Human-Computer Interaction in the early 21st century: a stable discipline, a nascent science, and the growth of the long tail

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wot I’ll say

“state of the nation”
where is HCI
how can it develop

bit of my own stuff

and how they fit together
today I am not talking about ...

- intelligent internet interfaces, personal ontologies, structure from folksonomies
- situated displays, eCampus, small device – large display interactions
- fun and games, artistic performance, slow time
- physicality and design, creativity and bad ideas + modelling dreams and regret!!

... or even lots of lights

http://www.hcibook.com/alan/projects/firefly/
21 years ago at Interact ’87

Brian Shackel asked
is HCI a discipline?
yes!

a community defines a discipline

but science goes beyond community or academic discipline from acceptance of knowledge to assurance of truth

(c.f. John Long craft, engineering or science)
are we getting there?

2nd generation HCI researchers, teachers & practitioners
good for community ...
but maybe losing disciplinary roots
have we found our own?

strength of HCI
research and practice close
danger
we confuse the two
evident in papers, reviews etc.
three challenges to develop the academic discipline of HCI

methodology

knowledge

rôles
new roots need new methods

need to think methodologically

not just adopting methods
but understanding why
but it is hard!

a little story ...

• BIG ACM sponsored conference
• ‘good’ empirical paper
• looking at collaborative support for a task X
• three pieces of software:
  – A – domain specific software, synchronous
  – B – generic software, synchronous
  – C – generic software, asynchronous
experiment

- reasonable nos. subjects in each condition
- quality measures

- significant results $p<0.05$
  - domain spec. > generic
  - asynchronous > synchronous

- so really want asynchronous domain specific

what’s wrong with that?

interaction effects
  - gap is interesting to study
  - not necessarily good to implement

more important ...
  if you blinked at the wrong moment ...

NOT independent variables
  - three different pieces of software
  - like experiment on 3 people!
  - say system B was just bad
can we fix it?

• borrowed psych method
  – … but method embodies assumptions
  – single simple cause, controlled environment

• HCI needs ecologically valid exp.
  – multiple causes, open situations

• what to do?
  – understand assumptions and modify

• both and …
  – quantitative – what is true end to end – phenomena
  – qualitative and anecdotal – why – mechanism

three challenges to develop the academic discipline of HCI

methodology

knowledge

rôles
validity

your work

expert opinion

published results

arguments

peer opinion

general evaluation

comparison with previous results

justification

evaluation

conflict: publication vs. science

three challenges to develop the academic discipline of HCI

methodology

knowledge

rôles
HCI is a diverse discipline

different genres of work
need different criteria of judgment
✓ recent CHI sub-committees

different rôles for people
we don’t all need to do everything

(some) rôles

ideas & theories
systems & design

empirical studies

clarity & parsimony
adequacy of explanation
ability to feed into experiment, design, more theory

rationale, novelty (useful)
critical appraisal (of novelty)
availability for future research

data gathering
(experiment, study, ethnography)
clarity of situation, provenance
availability of data for further analysis

data analysis
theoretical, inductive, statistical
suitability for meta-analysis
plus...

HCl is changing!
for nearly 20 years shackled to the office desk desktop ...

... the computer now breaks free!

image: Matt Oppenheim <matt.oppenheim@gmail.com>
into the world ubiquitous tangible mobile
do not just work home leisure experience
onto the net collaboration information service
from the people web 2.0 photo sharing social networking
PhD student, Fariza Hanis Abdul Razak looking at mobile experience

initial study – one user was ‘odd’ … so looked further at just her

learning from the extremes

studying a single person … initial diary study

the first text ...

Dear God Don’t need lots of frens! As long as real ones stay with me, so bless them all, especially the sweetest one reading this.

and subject’s comment:

this SMS MADE MY DAY!

changed our view of use of mobile
research

- very rich empirical data reveals new issues using personal understanding

- novelty only needs one example (e.g. new species)
  different person different place would find different phenomena
  equally explorer in different place would find different species

- generalisation through reasoning
  abduction and deduction rather than induction

generalisation

never comes (solely) from data
always through understanding
design & practice

design for a single person
not even five users!

get to know him/her intimately
what would be perfect for that person

designing for peak experience ...

baked bean vs. mars bar design

en.wikipedia.org/wiki/Image:MBar_700.jpg

freefoto.com
designing for peak experience

who wins?

good enough products never win
for any user, some peak product always better

different users

peak products

good enough product

how to do it:

– traditional interface design
  user profiles, central personas, average and typical,
  process and methods, from need to solution

– design for peak experience
  individual user, niches, extreme personas, specific and eclectic
  ideas and inspiration, from concept to use

when to do it:

– individual choice, user experience,
  the long tail: many applications for smaller groups
single person study
flouting community conventions
but understanding methodology

prompted by changes in HCI
what is the same and what changes

the lens of unfamiliarity helps us explore the heart