CSCM69: Human-Centred Perspectives and Methods Coursework 2 - Work/Life Balence

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ABSTRACT

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Author Keywords

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CCS Concepts

•**Human-centered computing** → **Human computer interaction (HCI)**; *Haptic devices;* User studies; Please use the 2012 Classifiers and see this link to embed them in the text: https://dl.acm.org/ccs/ccs_flat.cfm

INTRODUCTION

Harvard conducted a survey which asked professional people how many hours they worked a week, 94% said they put in 50 hours or more. Out of these professionals, 50% said they are working 65 or more hours [11]. What is even more staggering is that this survey got done in 2009, a time where Blackberry mobile phones were all the rage and iPhones had only been on the market for around two years. This year was when the iPhone 3G was just about to hit stores and was way before the iPhone 4 and where the smartphone, as we currently know them, indeed took off and changed the way we interact with our mobile devices. As the Harvard survey also found out that 20-25 hours a week get spent monitoring their Blackberrys while outside of working hours [11].

These numbers show that a work-life balance has been an issue for some years. Especially when looking at statistics published in 2020, by the NY Post's Business Insider, that state 48% of Americans consider themselves workaholics and the CNBC stating that 66% of American works lacking a healthy work-life balance [7]. A staggering fact that we can relate to from experience is that 77% of full-time works suffer from burnout from their current job [7]. Rescue Time analysed their users' data in 2019 and found that 40% of people used their computers after 10 pm and 28% of people start their workday before 8:30 am [9].

What we aim to do within this report is to identify some of the leading apps that get associated with work-life balance. Once these apps get identified, we aim to investigate these tools while critiquing their designs concerning their interactions with HCI. These apps include **[list apps here]**, we will then be interviewing users and finding out their views on these applications and how they have impacted their work-life balance.

EXISTING APPS AND DEVICES USED WIDLEY IN WORK-LIFE BALANCE

"With the pervasiveness of technology, it has not only permeated our workspaces but it has also become invasive in our private personal spaces [12]." This quote got taken from a CHI paper published in 2012. In this paper, they state what defines a work-life balance is on the worker working longer than 50 hours a week compared to personal care and leisure whether it gets paid, or unpaid, but for women that also include the rate of employees who have children [12]. With this definition in mind, we are going to identify and critique four apps and devices that have made an impact for good and bad reasons for people's work-life balance. The applications and devices we will be looking at are emails, instant messaging (IM), mindful apps and mobile phone devices.

One application that has brought about both good things and bad things for work-life balance is the email. While it made communication more accessible, especially in the early days as we did not have to wait for a letter to get sent in the post, it has now become very consuming. In result, it has created a sense of urgency around reading and responding to emails straight away [15]. However, in terms of work, email has improved the efficiency of working when aiming to communicate with colleges or other people when they are not physically present.

An application that has both a positive and negative effect on work-life balance is IM, for example, WhatsApp, iMessage,

Facebook Message, Slack. IM has shown how the same communication channel often gets used personal activities and work arrangements. In some cases, both personal and work activities get almost done at the same time [8]. However, IM has become an alternative method to the traditional communication methods for both work [6] and private communication [3], instead of it being an additional medium on top. However, IM, by its very definition, is an interruption, especially if we use the definition defined by O'Conaill & Frohlich, "a synchronous interaction which is not initiated by the recipient, is unscheduled, and results in the recipient discontinuing their current activity" [13].

In the hustle and bustle of the modern-day life, especially while at the time of writing being in a second national lockdown in the UK and a global pandemic happening, public's perception around mental health has started to shift focus. Applications that get promoted to help with mental health and lockdown are meditation apps. While mindful apps do help with well being and mental health, however, they require training in order to be completely effective [2]. Mindfulness gets defined as the "awareness that arises through paying attention on purpose, in the present moment without judgment [1]". A study of mindful applications has found that only 4% provide any form of mindfulness training, the rest only offer time reminders for doing meditation [10].

The one technology that has made both work-life better and worse at the same time, depending on what angle it gets looked at is the mobile phone. Through the introduction of mobile phones, it has made it very difficult to separate work-life [5, 14] as all the previous apps have demonstrated. This issue is a result of the mobile phone being the one device that enables all of these. Mobile phones have created a grey area between private and work domains, which is why much research is getting carried out in this area [4]. As studies have shown that Workers average just 2 hours and 48 minutes of productive device time a day and check emails and IM about every 6 minutes on average [9]. We wonder if this is a result of mobile phones and them being so available and accessible to "just check" at any points.

CRITIQUING EXISTING APPS AND DEVICES FOR WORK-LIFE BALANCE

We will now be critiquing existing apps and devices within the areas that we have identified as widely used within the work-life balance. We will be identifying one app or device, within the different areas, and then critiquing them, aiming to identify how they could be adapted to amplify the user's experience. We will be looking at how the app or device makes it a particular part of being human, and how they aim to do this and possibly how they could do it better.

Mobile Device

Mobile devices have been around for many years until the introduction of the smartphone, that we know today, laptops were the only primary way to do any form of real work on the go. However, these did have their limitations and their pros. However, since the introduction of smartphones, and how powerful and capable they now are, mobile devices and the

ability to do work from them has increased and become more proficient. While there are many smartphone devices out there, we will be focusing on Apple's iPhone for our critique. We have chosen this device primarily due to our more familiarity with the device and what it can do.

The mobile device, in the modern-day, is an essential item for most people. People use them for a while range of things, whether it be for socialising, relaxing by play games, for example, or get used for business. No one device has given the user so much freedom in what it can allow to user to do before, while still be relatively small and can be carried in just a pocket. However, the applications and features that enable us to do so much. They can and do get used for so much more than what its intention was. For example, social media intended to connect people around the world if we take Facebook in this case. However, it has now not only become a platform to allow people to communicate, but it has allowed the business to have a platform to be able to trade from that would not have been their before. So social media is also business media, or is still social media? As we can see, a vast grey area has got generated, which we believe through mobile phones to how accessible they are and how they connect to the internet 24/7 unless the user has run out of data allowance, and world wide web. However, this ability to have so much content on-demand, we could say, has created a form of addiction but this could be down to their interruption nature, through notifications and attention-grabbing features like ringtones, and haptic vibrates. So with mobile phones getting used for social and work, is there any surprise that works are not super productive within a typical workday or struggle to switch off from work. While we have used social media as an example, in this case, it is valid for several different applications available, like emails, instant messaging and socialising. We believe as they are all in one place, it has made it harder to maintain an excellent work-life balance.

A feature that we believe would genuinely enhance the user's experience and help with the work-life balance is to have an option that will allow the mobile device to flip between work and personal modes. What this feature would allow the user to do is list applications on their mobile device that are work-related, and then list all the apps that are personal life-related. The user will then be able to designate a time of where they should be at work and not, which then activates the app lists on either one to operate. For example, if it is not in work time, then all the work-related apps will be deactivated with no notifications appearing, and if the user tries to log into one of these apps, then a message will appear saying it is not in the working hours. Also, within work time, all the personal apps that are likely to create distractions are deactivated, and the same thing then happens to them. We believe this feature would, by having physical restrictions, make the users more aware of what they are doing and then be more mindful about their work-life balance. Therefore, as a result, enhancing both their work lives and their personal lives.

Email

Emails when they got first created brought about significant changes within the communication area. An email allowed a

user to be able to send a document to another user instantly meaning that no longer do people have to wait for a document to be snd in the post and delivered if there were no fax machines available. However, emails have now evolved from business use to now a mixture of both. A single user is now likely to be having multiple accounts, private and work, with the user not only receiving potential vital documents like car insurance documents, for example, they could also be receiving advertisements in emails from companies.

With users now having multiple email address email applications, like Apple's mail, allows the user to attach multiple email address to the app to all get viewed within the application. While this is a great feature and truly puts the user at the centre of allowing them to view all their different possible emails in one place, instead of logging into multiple email provider application. However, it has also created a significant overlap of what is work and work is life. We believe this is a result of the application trying to be helpful and provide the user with all their emails. However, what it fails to do is to distinguish the difference between work and private email addresses and notifies the user when an email comes through, work or personal. Which we believe adds to the anxiety of emails and the need to have to respond instantly. We believe that a great feature would be to be able to distinguish which address is work and which ones are private and then create an automatic out of office style notification to the sender but does not display to the user until their designated work time.

Mindful Application
In regards to mindful apps, there are two main classes, and these are intrinsic and extrinsic meditation [2].

Instant Messaging
IM is an application that genuinely changed the way people communicated. Instead of everything seeming very formal in the way of an email, and without having the limitations of using mobile text message, whether its a lack of available credit or limited character limits, IM allowed users to be able to communicate more naturally over the internet for free. With the responses being almost instant, depending on the user's internet speed. Our first experience of this was with Microsoft Network (MSN) in the mid-2000s. This service truly put the user first and allowed users, as long as they were both logged on, communicate with each other. To top it all off, it was all for free. However, this started to take on a new direction when mobile phones started to become very popular and capable. Traditional text messages more moved into IM, and critical apps like WhatsApp started to emerge. This app was great as it allowed users, regardless of the operating system of their device used, to communicate with each other for free. Also, users were able to send images to each other without incurring a network fee.

Even though apps like WhatsApp has brought about some actual benefits, it has also blurred the lines of work-life balance. With the messages and IM being distractive by nature, affecting workflow and work colleges contacting people using these services but out of work time. On top of that, a feature within the app allows people to see if the recipient of the

message has read the message. However, in the relation of work relationships, this could cause frustration and add to the sense of anxiety to communicate straight away not to upset someone especially if it is the user's boss that's sending the message. The app will show the sender that the user has read the message but not responded, even if it is not in working hours. Therefore, having an impact on work-life balance and boundaries.

While WhatsApp has brought about tremendous benefits, WhatsApp puts all the user's conversations, whether it be personal all or work-related all within once place. With the work-life divide becoming much unclearer, a great feature would be to allow the user to label contacts as personal or work-related. With the contacts being label then, the application can then group the contacts or conversations as appropriate. Additionally, the application could then stop any work messages getting sent or seen out of work hours and any non-work messages getting shown in work hours. However, if a message needs to get sent urgently a command likes Apple's driving mode setting on iPhones, sending urgent, could be used to get the message sent out of the allocated time.

DESIGN AN USER STUDY? -> THAT WHAT ITS CALLED?
Due to the restrictions of a national lockdown, due to the health pandemic, certain restrictions have naturally been placed upon us in regards to conducting out our research. Although there are many ways for us to gather information on potential subjects to help give us insights into our research, for example, focus groups, participants diaries, interviews and finally surveys. We decided to focus on just two of these research methods types, interviews and surveys. This choice was due to time restrictions and current national situations, as mentioned before.

While diaries would have given us great insight into what participants are using and doing on a day-to-day basis, they also require a required amount of time to complete and then analyse. However, they can not always be reliable as we are relying on the participant to be completely honest and telling us everything that we need to know. Interviews are an excellent way to be able to get a general conversation with a participant and allow the conversation to take different avenues if it is required, allowing us to have more in-depth answers in areas that we might not have planned. However, we decided to take the survey option. This decision got based on the fact that the country being in a lockdown, it would not be appropriate to arrange to meet up with people.

The survey got made up of both quantitative and qualitative results. The intention behind this was to be able to get quite a good overview of the participant's thoughts about the topic and their potential habits. Seventeen questions got asked in the survey. These ranged from multiple-choice questions in regards to the questions: gender, age range, in what direction would you say your work-life balance leans towards, What device has the biggest impact (positive and/or negative) on your work-life balance, What device do you use the most for work, What device do you use the most for social and what Applications have the biggest impact (positive and/or negative) on your work-life balance. However, the last question

the participants could select multiple options at once. A range of 1 to 5 got used for How much would you say emails impacts on your work-life balance, How much would you say Instant messaging impacts on your work-life balance, How much would you say mindful apps impacts on your work-life balance, how much would you say mobile devices impacts on your work-life balance. With a score of 1 being it improves the balance, 3 being neutral and 5 having a negative impact. However, an addditional range question got used but had a range of 1 being not important and a score of 5 is very important, was How important is work-life balance to you. Open-ended qualitative questions then got asked where the user could write a short parage. These questions were: What feature(s) do you think could be introduced to emails to help with the work-life balance, What feature(s) do you think could be introduced to instant messages to help with the work-life balance, What feature(s) do you think could be introduced to mindful apps to help with the work-life balance, What feature(s) do you think could be introduced to mobile devices to help with the work-life balance, and Any other general thoughts or ideas you would like to share.

What worked about the survey was that I was able to get a lot more responses back than I would have expected in regards to a face-to-face interview and get some useful insights from them the results. However, while then reviewing the results, we came across some fascinating responses which we would like to have followed up. However, with no way of knowing who had completed the survey, we were unable to contact them to arrange a follow-up possibly. However, one concern we have is that if the participants had to give away to contact them, could this have lead to the users not being entirely truthful, with fear of where their comments might lead.

So in regards to surveys, we found that it is essential to think about the questions we are asking the participants in great depth. To make sure we are covering all aspects that we think we might need, as once it has got sent out it is challenging to be able to change it and get the original participants to refill it in. So in future, we would like to set up a way that the users give some form of consent to be contacted, in the future if we would like to explore some of their responses further.

WRITE UP YOUR RESULTS
We will now explore the results of the questionnaire that included both quantitive and qualitative questions. While we will be focusing more on the quantitive results, we will also be using the participant's qualitative responses to see if these can give us any additional insights.

Gener	Total
Male	7
Female	9
Prefer not to say	0

Table 1. The total number of participants by gender.

After conducting the questionnaire, we had a total of 16 responses. Seven responses were male participants, and nine were female (see table: 1). While it is not exactly fifty-fifty in terms of male and female participants, it is fairly close in

terms of their being less likely for any bias within the results and giving a good generalisation.

In what direction would you say your work life balance leans towards?	Total
More towards work	5
More towards life	1
Fairly equal	10

Table 2. The paricpants focus level towards work-life balance.

When we look at the results in table 2, we can see that the consensus is that people believe they are keeping a fairly good balance between work-life. However, five of the participants stated that their balance was towards work rather than life, with only one saying that their balance was more on life than work.

What Applications have the biggest impact (positive and/or negative) on your work-life balance?	Total
Emails	10
Mindfull Apps	6
Instand Messaging	14

Table 3. The participants cumative values of apps that impact on work-life balance even if its positive or negative.

The results in table 3 show that IM has the most significant impact on the participant's work-life balance, whether that is good or bad. A total of fourteen people said it impacted them in one way or another, with the next highest being emails at ten. So only four people who state IM as an app that impacts them in some way said email. Only six of the participants stated that mindful apps have an impact on their lives. So that is nearly half of what people put for emails.

What device have the biggest impact (positive and/or negative) on your work-life balance?	Total
Desktop Computer	0
Laptop	3
Mobile Device	13

Table 4. The participants cumative values of devices that impact on work-life balance even if its positive or negative.

In table 4 we can see that the device that has the most significant impact on the participants is a mobile device, with 13 participants stating this to be the case. In comparison, 3 participants said a laptop and 0 for desktop computers. We find this result interesting as the assumption would be that most work gets done on a laptop or computer, but these get deemed not to have much of an impact. Is that to do with the fact that the user can not just take them anywhere, so making it easier to step away unlike a mobile device?

One comment from the survey suggests that "the ability to set notifications to work hours only (i.e. teams, social media messages). Feel obliged to respond out of work hours when notifications come through". While another said, "[to have] A notification to inform you immediately for the length of phone calls", are significant factors of impact on work-life balance. Clearly showing that people are very unaware of how long exactly they are sending on work-related tasks and how they feel obliged to have to respond to work-related communication,

even while out of work hours, based on the aspect of messages being instant.

What device do you use the most for work?	Total
Desktop Computer	6
Laptop	9
Mobile Device	1

Table 5. Participants identifying what devices they use the most for doing social activities.

However, when we look at table 5, the picture paints a slightly different story to table 4. 6 participants stated that they use a desktop and 9 participants said they use a laptop as their primary work device. In contrast, only one participant said a mobile phone. So leading to the view that a mobile phone is not primary used for work but yet has the most significant impact overall. Again is this to do with the notion that most people will always have their mobile phone close to them?

What device do you use the most for social?	Total
Desktop Computer	0
Laptop	0
Mobile Device	16

Table 6. Participants identifying what devices they use the most for doing social activities.

When we look at the results in table 6, we can see that 100% of the participants said that the mobile phone was the device they used the most when doing personal tasks. However, when we look at the impact of mobile phones (see table: 7), the average score is 3.5. Showing that the mobile phone generally has a more negative impact, but if it is the phone is what they use for the user's life tasks, is it that the phone is harming work or their private life?

A comment about mobile phones a participate said was, "Notifications that illustrates the amount of use that can be set by the users, to assist as a reminder if you are over-using in your down time". While another one states, "Ability to group apps as "work apps" and apply settings to those apps en mass. Eg. Mute them all." However, one comment states, "none, I manage my device - silent notifications, remove the "online" banner". Therefore while some people do feel like they have a sense of control over what they do most feel like the device needs to give them a helping hand in staying on top of everything, and ideally separating the work from the social.

From the questionnaire, ten participants said that their work-life balance (see table: 2) is relatively equal, but five said they lean more towards focusing on work. What we believe is worrying is that only one participant said that they lean more towards life. So these factors bring about, do we live to work or work to live and is it the technology that is making us lean more towards work with being so easily contactable. This statement is due to (see table: 3) the question of "what applications have the biggest impact (positive and/or negative) on your work-life balance" and IM receiving fourteen votes. So that means that only two participants feel that their IM does not impact on their work-life balance. While ten participants have said emails impact them. However, when we look at the average scores of the individual apps and devices impact (see table: 7), we can see that mobile phones and IM both

Question	Average Result
How important is work life balance to you? 1: Not Important 5: Very Important	4.8
How much would you say emails impacts on your work-life balance? 1: Improves Balance 5: Negative Effect	3.1
How much would you say Instant messaging impacts on your work-life balance? 1: Improves Balance 5: Negative Effect	3.5
How much would you say mindful apps impacts on your work-life balance? 1: Improves Balance 5: Negative Effect	2.8
How much would you say mobile devices impacts on your work-life balance? 1: Improves Balance 5: Negative Effect	3.5

Table 7. An average of the participants responces to each relevent question.

had an average score of 3.5. Therefore meaning the results were leaning more towards having a negative impact. While on the other hand, emails were 3.1, so learning towards a more neutral impact but yet email was the second most significant impact on work-life balance. So could this mean that people think emails impact them more than they do and that IM is the main application that impacts that balance?

A comment from a participant stated, for users to be able to have a "unwind from work [feature that contains] special mindfulness and meditation episodes. [Allowing for the user to have] Specific pathways for those who struggle with work-life balance." This comment fits in nicely in regards to the sentiment of the mindful apps literature, as it states people need training in how to do these sessions, not just to have reminders. We believe that this focus could be a great innovation within the work-life balance. As most people have a smartphone or speaker, the user could announce that they are at home, and then the device will start to take them through some of the mindful activities, to help them unwind. We believe by having this trigger to say that the user is home could help improve the balance and let the user not get so tempted to look at work-related content as this would be blocked.

CONCLUSION

Humans always want to put life before everything, but as the literature and our study shows, it is not as easy as people think. Our study showed that while people think they are relatively even in terms of work-life balance, they use, where ever they are, a mobile device, which in result harms both their work and their social life.

Hence, we believe it is important for there to be some form of tool that can allow users to be able to categorise work-related content and social content. Therefore, as a result, only allowing that content to get activated and displayed within the

allocated time slots. For example, work apps are only working within office hours.

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