

Designing for Addiction— What Goes On Behind Our Screens and What to Do About It

誘人上癮的產品設計—— 手機螢幕背後的真相與因應之道

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There are many articles about technology and ethics and the impact of the tech revolution which we have been witnessing over the last two decades. I would like to take however a much more specific look at the phenomenon of mobile phones and growth tactics businesses have been recently employing because I believe this combination is a game changer.

I'm talking about the approaches and uses of mobile technology that companies such as Facebook, Twitter, Instagram, Candy Crush, and their likes, are taking in their relentless march to acquire new users and dominate their respective markets. If we consider that some recent studies have reported that the average age in developed countries when children begin to use a smartphone can be as low as six, this becomes really important.



探討科技與道德的文章很多，過去20年間，我們也目睹科技革命帶來的衝擊。本文擬深入探討企業界將手機與成長策略結合所造成之現象，因我相信這些現象已帶來天翻地覆的改變。

我所說的是社群網站臉書、推特、圖片分享網站instagram、乃至線上遊戲「糖果傳奇」這類公司，針對移動平台所採取的攻城略地策略，以爭取新用戶，並在各自的市場中稱霸。新的研究顯示，在已開發國家，兒童開始使用智能手機的平均年齡是6歲。研究這些公司搶食市

場大餅的手法，因而變得格外重要。

過去五年中，有兩大轉變。首先是科技變得無所不在，移動產品（智能手機等）已取代電腦，意味著更加容易隨時聯網，我們的眼睛緊盯螢幕不放。其次，爭取新用戶的競爭是如此

Two important shifts have taken place in the last five years: technology has become for many people ubiquitous - mobile has taken over from the “PC”, meaning that it’s a lot easier to be constantly connected with a device, our eyes staring into a screen; second, the competition for new users is so high that design has gone much deeper into psychology and the human mind.

Twenty years ago, if a company wanted more customers what they did was to pour millions into fancy marketing campaigns to convince people to buy their product. This worked when there were only a few products available and costs of switching to something else was relatively high. Marketers have always understood the power of psychology and used it to their own advantage, but now those tactics are being used in the products themselves, not just in advertising them.

What this means is that the ways you interact with an application, from the first time you open it, are designed to bring you back into the application, often by tapping into your subconscious, littering your experience with cues which hook you.

To fight off competition, companies have started to employ all sorts of tactics, many of which are actually grounded in psychology and nothing less than addiction. Yes, addiction! The imperative for a product development team today is to make their application as addictive as possible and find ways to lure people in, often with free incentives, and then keep them hooked. Just like a drug dealer would.

It should therefore come as no surprise that, over the last few years, one of the most renowned books in the startup world is indeed called “Hooked - How to Build Habit-Forming Products”. Despite the premise that these techniques can be used for the good, for example to help patients take their medicines on time with the aid of a well crafted mobile app, for the most part it is used by the entertainment industry, trying to keep people watching and playing.

Let’s take a very simple example: notifications and badge counters. If you own a phone you know that most social apps will show a little number at the top corner of the app icon with a counter of how many unread messages you have and display a notification on the screen or play a sound when you receive a new message. On the surface, they are innocuous tools that let you know that something new is awaiting you, supposedly giving you access to what you wanted. In practice, however, they are less to serve a need you have and more to make sure that you get back into the app as many times as possible because, and here’s the important part, your attention is what often makes money for these companies.

Another example is Youtube’s new “auto play” feature. It used to be that if you reached the end of a video you then had to click on another video to start watching. This meant you had to make a conscious choice to continue watching and decide what to watch. In many cases this was

激烈，因此產品設計已更深入人心與心理學。

二十年前，當一家公司要爭取更多用戶時，採取的辦法是大手筆投入數百萬美元，以最時尚的廣告行銷說服消費者購買他們的產品。在同類產品數量不多、改用其他產品的成本又相對高昂的時代，這種作法確實行得通。當然，市場行銷專家總是了解心理學的力量，並充分運用以贏得優勢。但現在這些策略已用於產品本身，而非僅用於廣告行銷。

也就是說，你跟手機應用程式的互動，從第一次啟用開始，就是要讓你回來使用，設計的方式經常是開發你的潛意識，給你種種暗示，讓你上鉤。

為了打敗競爭對手，各公司開始採取種種策略，很多都是根據心理學原則，最主要就是讓消費者上癮。對了，就是要人上癮！今天的產品開發團隊首要之務，就是培養使用者的癮頭，以各種手段請君入甕，通常是以免費為號召，讓使用者上鉤，欲罷不能，跟毒販的手法簡直如出一轍。

過去數年間，在新創領域，最有名的書之一正是「上鉤——如何製造養成習慣的產品」。雖然這些技巧也能用於助人，例如設計良好的應用程式可幫助患者定時服藥，但絕大部份的應用程式是為娛樂業所用，讓人想連續看或不斷地玩。

舉一簡單的例子，以手機鈴聲與標記計數器為例，如果你有手機，你就知道大部份的社交應用程式都有碼錶，在應用程式的符號上端有個小小的數字，讓你知道還有多少未讀的簡訊。當你收到新訊息時，螢幕上會通知你，或發出特定的聲響讓你得知。表面上看起來是無害的工具，只是讓你知道新的訊息在等著你，你可以獲得想要的資訊。實際上，與其說是滿足你的需求，不如說是儘可能讓你多多使用這項應用程式，因為重點是，你的注意力就是這些公司的商機與財源所在。

Your attention is what often makes money for these companies.

你的注意力就是這些公司的商機與財源所在。

not immediate, maybe because you came to Youtube to just watch one specific video someone sent you.

To Youtube this meant losing users who would leave the platform after having finished watching the video they came for. How could they keep people hooked? Simple, just start playing something else. This exemplifies two important principles:

1. Curiosity and fear of missing out
2. Defaulting on a choice someone else made for us

First, if the video is any good, it will pique our curiosity and just in case we might be missing on something cool, we'll finish watching it. Of course because the next one will start to play at the end, we're now stuck into an endless loop, often wasting hours watching mindless trash when all we came on the platform for was a simple two minutes video maybe.

The second point is even more hideous and has to do with how we often operate mindlessly going with the flow of choices made for us. Remember, making intentional choices is expensive; it requires us to take control of our actions and be aware of what's going on. It's much easier to just go along with decisions that have already been made for us. This is the power of defaults.

If design is a huge part of the impact of modern technology, the other big ingredient to this poisonous cocktail is the price: \$0 or Free.

Most of the new businesses that are hoping to grow are offering their products for free, monetizing with advertising, which means your attention. We are "the product". In light of this, it's easy to see why grabbing people's attention is so critical: the more people use an app, the more ads will be seen. And if this seems absurd, never underestimate the power of free. There are countless studies that have shown the incredible power of free, even when the difference is just 1 cent.

One of the most famous examples is a chocolate experiment first run by the researchers of Massachusetts Institute of Technology and since replicated many times. The experiment goes like this. A table is arranged with two bowls of chocolate candies: one bowl is full of Lindt, a high quality brand of chocolate widely recognized and loved; the other is full of Hershey's, equally common and known to be a cheap brand and of far lower quality than Lindt.

In the first part of the experiment Lindt truffles were offered for 14¢, which is a bargain considering that the

另一個例子是Youtube的「自動播放」新功能。從前當你看完這個網站上的一段視頻之後，必須點選另一段視頻，才能觀看那段視頻。這意味著你得有意識地選擇繼續觀看，並決定要看什麼。很多時候，並不是立即繼續觀看新的視頻；可能你是因為有人寄了一段視頻給你，所以你會上這個網站。

對Youtube而言，這意味著流失使用者，他們在看過一段視頻後，就會離開這個網站。那麼該如何挽留使用者呢？簡單，只要開始播放別的視頻就行了。這項功能，充分利用兩個重要原則：

1. 好奇心以及害怕錯過。
2. 習慣仰賴別人為我們所作的選擇。

在第一種情況下，如果這段視頻很不錯，就會挑起我們的好奇心，唯恐錯過精彩的內容，就會一直看完。當然，下一段視頻會自動播放，我們因此而看個沒完沒了，浪費許多小時看一些沒什麼內容的垃圾視頻。其實最初也許只是為了一段兩分鐘的視頻，來到這個網站。

第二種情況更糟糕，跟我們經常不肯用心，光是隨著別人為我們作的選擇打轉有關。要知道有意識地選擇，成本很高，需要我們掌控自己的行動，並隨時對周遭狀況保持警覺。若是跟隨別人為我們作好的決定行事，就會容易得太多了。這就是習慣的力量。

如果「設計」是決定現代科技影響力的重要部份，那麼這杯「有毒雞尾酒」的另一大成份就是「訂價」——零元或者免費。

絕大部份想要壯大的新公司，都提供免費產品，收入來源則是廣告，也就是你的注意力。於是，我們（使用者）成了產品。有鑒於此，很容易明白為何獲取人們的注意力如此重要：越多人使用一項應用程式，被看到的廣告就越多。就算這看起來不靠譜，你也絕不能低估「免費」的力量。無數研究都顯示「免費」的力量不可思議，即使差價只是一分錢。

最有名的研究之一，是針對巧克力的實驗。最早由麻省理工學院的研究員進行，這項實驗後來被重覆進行多次。這項實驗就是在桌上放兩碗巧克力糖，一碗裝的是廣受歡迎的高檔巧克力瑞士蓮（Lindt），另一碗裝滿的也是廣受歡迎的平價巧克力好時（Hershey's），但質量檔次遠不及瑞士蓮。

實驗的第一階段，瑞士蓮品牌的軟心巧克力每顆只賣一毛四，這是很好的折扣價，因為正常價格是這個價格的兩倍以上；好時巧克力則每顆只賣一分錢，絕大部份的路人經過這個攤位，都會買瑞士蓮軟心巧克力，因為實在便宜

normal price is more than twice as much, and Hershey's at 1¢. Those passersby exposed to this arrangement bought Lindt truffles, recognizing the incredible deal.

In the second phase of the experiment both prices were reduced by 1¢, taking the Lindt down to 13¢ and the Hershey's to 0! Now a logical mind would still prefer the Lindt since it is technically even a more advantageous deal. But what happens, if you haven't guessed, is the complete opposite: almost nobody bought the Lindt truffles; everybody walked away with a Hershey's. That is the power of free, completely flipping an otherwise obvious outcome.

As of July 2016, Pokemon Go, a mobile game based on Nintendo's Pokemon franchise, has pushed the boundaries even further. The game uses Augmented Reality (AR) to bring digital creatures from the world of Pokemon into the real world. AR has existed for several years, but never made it to the mainstream before the release of this game. The basic idea is rather simple: a user looks at the world through the phone, which paints objects on top of what is seen through the camera. Just imagine you're taking a picture and something is added to it digitally, as if you were retouching the image, but live as you take it.

Mind blowing, yes. The dynamics of the game are rather simple: you walk around town, staring into your phone, and when you see one of the little creatures you have an opportunity to catch it. You can also find gyms or stops where you can grow your skills and train your monsters. The way the game is designed employs all the best practices in luring people in and keeping them addicted, which, coupled with the huge Pokemon fan base, has created an instant success.

But what are the implications of such a game?

On one hand, more of the same: lots of people walking around staring into their phones, which was already happening with Facebook. There is a key difference however: because the little monsters are placed around the world semi-randomly by a machine, some of them are ending up in the wrong places: in some cases, they lead young kids into dangerous construction sites,

得不可思議。

實驗的第二階段，這兩種巧克力各減價一分錢，瑞士蓮巧克力減成每顆一毛三，好時巧克力則成了不要錢免費吃。按照邏輯思維，多數人應該還是會買瑞士蓮巧克力，因為折扣更多、更便宜。但如果你還沒猜的話，結果却是完全相反：幾乎沒人買瑞士蓮軟心巧克力，反而每個人都帶走一顆好時巧克力。這就是「免費」的力量，讓局面完全改觀。

任天堂「寶可夢」遊戲的系列產品：手機遊戲「精靈寶可夢Go」自2016年7月推出以來，已更加擴大其範圍。這項遊戲藉著擴增實境，將「寶可夢」世界裡的數碼精靈帶到現實世界裡。擴增實境問世已有數年，但在「精靈寶可夢」手遊推出之前，從未成為主流。其基本概念是很簡單的：玩家透過手機來看世界，他們的手機又為鏡頭看到的物體增色。試著想像你拍一張照片，然後加上一點電腦特效，就像是對相片做修整，可是成品看起來就像現場拍攝一樣。

這個概念的確很異想天開，而這項手機遊戲的玩法很簡單：你在城市裡到處走，看著你的手機，當你看到一個「神奇寶貝」時，你就有機會捕捉它。你也可以找到「補給站」，在那裡增強你的功力，並訓練你的「口袋怪物」。這個遊戲的設計，用盡了吸引玩家並讓他們上癮的最高技巧，再配合「寶可夢」原來擁有的龐大粉絲團，使得它一推出就造成極大轟動。

但這樣的遊戲背後到底意味著什麼？

首先，還是老問題：很多人一面走路一面看著手機，「臉書」用戶早已如此。但很大的不同在於：「精靈寶可夢Go」遊戲裡的精靈是由機器半隨機分佈，有些玩家最後就會走到不該去的地方，例如這個遊戲曾引導小

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abandoned places at risk of collapsing, or railroad tracks; in others, gyms and stops showed up in unsuitable locations, such as the Holocaust Museum or the Buddha Hall of the City Of Ten Thousand Buddhas.

But there is a much greater and subtler question that this type of technology poses: what's reality? Imagine a ten year old that is used to playing with Pokemon puppets now getting hooked on Pokemon Go and seeing those very same puppets everywhere in the world. How is he to tell what's real and what's not? From a Buddhist perspective, on the surface at least, this may seem appealing, as it points to reality being made up from the mind and bound purely by our perceptions. However, it is playing with fire, especially at that young age, as the lack of context and understanding can easily result in a dangerous, distorted view of the world.

With all of this in mind, when we see a 13 year old's face stuck in his or her phone, not responding to our exhortation to do their homework or be present at the family dinner, it should be obvious that it's not so simple as to blaming them for being obsessed with their gadgets. While this doesn't mean that they get a free pass, the odds are very much stacked against them: teachers, parents and guardians today compete for the attention of their kids with hordes of well paid software designers and psychologists whose sole job is to grab and hold onto the kid's attention, knowing, in most cases, better than the kids themselves what they will or won't respond to.

Less than a decade ago it was possible to counter this by getting people off of their computers or TV and taking them outdoors, but with mobile phones, that's no longer working. This is another reason why this is such a huge shift: there's nowhere we can hide, there's no way to avoid the problem, we must face it directly.

This is very much the first step in regaining some control: understanding what we're up against and avoiding imply blaming technology as a whole. This is not just about technology. In fact, to a large extent it is not; it's about the unconscious mind and habituation.

So what can we do, especially for our kids?

Resist giving kids phones at an early age. With parents increasingly busy even when at home as work also bleeds into our houses, it's very tempting to just hand over a phone to kids to entertain them. It's also tempting to use mobile phones as a way to stay in touch all the time and keep an eye on them, as it's possible to use GPS locations to ensure your child is staying within certain areas of the city for example. As much

孩子到危險的建築工地，或是即將傾頹的廢棄地點，甚至火車鐵軌上。還有，「補給站」會設在不適合的地方，包括二戰浩劫紀念館，乃至萬佛聖城的萬佛殿。

而這種科技帶來更巨大也更深層的問題是：現實是什麼？且想像一個十歲孩子，以前喜歡玩「寶可夢」神奇寶貝，現在則迷上了「精靈寶可夢Go」，而且在全世界各地，都能看到同樣的神奇寶貝。試問：這個孩子如何分辨什麼是真實？什麼是虛妄？當然，從佛教徒的觀點而言，至少這說明了「萬法唯心」的道理，所謂的「真實」純粹是依據我們的認知所構成。這說法還挺具說服力，但實際上不啻玩火，尤其對那麼小的孩子來說，缺乏對實況的了解，很容易導致危險、扭曲的世界觀。

將上述諸點都列入考慮時，當我們看到13歲的少年，臉埋在手機裡，根本不理會我們叫他（她）做功課，連跟家人一起吃晚餐也置之不理，就不是責怪他們沉溺於電子產品這麼簡單的事。當然這並不意味他們可以隨意使用，但是他們的處境的確很不利。今天的老師、家長、監護人，要跟一大群高薪軟體設計師以及心理學家競爭——爭取孩子們的注意力；這群軟體設計師與心理學家唯一的工作，就是牢牢抓住孩子們的注意力。他們對於孩子們會反應或不會反應之事，往往比孩子們更清楚。

不到十年前，對治這個問題的辦法就是讓孩子離開電腦或電視，帶他們到戶外走走。但如今手機無處不在，這招已不管用。這也是變化如此巨大的另一個原因：我們已無處可躲，無法避開這個問題，我們必須迎面正視問題所在。

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這是重新找回部分掌控權的第一步：要了解我們面對的是什麼，而不光是抱怨科技。這個問題不僅在於科技，其實很大程度上，並非科技問題，而是我們的潛意識以及習性。

如此一來，我們可以怎麼做？特別是為我們的孩子？

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The other important insight we gain from the science of habits here is we cannot simply get rid of a bad habit, we can only transform it. We can see this is very much in line with the Sixth Patriarch's teaching "Affliction is Bodhi".

從習性理論中獲得的另一項重要認識，就是壞習氣無法被除去，只能被轉化，這正符合六祖大師的教導「煩惱即菩提」。

up a tablet or phone to watch something. The reward he/she gets is to relax and get a break from school.

Once we understand that, we can start to intervene in a number of ways. First, because we know the cue and we know how design choices can lead us to watch videos for hours, we can begin to see the danger in even starting. Second, by knowing what reward we're actually seeking, we can start to experiment with different actions. For example, if a kid enjoyed playing music, have an instrument readily available. Or art materials? Would a coloring book as opposed to a video be equally engaging and rewarding in terms of taking their minds off school?

Transform the bad habits. The other important insight we gain from the science of habits here is we cannot simply get rid of a bad habit, we can only *transform* it. We can see this is very much in line with the Sixth Patriarch's teaching "Affliction is Bodhi". Thinking in terms of *getting rid of bad habits* sets us up to fight what we dislike, and it is a sure path to failure. Rather, the focus should be on transforming the bad habit by leveraging our understanding of it and experimenting with alternative actions.

Meditate. None of the above is possible unless we become more aware of what's going on in our mind and manage to be more mindful about our choices. The most important tool we can use to regain control is meditation. Meditation and reminders to be more present and slowing things down is key to building awareness of one's tendencies and moving toward a better future where we can live more fully on our own terms, rather than be constantly subjected to the choices of others. ❀

as these can be interesting uses of technology, the disadvantages are far too great during those formative years.

Gain a deeper understanding of how habits work. The large majority of our decisions in a day, adults or kids, are made on a habitual basis, so understanding how that works is incredibly empowering. At its core, habits are made up of three components: a cue, an action and a reward. For example, a kid may come back from school and feel tired, wanting a break from "all that thinking", so he/she picks

不要在孩子年幼時給他們手機。現代父母越來越忙碌，即使在家也一樣，因為工作已滲入家庭生活中，因此增加父母給孩子玩手機的誘因。另一大誘因，是透過手機可以跟孩子隨時保持聯繫，並留意他們的動靜，比方說手機的衛星定位系統可以確定孩子在城裡的位置。科技的這些用途雖然很有意思，但在孩子成長期間，科技的負面影響似乎太大了。

深入了解習性的作用。無論大人或小孩，在一天之中所下的決定，大部份是根據習性而來。因此，認識習性的作用機制，能賦予我們更多主宰力。追根究柢，習性是由三個部份組成：暗示、行動、報償。比方說，當孩子從學校回到家累了，想讓腦袋休息一下，於是拿起平板電腦或手機來玩；而所得的報償，就是放鬆，不再想學校的事。

一旦了解這點，我們可以採取不同的方式介入：首先，因為知道暗示，也知道經過設計的選擇會引導我們連續看視頻數小時，因此一開始就能意識到這個危險。其次，知道想要的報償是什麼，所以可以試驗不同的方案。比方說，如果孩子喜歡演奏音樂，那麼樂器隨手就可拿到；或者喜歡美勞，一本畫冊是否也能取代視頻？兩者同樣引人入勝，而且都能幫助孩子不去想學校的事。

轉換壞習氣。從習性理論中獲得的另一項重要認識，就是壞習氣無法被除去，只能被轉化，這正符合六祖大師的教導——「煩惱即菩提」。一心想要除去壞習氣，等於是與所惡之事正面交鋒，結果注定失敗。還不如專注於轉化壞習氣，先充分認識自己的壞習氣，然後借力使力，找出替代之道。

打坐。除非對周遭情況更了解、更留心自己的選擇，否則前面所說的辦法都行不通。因此，要真正重獲主控權，最重要的工具就是打坐。打坐、隨時提醒自己觀照當下、放慢腳步，是能否覺察自我習氣的關鍵，也是幫助我們擁有更自在，而非始終為他人所控制的更美好未來。❀