From Human Experience to XP Design

Ajanta Sen

It is my aspiration that things I say here today are understood even by a six year old. Which means I cannot be using jargons, nor terminologies, nor a lot of important-sounding stuff. Instead, I will try and weave a story about the contexts for usability and XP design, and mention some of its key players who have struggled to understand computing and its outcome. And will proceed by posing a few questions…….

On the occasion of an event such as this, driven by the World Usability Day, which is now in its third year thanks to its key driver Kaladhar Bapu - and with due appreciation for that - let's ask a couple of questions as providing the fundamentals for the occasion.

(I) Why Usability?

A term as generic as 'usability' is now important enough to be commemorated by a special day of the year.
A bit in the manner of:
the International Women's Day (8th March)
the World Environment Day (5th June)
Mother's Day (13th May)
World Obesity Day (25th November)
And so on…….
Women, Environment, Mother, Obesity, Usability.
└Of these, the most troubled and enigmatic category must easily be the **woman** – we all know how they are treated and so, we are required to bring focus there.
└The most benign and untroubled category is, of course, the **mother**. We love our mother, and those who feel confused about it, like some Hollywood stars, they are the ones who probably need a special day to rethink their guilt over and achieve some equilibrium in their system on that day.
└ Environment and Obesity are recent developments on our consciousness radar: there can be no two opinions about what of the environment or obesity we are troubled. We all know what the red signals there are, and what is about to go ballistic if the wrong buttons are pressed at the wrong time, God forbid.

└ But Usabilty?

What's with this extremely generic term that suddenly needed special attention?

Let me briefly interject with an analogy from Economics since we are being hosted at a School of Management.
Economics uses the concepts of 'elastic' and the 'inelastic' to explain how much man will really desire a certain product.
Take the example of cakes. Come Christmas and there arises a large demand for cakes, because every one wants cake. Prices shoot up. We buy what we can, and we wish we had bought more. Prices fall after Christmas. Cake lovers go buy extra amounts and hog to their heart's content.

This is called elastic demand – a condition of tension and pull, where the forces of demand and supply work in inverse relations, causing the tensions to tug and pull the demand-supply situation in opposite directions, making the relationship rather like a tight elastic.
But what happens with something like salt? Whether prices stay low or go up, we continue to consume the same amount of salt. You don't go put more salt in your food because salt prices have crashed. This is called inelastic demand because the price of the product has not caused any tension between the forces of demand and supply. The demand equilibrium remains steady.

Guess what? Usability is not like salt. You can't take it for granted. Usability is like eating cake. It is elastic as a construct and remains subject to the pulls of forces, which in this case are redundancy and usefulness. The more usable a product, the less its redundancy, the more its use.
But it is also true that, in spite of its elasticity, usability is not something that we need to look at as being an uncontrolled force beyond control. Since times immemorial, man has learnt to deal with the tensions of redundancy and usefulness.
For, as long as we have had products that defy the usability factor, products have been viled and rejected by man. And, as long as man has felt any fire in his belly and the need to fill in a usability gap because the product in question has reached redundancy rendering it unusable, man has got down to reinventing products to fill this gap of discomfort.

You see, man is quite unforgiving by nature there. If its earliest invention, the fire won't work because the logs are wet, man will find another medium to create fire. And if even that won't work, then man will make fire by striking a piece of wood against his boots, as the cowboy films would have us believe.

So, at its very basic, 'usability' is a derivative of what is 'usable', and in turn, 'usability' is whatever that is: "functional, efficient, and desirable" to its intended audience or user.
And, as far as we can remember going back into the dawn of pre-civilization, man has constantly lived out entire cycles of usability - moving across from inventing to reaching redundancy, back to inventing to redundancy, back to inventing to redundancy……. And *ad infinitum*.

So, how did usability become a special interest group terminology?
The arrival of something as generic as usability as a special interest group terminology coincides with the new media technologies and their percolation into our every day lives since the nineties.
And further on, with the strengthening of the Internet protocol through Tim Berners-Lee's www – the Web became *de rigeur* – the vehicle that started to drive communications. Sometimes, it would seem, the only one that drove any communications. Especially where there has been a need for communications to work remotely in order to execute business, such as in the case of enterprise software use.

New Media's chief communications artifact, embodied primarily in the web page, seemed like a bull in a china shop – misfit and utterly inadequate for not having developed its own norms of communications.

Let's, therefore, ask the question: **what were the shortfalls**?

└ Being a dynamic medium, the web page needed moving type faces – something that we may credit the late Muriel Cooper of MIT's Visual Language Lab to have invented, and those like John Maeda of MIT's Media Lab to have developed further. However, for the most part, business has remained too lazy to adapt to dynamic type, driven as it is by a conservative mindset. So, typography on the web continues to be static and rigid.

Moving on to the shortfalls:

└ Being dependent on scarce bandwidth, the medium needed quick and easy-to-read pages. But in its hangover of a mindset inherited from its preceding media - the print - web pages have since remained captivated, once again, by the static nature of print protocol, using enormous amount of content to express itself, and yet burdened with a reputation for being lightweight and superficial, unlike the book.

In other words, the web as a medium, has refused to undertake a paradigmatic shift away from the print domain, especially in the domain of business and commerce.

A good example of this mimicking of a preceding media would be E-Learning, where content is driven by texts that have simply been digitized and transferred from print to web. Even the idiom of speech and writing on the web continues to mimic the manner in which words are used in print.

Moving on further…….

└ Being dependent for its location on a computer screen, web pages needed to be of a size that, in spite of the constraint of being framed by the computer screen, had to look appealing.

└ Being imprisoned within the walls of a physical entity such as the computer screen that somehow preferred to move vertically, man's age-old practice of swinging his eyeballs horizontally from side to side to purvey all that is within his line of vision, had to be abandoned in favor of making the eyes scroll unnaturally from top to bottom and from bottom to top while reading a web page. And finally,

└ Being trapped within a plastic molded encasing meant that, we could never expect the pages of the computer to move around, fly in the wind, get crumpled in the hands of children, be read by accident while eating a hot dog or a samosa out of a newspaper wrapping, and so on.

But what does civilization teach us about products?

Civilization decrees that, it is through the rough and tumble of a product's handling that will go to make it sturdy. The rough and tumble puts the product through the grind of unanticipated uses, such as a washing machine being used to churn a drink of lassi in Punjab. Or to mix cement in Mexico. Whoever had imagined this deviation from its original intent.

It is this trial by fire of unanticipated and unintended uses, is what makes a product grow sturdy and multifarious, to announce that it has arrived – much like the coming of age of a diva

Come to think of it, however, none of the rites of passage of a coming of age may be applied to web pages or new media pages, that often double up as console buttons and other interactive devices.
Web pages are yet to arrive, besieged as they are by its myriad ills that are typo-related, color related, formatting-related, flexibility of execution related.

So, the reality is that, instead of web pages as a product category, going on a rough and tumble to mature into a usable product, they have pretty much stayed where they were a decade ago in the business use domain.
And instead, it is the user that has got thrown around trying to mature himself to the use of these utterly 'unintelligent' products.
And the only way, I suppose, that we can then try and find some solace and comfort to this agony is to wait for a World Usability Day each year, to throw our grief around, and try and understand what will make this utterly 'dumb' surface work in an intuitive manner.

But, we are not alone in our grief.
Jaron Lanier, the hippie-genius of computing who had invented Atari's award winning video game 'Moon Dust' in the early 80's and is now working on developing a language that promises could revolutionize the computing industry, says:
"computers right now are ridiculous. They hardly do anything for people…….(instead) people should be able to speak and breathe programs just like they talk now."
Lanier is one of 19 programmers along with Charles Simonyi, Bill Gates, Ray Ozzie, Butler Lampson or Bob Carr to have shaped the computer industry. So, his are not words of cynicism.
These words foretell a sense of frustration for those who are able to envision the untapped worth of computing.

(II) Why XP Design:
Things might have been okay if this was all there was to the issue of Usability. But a partner development in the last 3-5 years has given Usability a bit of a twist and punch – this coming in the form of a development intersecting with Usability to become yet another special interest group, and which has come to be termed as Experience Design.

Experience Design, simply put, is the design of an experience.

Since times immemorial, XD has been the very essence of building a product. Essentially, XD has been about mediating our life's experiences and providing clues to circumstances that might help reduce the inconveniences of life. And ask the question: how can we annotate this gap with augmentation of existing or new products, or with extensions that could work as products.

└ If it is too tedious to wash clothes by hand, by all means build an electro-mechanical contraption such as the washing machine to augment the functioning of the hands.
└ If it is not possible to capture images in our memory cells forever, build a contraption such as the camera, to augment our vision and memory for images.
└ If it is not possible to communicate a story merely with words, then one must use gestures along with words.
└ And if these words and gestures were originally meant only to communicate one-on-one with individuals, and if now there was a larger group awaited instead, then one would simply have to employ augmentations – voice through audio augmentation and narrations, sound augmentation through the microphone, sight augmentation through built-in physical sets – all of this to enable the original purpose of story telling.

The resulting experience, extremely rich in its use of the sensory(s) – is an invention called the theatre, the performing arts. It is one of the richest medias man has gifted to civilization, and by virtue of being media-rich, it remains one of the most artfully executed XD platforms.

But then, why does this term XD crop up today as a special interest group?
Because, in spite of all the efforts at the Xerox PARC, or the Lawrence Livermore Lab, or the Media Lab, or elsewhere, computing continues to defy being intuitive. Computing driven experiences need careful calibration to make them experiential, and even then they remain labored and affected in their outcome.

The computer continues to remain a static box that seeks to annotate and absorb within itself, all of the media-richness that man has gifted to himself through the millennia of civilization. And so justifiably it would seem today that, the non-computing environment, in its knack for being intuitive, has become a singular mirror for the computing environment to emulate its experiences.
What are we to deduce from all this? That, **the key to building XD in the computing environment must necessarily lie in human behavior?**

Is it not what it boils down to?

└ It is what the scientists at the Xerox PARC had realized and had tried to give shape – by using *inspirations from the man-made world* to build the bedrock of computing.
└ It is what they did in their effort to use *hermeneutics* to build *natural languages* into computing because AI, by the sixties, was found to be a mismatch with the way humans actually spoke a language.
Hermeneutics, as a branch of continental European philosophy from the 19th century, concerned itself with the interpretation of the written texts. And inspired Terry Winograd, to mimic its ability to use common-sensical reasoning to resolve situations, as well as its ability to devolve its architectural content to replace

the extremely labored Artificial Intelligence driven computing language.

└ It is the discovery by Vanevar Bush in his seminal essay "As We may think" from the 40's which features his notion that the human brain selects information by association rather than by indexing that foretold the story of the *hypertext* and the World Wide Web by at least fifty years before its actual execution.

└ It is the way that humans actually *write* – not by tapping away at a keyboard, but by using thumb and index finger to move a contraption across a surface that inspired scientists like Bill Buxton to give us our first *stylus and tablet* as an input device. And taking inspiration from the *pencil*, its very "commonness" as an example of "good engineering that blends into the environment and becomes a part of society and culture so naturally that a special effort is required to notice it." (Henry Petroski), Buxton's mentor at the Xerox PARC, Douglas Englebart was able to look at the idea of input devices as being a prosthetic – an extension of one's hand, not an extension of one's eyes, nor of one's brain.

Jaron Lanier's words about "people being able to speak and breathe programs just like they talk now" mirrors a deep regard for this notion of taking inspiration from actual human conditions and engineering, to build into computing.
Lanier's notions of the computer being ridiculous, foretells the idea of looking at a product as an experience rather than as a single point interaction between an artifact and man. When he talks about speaking and breathing, he is considering the idea of experiencing an environment through our sensory(s) - breathing being a primary one, speaking being a secondary one. No longer are we talking about single-device contraptions as products.

So, it is but natural that we should conclude that we are better off recognizing the facilities that the human is endowed with – the facilities for communicating and chatting (which is the genesis of the idea for information retrieval), the facility for writing (which was civilization's root for information storage), the human facility for empathy and sharing that makes him try and build shared media spaces such as theatre, or canvases of paints put up on walls as murals or paintings. Or pattern-making on the ground to evoke a sense of symmetry and balance through order alternating with chaos, and so on.

(III) The link between XP Design and the final product outcome – Cultural Universes:
All this is meant to give us clues into product experiences. And narrow down to the fundamental idea that one needs to start with man and his spaces and then move on, rather than with the computer and try and imprison man into it.
It's an asymmetry that man has never allowed himself to be trapped into since the birth of civilization. And it is unlikely that he will accept a position that sublimates him to the machine now.

But how does one transfer experiences in the real human realm on to the machine?

(IV) Out-of-the-Box thinking:

To say that we need to move out of the box is an understatement. But to overstate it is to make it into a cliche.

Two examples of how to escape the cliché and still think out of the box. When you start conceptualizing the product experience for a given situation, the idea is to go by Vanevar Bush's advocacy of information by association, not information by indexing or description.

An example of this would be the Japanese game designer Toru Iwatani – one of the 19 most influential figures to have shaped computing. In wanting to design a game that was not fed on a diet of violence and war simulations, Iwatani decided to design a game that a family could sit around and play. So, he took food as a basic concept since food is something that is shared by a family. He created a game and named it Pac man because, as Iwatani says: "the Japanese have a slang word – paku paku – which is the motion of the mouth opening and closing while eating.

So, here is an example of creating something from an inspiration, viz., food, that had nothing to do with computing, nor games, nor even popular notions of entertainment in Japan. Yet , he was able to create a successful game that became popular both in Japan as well as in the USA. And obviously an experience design that had something to do with the game's popularity.

(to be continued….)