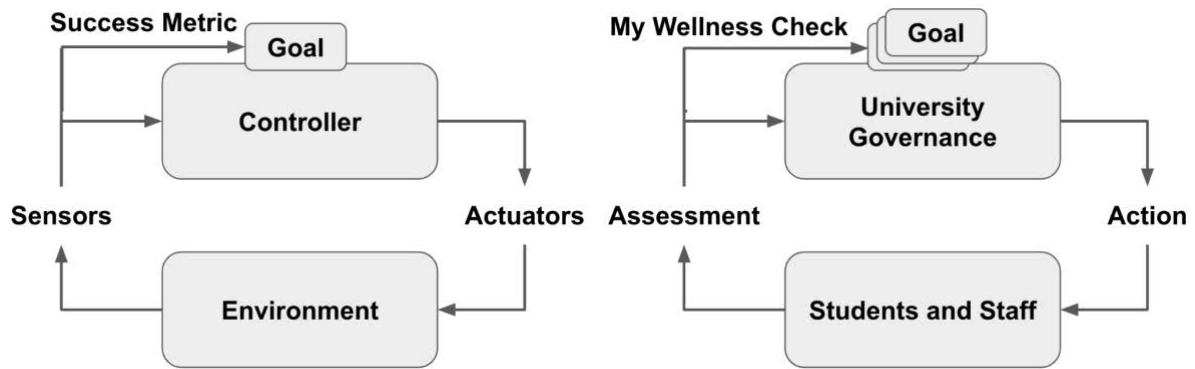
Figure 1: A cybernetic system involves a feedback loop that includes sensors, actuators, goals, control logic, and the environment. The system uses the actuators to adapt the environment to optimize a sensed signal of success (a measure signalling the goal state). For example, a thermostat senses the temperature of a room and turns on a heater until the temperature exceeds a goal state. In our case, we used My Wellness Check to assess wellbeing in students and staff; these data were used to inform university governance, resulting in actions and policy that were intended to measurably improve student and staff wellbeing. Notably, the participatory process we used meant that there was a practical overlap between the university governance and the population of students/staff. Further, there was not a single metric that served to indicate the goal state.

Design Research Questions

How might we design wellbeing feedback loops that can help institutions optimize for the wellbeing of their students and staff? It is easy for survey data to be collected and sit on a shelf. How might we assess the wellbeing of students and staff in a manner that results in directed institutional action? That is, how might we effectively translate data into action?

Personal Narrative

> In this section, the first author J. Derek Lomas will share a personal narrative describing his experience contributing to the implementation of a wellbeing assessment loop at TU Delft. This personal approach is intended to share the underlying motivations and the practical methods that were used to enact the My Wellness Check system at scale. While personal stories aren't common in scientific publications, expressing the narrative from an "I" perspective also emphasizes the fact that we, as designers, are active participants in the system, not merely impartial observers.

I began thinking about wellbeing assessment in 2017 when I designed a prototype to support wellbeing assessment during cancer care. My father had been diagnosed with an aggressive cancer and, despite otherwise exceptional care, the medical system was not well-attuned to the factors of wellbeing that I had been encountering at the Delft Institute of Positive Design (DIoPD). For instance, he wasn't seeing any friends—that sort of thing just wasn't on the doctor's radar. Because I knew he wouldn't fill out a wellbeing survey himself (it would annoy him—I asked), I envisioned how my mother might regularly report on various aspects of his wellbeing. So, I designed a prototype system, *Zensus*, to help caregivers assess overall patient wellbeing (Beardow et al, 2020) using an approach called Ecological Momentary Assessment (EMA). In short, these are simply messages sent to a smartphone on a regular basis. The prototype was designed to provide a calm and empathic feeling — it used various motivational design elements to enhance participant engagement. The purpose of the program was to gather data about a wide variety of patient wellbeing needs in order to help medical caregivers support more holistic care. It also aimed to help patients and caregivers directly by providing a structured reflection on different factors of wellbeing. When my father passed away in 2018, I took a break from my focus on cancer care. For instance, might a context-sensitive wellbeing assessment system help Alzheimer's patients and their caregivers? Or, could it help counselors help school children in high-poverty schools? (Lomas, 2020) Or, perhaps, even to help support wellbeing reflection in marriage therapy?
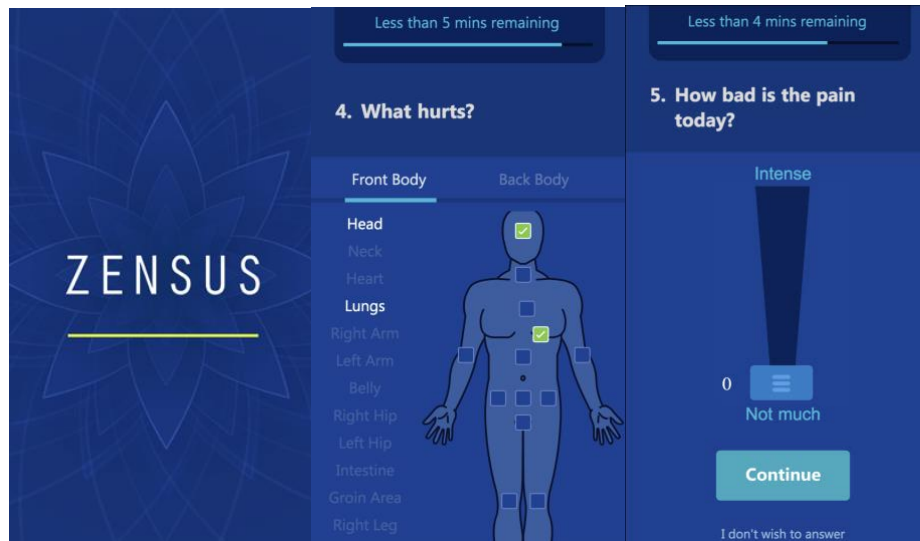
Figure 2: The Zensus prototype system for a "5-minute wellbeing check", designed for cancer patients.

One thing I felt strongly about was that my research team and I should have the experience of wellbeing assessment ourselves — that is, we should "eat our own dogfood." So, to pilot the Zensus wellbeing assessment system, 5 colleagues in our research group participated in a collective self-assessment of wellbeing. First, we assembled a large set of wellbeing assessment items in an online spreadsheet. These items were selected from a wide variety of validated wellbeing assessments, such as the Positive Emotion, Engagement, Positive Relation, Meaning, and Accomplishment-Profiler (PERMA profiler; Seligman - Butler and Kern, 2014), the Psychological Wellbeing Scale (PWB) (Ryff -Kállay, 2014), Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS) (Clarke et al, 2011), the short version of the World Health Organization Wellbeing Index WHO-5 (Topp, 2015) among others. In that spreadsheet, all participants were able to vote on the items that they themselves desired to answer in their own survey. Based on the results, the 15 items with the most votes were subsequently presented to participants 3 times weekly for two weeks. This initial study allowed us to observe changes in our own individual wellbeing— and also gave sensitivity to the tedium of responding to a well-intentioned survey on a regular basis.

This work took place just before the onset of the Covid-19 pandemic. As the world braced for massive societal changes, I wanted to help do something useful. I saw numerous academic groups create new ventilators or design open-source 3D printed protective wear. What could a group of human-centered designers do to help? We decided that "needfinding" was a special competency of human-centered design; needfinding seemed critical amid so much social change. On that basis, we simplified and redesigned Zensus to create *My Wellness Check*. We expected that we could use the system to "check in" on people's wellbeing and to understand their needs—at a global scale.

The next step was to recruit members of the public to sign up for regular wellbeing checks. To promote engagement over time, we tried to make the system short and enjoyable. We selected just 12 items and focused on ones that we had previously found personally useful to ask ourselves. Lastly, in striving for inclusivity, we translated the items into four languages (English, Dutch, Mandarin, and Spanish). With a little press, over 1000 participants signed up to submit wellness checks 2 times per week for 12 weeks. As data started pouring in, we learned a great deal about the many changes people were facing. However, we also realized that we were not in a strong position to *actually do anything to help* the people in our study. It was uncomfortable reading stories of suffering; all we could do was to assess needs— we couldn't do anything to address them.

Then, an opportunity emerged to provide a wellbeing assessment system at our own university. Based on our work with the general public, we were asked to provide the Wellness Check system for the staff (6000+) and students (25,000+) of TU Delft, a large technical university in the Netherlands. From the beginning, we emphasized that our purpose was not merely to measure — it was to inform university action. This purpose was shared by our colleagues.

> *This marks the end of the individual narrative. The next section describes the human-centered design process that helped realize these intentions.*

Designing Prototype 1

The selection of items for initial wellness check combined items from validated assessments and new items that were more specific to the university context. While "off the shelf" measures of wellbeing exist, these measures were obviously not designed to support the specific needs of university students and staff during a pandemic. Nor —and this is a critical point—were any existing measures explicitly designed to support institutional action.

Figure 3: The user experience of "My Wellness Check" on a mobile device. We aimed to provide a pleasant and low burden assessment experience that combined quantitative and qualitative responses. Many items featured checkboxes that only gathered a cutoff response rather than a scale (right).

It was our goal to flexibly assess human needs as they were articulated to us by various members of the community. For instance, we knew that many students were stuck at home in small rooms with insufficient space for working and many staff members had children at home and lacked a home office. We subsequently showed that satisfaction with one's home working environment was highly predictive of overall wellbeing—yet, no assessment of wellbeing (that we had discovered) included this as a factor. To be sensitive to the context, we felt it was necessary to take a syncretic and practical approach to wellbeing theory and sought to assess mood, physical health, mental health, social health, life satisfaction, financial stress, belongingness, satisfaction with the university, and various other factors that were relevant to the covid-19 pandemic. We assembled existing wellbeing assessment items from a broad variety of wellbeing assessments: WEMWBS (Tennant et al., 2007), PERMA-profiler (Butler & Kern, 2016), Satisfaction with Life Scale (SWLS) (Diener et al., 1985), Harmony In Life Scale (HILS) (Kjell & Diener, 2020), WHO-5 (Topp et al., 2015), PWB (Ryff & Keyes, 1995), Wisconsin Longitudinal Study (WLS) (Piliavin & Siegl, 2007), Midlife In The United States (MIDUS) (Brim et al., 2004, 2019), and National Survey of Families and Households (NSFH II) (Springer & Hauser, 2006).

How did we focus the data collection to inform institutional action? To support actionability, we aimed to collect information that quantified different wellbeing deficits (e.g., exercise) such that we could model their contribution to overall life satisfaction. Further, we sought to collect rich written text that provided the "voice" of students / staff in order to give qualitative insights regarding needs and ideas about how the university could help. Further, we aimed to create a positive assessment experience that was low-burden, enjoyable and engaging to participants.

Context-Sensitive Measures of Wellbeing

Example theoretical factors of wellbeing from various literature: physical, social, economic, spiritual, cultural, environmental, material and Psychological Well-being (growth, self-acceptance, autonomy, mastery, relationships, purpose)

Theoretical Factors

Manifesting in context

Experience of Personal Wellbeing

Experience of COVID19

Experience of University Work

Experience of Home Workspace

Experience of Physical Health

Experience of Social Life
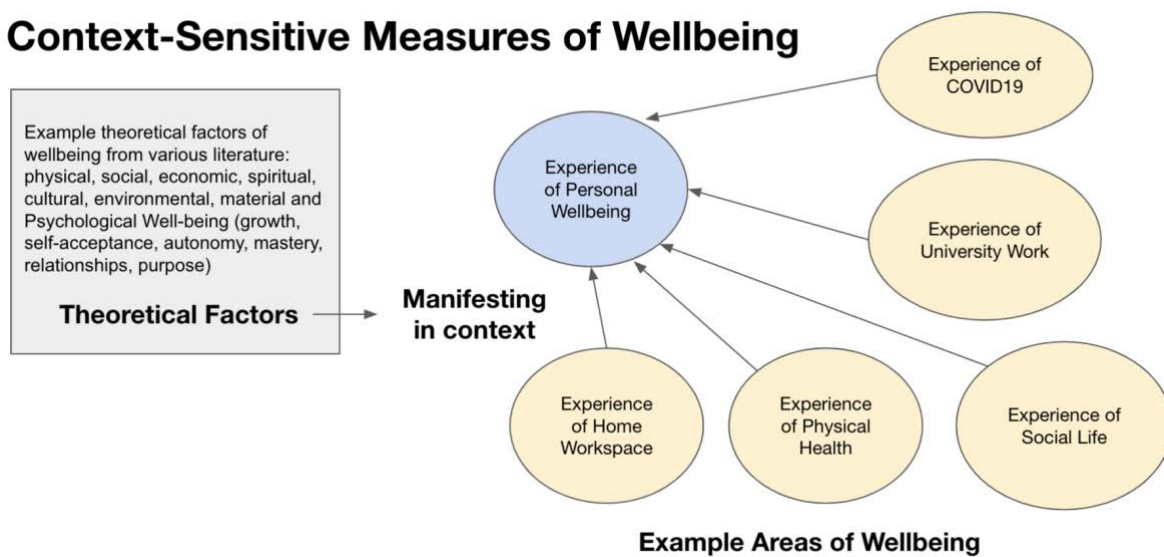
Example Areas of Wellbeing

Figure 4: Showing how complex theoretical models manifested within a measurement context. This helps illustrate our orientation towards a syncretic model of wellbeing and our focus on context-sensitivity.

Prototype 1 Evaluation and Iteration

To evaluate the questions, bachelor and master-level students in the Human-Centered Design faculty recruited 10 students to participate in a user experience evaluation of the questions in the survey. Zoom sessions were held with each participant individually. Participants were asked to think aloud as they took the prototype survey, sharing their perceptions and attitudes. They were also asked to rate each item on the survey for relevance, value and burden/difficulty. This method of observing others as they filled out the survey was repeated a number of times, as we made iterative improvement to the survey. The user experience (UX) data did not have a mechanistic effect on the survey (that is, we did not ask the participants to vote on items so that we would simply select the most favored items). Rather, the UX feedback was used broadly to give us greater empathy into, for instance, how tired participants would be after a certain number of items or what types of question phrasing seemed awkward, irritating or confusing.

Final Survey (First Cycle)

The final survey included a total of 19 questions: 3 questions about demographics; 6 scales (ranging from 0 to 10); 4 checkboxes; and 2 free-response questions, 1 multiple choice question, and 6 Likert-scales about their questionnaire experience. The latter were introduced as an experiment to test whether contextualized assessment would yield a better experience. This experiment is discussed in detail in van der Maden, Lomas & Hekkert (under review). As each checkbox question contained multiple items, the survey included a grand total of 79 items. The factors included in the survey included questions on: Life Satisfaction, Belongingness, Competence, Autonomy, Physical Health (including Sleep, Exercise, Drugs and Alcohol, Nutrition), Finances, Motivation, Engagement, Purposefulness, Anxiety, Depression, Loneliness, Optimism, Personal Growth, Study Performance, Remote Education, Mood, Home Environment, Corona Measures, University Support.

Procedure

The procedure was similar for both students and staff. Each group individually would receive an email in both Dutch and English that invited them to participate in the study. The email contained a link that led them to an online version of the survey that could either be completed on a tablet, phone, or desktop. A reminder was sent in each instance except for the fourth iteration of the student survey. The welcome text of the assessment provided participants with information about the anonymity of their data, the fact that the assessment was compliant with GDPR standards, and thus provided them with enough information to give their informed consent. The research

population of this study included 25,572 undergraduate- and masters level students and over 6,050 staff at TU Delft. All data were anonymized.

Iteration	Date	n	CR	#Q	#I	Experimental factors
Staff 1	Jun. 2020	2776	85% (2328)	24	56	-
Student 1	Jun. 2020	3150	81% (2604)	25	79	-
Student 2	Nov. 2020	3409	80% (2841)	26	82	Different versions and branching
Staff 2	Dec. 2020	1826	89% (1622)	22	76	-
Student 3	Mar. 2021	2877	77% (2221)	19	55	Validation questions
Staff 3	Jun. 2021	2376	84% (2006)	25	49	-
Student 4	Jun. 2021	2062	80% (1719)	19	79	Questionnaire experience and different versions

Quantitative Data Analysis

As of September 2021, we have conducted four cycles of wellbeing assessment for students and three cycles for staff. Table 2 shows the main scales that were collected by students and their changes over time while Figure 6 shows changes in their responses to checkboxes.

Table 2: An overview of data gathered in four iterations through scaled items about student wellbeing at TU Delft. Each scale could be answered with a score from 0 to 10. For life satisfaction, physical health, and studying at home 0 would represent the worst score; "Very unsatisfied," 10 the opposite: "Very satisfied." For mood these would represent "Terrible" and "Excellent" respectively.

		June 2020	October 2020	March 2021	June 2021
	n	2604	2841	2221	1719
Measure	Statistic				
Life Satisfaction	M (SD)	6.4 (1.9)	6.0 (1.8)	5.3 (2.0)	5.9 (2.1)
Mood	M (SD)	6.3 (1.9)	6.0 (1.7)	5.5 (1.9)	5.9 (2.0)
Physical Health	M (SD)	6.9 (1.7)	7.1 (1.6)	6.3 (1.9)	6.5 (1.9)
Studying At Home	M (SD)	5.5 (2.2)	5.7 (2.1)	5.3 (2.4)	5.4 (2.5)

Table 3: Showing the proportion of students clicking "yes" to agree with statements presented as checkboxes. This shows, for instance, the 20 percentile point drop in students stating that they feel part of a community (expressed in % Chg.) From van der Maden, Lomas, Hekkert (under review).

		Percent saying yes				
		Jun. 2020	Oct. 2020	Mar. 2021	Jun. 2021	% Chg
Belongingness	I feel part of a community at [university]	44	28	20	24	-20
	I often feel lonely	31	40	42	36	5
	I feel like I belong at [university]	57	41	41	38	-19
	It often feels like no one at [university] cares about me	21	21	25	24	3
	I often feel like I don't have anyone to talk to				18	
	I feel that my fellow students care about me and each other				39	
	I have a good bond with one or more of my fellow students				67	
	I would feel comfortable letting a professor know if I need help				26	
Overall Wellbeing	Overall, I felt good about my exercise levels	45	44	34	44	-1
	Overall, I felt good about my sleep quality	52	51	48	46	-6

		English Students	Dutch Students	English Staff	Dutch Staff	
	Overall, I felt good about my diet	61	62	54	53	-8
	Overall, I often felt down	46	46	59	44	-2
	I often worry too much	58	65	58	58	0
	Overall, I felt good about the amount of time I spent outside			26	43	
	I feel like my stress levels are unsustainable				39	
Studies	I feel confident about graduating on time	50	45	42	42	-8
	I am generally optimistic about the future	61	56	51	53	-8
	I am happy with how I am performing in my studies	63	50	48	50	-13
	I am satisfied with my study/life balance	39	31	19	25	-14
	I feel capable at what I do			35	39	
	I feel motivated to finish my current study program			57	58	

Another helpful data analysis technique investigated the items that best contributed to regression models of overall life satisfaction. This revealed the exceptionally strong contribution of satisfaction with the home environment and certain checkbox items; Table 4 and 5 outline these analyses based on staff data from December 2020. This revealed that the most predictive factors seemed to be Fatigue, Stress, Loneliness, Optimism, Belongingness, Engagement, Work/life balance.

Table 4: A tabulation of a regression model predicting life satisfaction) based on all items in the survey. The items displayed were significantly higher in predicting life satisfaction than others in the survey. The overall predictive value of the mode was R^2= .56. The capitalized rows represent scaled items, while the others represent checkbox items. These data come from the second (December, 2020) staff survey (n=1622). LogWorth represents a value that is transformed from the p value by based on a chi-squared test, making it appropriate for graphing.

Item	LogWorth	p
TU DELFT EFFECT ON WELLBEING	14.894	>.000
COPE WITH WORKLOAD	12.828	>.000
RATE WORKING FROM HOME	9.867	>.000
I often feel lonely	6.756	>.000
I am generally optimistic about the future	5.12	>.000
PHYSICAL HEALTH	2.933	0.0012
I often feel too tired to do my job effectively	2.549	0.0030
I am planning to take off time over the end-of-year break	1.968	0.0171

Table 5: A tabulation of a regression model predicting life satisfaction) based on the checkbox item in the survey. The items displayed were significantly higher in predicting life satisfaction than other checkboxes in the survey. The overall predictive value of the mode was R^2= .42. These data come from the second (December, 2020) staff survey (n=1622). LogWorth represents a value that is transformed from the p value by based on a chi-squared test, making it appropriate for graphing.

Item	LogWorth	p
I often feel lonely	8.503	>.000
I often feel too tired to do my job effectively	6.779	>.000
I am generally optimistic about the future	6.24	>.000
I often feel like my stress levels are unsustainable	4.968	>.000
I often feel like I don't have anyone to talk to	2.935	0.001
I have sufficient social interactions with people	2.103	0.008
I am satisfied with my work/life balance	1.936	0.012
I feel engaged and interested in my work	1.521	0.030

We also compared internal groups, like international students and staff versus dutch natives, or the change in overall wellbeing in different departments across the university (Table 5).

Table 6: Results following the second iteration cycle, broken down by language. The capitalized represent scaled items expressed in mean (M) and (SD). The range of these items was from 0 ("Very dissatisfied") to 10 ("Very satisfied"). The other items represent the percentage that agreed with a given statement.

Selection of Questions December, 2020	English Students	Dutch Students	English Staff	Dutch Staff
Number of Respondents	776	2351	425	1183
LIFE SATISFACTION (M, SD)	5.5 (2.1)	6.1 (1.7)	6.0 (2.0)	6.6 (1.6)

SATISFACTION WORKING FROM HOME *(M, SD)*	5.6 (2.7)	5.7 (2.0)	5.8 (2.3)	6.4 (2.1)
I am happy with how I am performing in my studies	26%	58%	--	--
I often feel disconnected from my family	39%	14%	37%	15%
I'm part of a student association	18%	43%	--	--
I feel like I belong at TU Delft	23%	47%	29%	48%
I often feel like I don't have anyone to talk to	36%	13%	23%	12%
I often feel lonely	56%	34%	39%	21%
Overall, I felt good about my exercise levels	28%	49%	38%	50%
I feel like my stress levels are unsustainable	43%	24%	41%	10%
I am satisfied with my work / life balance	21%	34%	27%	49%
Overall, I felt good about my sleep quality	41%	54%	45%	54%
It often feels like no one at TU Delft cares about me	31%	18%	--	--
I feel part of a community at TU Delft	19%	31%	23%	35%
I am generally optimistic about the future	48%	58%	42%	55%
My home working environment is not ergonomic and I can feel the negative effects on my body	48%	44%	50%	36%
I have rearranged my room during corona	30%	25%	39%	61%

Community-Led Qualitative Data Analysis using "Wellbeing Design Workshops"

The first wellbeing assessments were gathered in June 2020, near the end of the 2020 school year. To support institutional action, we took special care to recruit decision-makers to help us read over the thousands of written responses. We involved over 40 persons in this qualitative analysis. Although the written responses didn't need this many participants, the broad involvement of stakeholders (all from within the university community) seemed to help facilitate responsive action. The stakeholders included students elected to the student council, staff counsellors (including psychologists and employees involved in mental health coaching), deans and various other students and staff.

All of these individuals were invited to participate in a "Wellbeing Design Workshop". The aim of the workshop was to identify the needs and ideas that students expressed about the various topics that could be discovered. Prior to the workshop, each participant was put in a subgroup with a broad overall topic. These topics were identified through statistical factors analysis and included: Unhappiness, Affected by TU Delft, Discrimination, Finances, Home Architecture, International Students, Low Physical Health, TU Delft support, and Uncategorized. Then, participants of the workshop were sent 'homework': a subset of about 200 free response data that they needed to analyze, extracting quotes showing unique needs and ideas.

For example, here are two responses indicating needs: *"Being on campus helps, seeing people enjoying the place. I'm missing spontaneous conversations and plans."* and *"I moved to the Netherlands just before the corona outbreak gave me too little time to make a network of friends and without social events there is little chance of connecting with someone."* The next two quotes share ideas: *"I feel better when I see others that are managing and are able to reach their goals"* and *"It would be nice if there was always a link for online office rooms or a link for online coffee breaks where people from tu delft could enter anytime and work with someone or have a break together there..."*

During these Zoom workshops, we provided an introduction and a recap of the quantitative results. Participants were put in 'break out rooms' with the task of synthesizing the needs and ideas identified in their homework text responses. The synthesis entailed the grouping of needs, ideas and quotes into subtopics. The document that was produced was the main deliverable of this workshop. After 45 minutes of work, later they were invited back into the main room where we asked the participants to structure the ideas in terms of urgency and difficulty. This was done on a virtual whiteboard environment called Miro. Participants were sent back to their breakout room where they finalize their deliverable and prepare an elevator pitch of the most important findings of their group. Each group summarized their findings in a short document. The workshop lasted a total of 90 minutes including breaks.
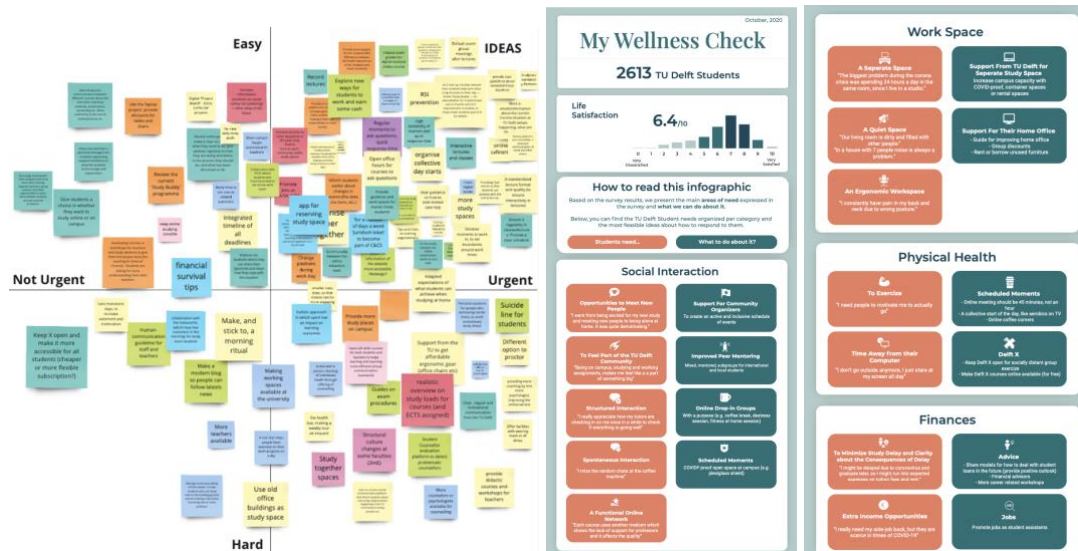
Figure 5: Left, a synthesis of ideas on two axes: from hard to easy and from urgent to not urgent. Right, a combination of quantitative data, quotes, needs and ideas were presented in a campus infographic about student and staff wellbeing needs. This shows part of an infographic about student needs and what to do about them. This was generated from the synthesis of the first cycle of My Wellness Check and sent to all student-facing staff and students. Its long format was designed for scrolling mobile devices.

Following workshops for students and staff, the synthesized documents were clustered together into themes. Findings were then presented to the executive board of the university; some findings were then further communicated to Deans for implementation in local policy. Other findings, like the above infographic (figure 5), were shaped by communication staff for mass deployment to the university community. Reports were also disseminated to the TU Delft Community (Van der Maden et al, 2021) and the broader network of engineering universities in the Netherlands (Lomas et al, 2021).

Discussion

We hypothesized that wellbeing feedback loops can help universities (large complex socio-technical systems) "muddle through" and make incremental improvements to address wellbeing. Did *My Wellness Check* result in meaningful changes in university governance? Having presented to the executive board multiple times, we believe so. Some changes were small, like in the tone of administrative emails (based on the finding that optimism for the future was so important). Some were expensive: for instance, based on the finding that the home environment strongly impacts wellbeing, the university funded a program to provide staff with more ergonomic chairs and desks. Based on the requests for spontaneous social contact, a program was initiated to randomly connect new PhD students together. A "Wellbeing Week" was organized based upon input from the survey. Many other small, incremental improvements were likely made throughout the university. Yet, it is a limitation of this paper that we can only very roughly document these changes. There were also opportunities for design: several masters projects in Human-Centered Design were initiated to help with the current situation. One student, for instance, developed a personalized recommendation system to help students redesign their living space on a budget. Another student re-envisioned the "Digital Campus Life" and designed a system to match up students online.

Reflection on what worked well

Our quantitative data show that our approach enabled various factors to be measured over time and enabled prioritization of underlying factors. The community-led "Wellbeing Design Workshops'' were a very successful approach to help spread the burden of qualitative data analysis. The checkbox item format worked well to collect broad information with minimal decision effort. We were happy to have used consistent 0-10 scales as this simplified data analysis. Choosing a core item of "Life Satisfaction" (Diener, 1985) was very helpful for enabling analyses of contributing factors (e.g., home environment predicting life satisfaction). In the end, the most consistently valuable qualitative data were statements that gave 1) insight into people's needs and struggles, and 2) ideas about what could be done about it.

Reflection on what was challenging

Sometimes the complexity of the data analysis was overwhelming. For instance, it was easy to add new questions to the survey and often difficult to know what to do with the data that returned. In one case, we randomly assigned students to 7 different variations, each of which provided a full set of scaled items to investigate validated constructs in the wellbeing literature. In the end, when analyzing the data, we thought: "Oh dear, what were we hoping to find?"

Reflection on Participant Motivation

What motivated the participants to contribute their data to the university? The staff may have felt an obligation to contribute, but what was in it for the students? We assume that it is because they want their voice to be heard and to make a difference on policy. Some may have wanted to vent, some may have wanted their feelings to be heard, while others may be simply curious about the survey. Some may want to learn more about their own wellbeing. Some may feel that they are doing a favour to a university that they care about. Tapping into motivation is crucial for gaining a strong voluntary response rate. One limitation of all of our findings is that we cannot know about the population we don't reach. Perhaps future policies will randomly select a smaller group for paid participation, if only to ensure that the distributions are roughly similar.

Limitations

Even as we sought to take a human-centered approach, we only rarely engaged in more in-depth investigations of what the COVID-19 pandemic was like for individuals. But, even as we seek to support a large-scale process, there should still be opportunities to bring in greater depth.

Our survey is still not sensitive to changes that might be made at a university level. For instance, it is not appropriate for measuring whether actions taken are having the desired effect. In this way, it fails to provide a tight cybernetic feedback loop, as desired. Yet, in any data-responsive system, it is important to interrogate the outcome measures (e.g., "is this really measuring the outcome we want?") because optimizing data metrics can easily lead to unintended consequences. In large systems, it is easy to forget that the data are signals regarding underlying qualities — and, typically, it is the quality that is desired, not the signal. In the end, we avoided a strict orientation towards singular metrics (like "Life Satisfaction") and instead sought to inform decision-makers and community members with a broad slate of measures and quotes to help improve sensitivity. A proper cybernetic feedback loop may not, in the end, even be desirable. And yet we still find the notion of a society that optimizes for wellbeing to be a powerful vision for the future and continue to consider how continuous improvement loops of wellbeing optimization might be implemented in various settings.

Future Assessment Opportunities and Challenges

Should We Ask Everyone or Take a Sampling Approach? A key question with large-scale wellbeing assessments is whether it is better to try to reach everyone or whether it is preferable to randomly select a subset of persons to get a representative sample. Smaller, randomly selected groups could be sampled multiple times per year (i.e., pulse sampling) to better monitor the ups and downs of community wellbeing over time, such as during the dark of winter. A sampling approach might produce greater motivation if participants feel they are responsible for representing their peers. Further, not everyone needs to respond to the same items: different random groupings of students/staff can be assigned to different free response items. This can help spread participant burden while still allowing many different items to be asked. And yet, there is an ethical equity component to wellbeing assessment that may make it objectionable to limit wellbeing assessment to a select few. People may want their voices to be heard, particularly if the outcomes of the assessments are intended to inform policy. This remains an open question.

Multiple Levels of Wellbeing Assessment: Our aim in this study was to measure wellbeing at a level of the entire university. However, wellbeing items can also be embedded into classroom assessment cycles to gain more insight into the general struggles that students are facing. For instance, teachers can ask 0-10 rating questions like "How well do you think you are doing in the class?" and "how well are you doing outside of class?" Qualitative

free text questions can also be included, like "what are your needs?" and "what do you think could be done to support your needs?"

Checklists of Healthy Academic Environments: There may also be alternatives to sending out surveys to gather data from people in a community. Instead, it may be possible to systematically gather the typical features of healthy university cultures and social environments. These properties could be shared in a structured way to community leaders. For instance, a simple checklist might be provided to department deans to self-assess whether they are supporting pro-social behaviors, like "regular brown-bag lunch presentations" or "randomly assigning newcomers to meet." Future research could document typical pro-social behaviors in healthy university social settings.

The Politics of Wellbeing Assessment: The survey design was continually adjusted based on the influence of various stakeholders in the university. That is, the design was, in a sense, political. This is no surprise, as it was intended to be used in a governing institution. While this may be viewed as a limitation, embracing the tension of politics in a measurement process may have contributed to the overall success of the program. This is because success is not just based on the success of deployments or the efficacy of measurement nor even in the creation of positive user experiences — success was based on the actionability: that is, causing the university to actually take actions based on the information gathered by the survey. To be clear, this is why the survey didn't ask about age, gender or ethnicity— various stakeholders felt that a wellbeing assessment would be more easily adopted at scale if it didn't immediately become a potential source of division between groups. That may be wise. (As a compromise, we included a question asking about discrimination). Wellbeing assessment should, in some ways, be a political act—it will need to be political if organizations (or even governments) adopt wellbeing as a core social aim. For better or worse, this political involvement distinguishes action-oriented assessment from typical efforts to assess wellbeing in a purely scientific context.

Conclusion

TU Delft Wellbeing Assessments are now run quarterly for all staff and students. Some survey items remain consistent (in order to measure changes over time), while other items cycle in and out. The assessment data from each cycle thus impacts the assessment in the next cycle. The measurement of wellbeing produces a kind of tension—can something so important as wellbeing be reduced to a number? We have embraced this tension by making full use of both quantitative and qualitative data — and by placing full emphasis on promoting positive action rather than merely "accurate" measurement. We believe that wellbeing is an important objective in university education. We expect that wellbeing will be assessed more regularly in the future, as a feedback loop, in order to contribute to more human-centered institutional governance. Institutions need to know: what are people's needs and how might we help?

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