

Comp 34I/44I - HCI

Spring Semester 2019 - Week 11

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Users and Skills

skill levels and design - part I

■ **evaluators**

- *design needs to present good first impression, be pleasing overall, and inviting*
- *should not give the impression of being overly complex*
- *introductory material, such as demo video or guided tour with step-by-step instructions*
- *sample files, demo material allows users to test functionality and see what is possible*

■ **beginners**

- *functionally easy for our users to learn and discover an application*
- *eg: offer wizard style guidance to create an initial project, document*
- *easy undo/redo errors and mistakes - hopefully promotes experimentation in the app*
- *in-depth tutorials and intro guides, such as manuals, help videos, online help*

Users and Skills

Fun exercise - part I

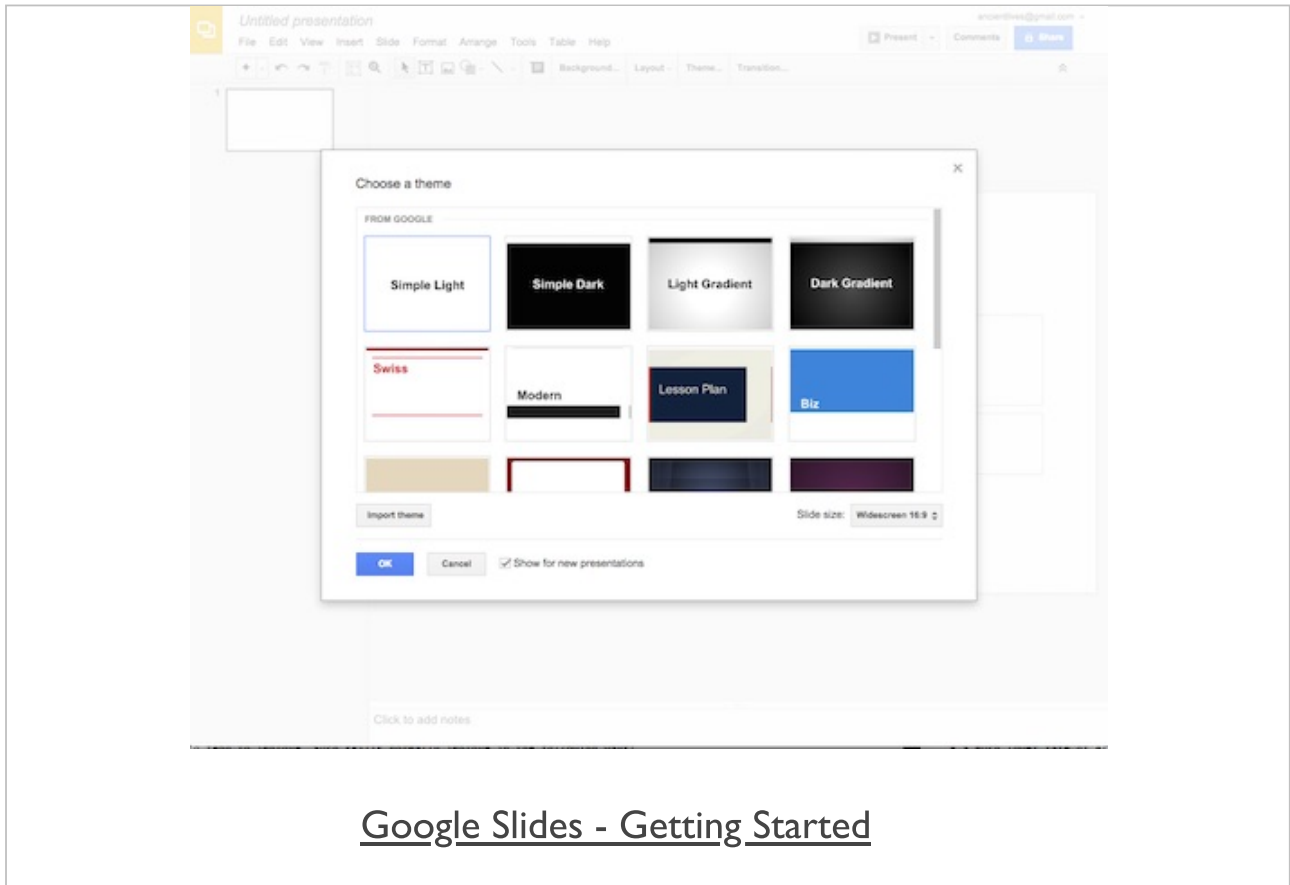
Consider a mobile or web based application to help users search for properties, e.g. house, apartment, to buy or rent

Then, outline the following

- initial UI concepts designed to engage and attract an **evaluator** user
- key features and functionality to allow a **beginner** user to quickly understand and use the application
 - *e.g. how to promote core functionality?*
 - *how to encourage initial usage without a steep learning curve?*
 - ...

Image - Users and Skills

getting started



Source - Google Slides

Users and Skills

skill levels and design - part 2

■ **intermediate**

- *in addition to the above considerations*
- *fully indexed and searchable help resources*
- *allow users to quickly find exactly what they need*
- *online forums and social options and interaction promote sense of community*

■ **expert**

- *quick completion of tasks with maximum efficiency*
- *provide shortcut options, keys, and greater customisation options*
- *bypass and limit beginner tools, wizards, menus etc...*

■ **power**

- *allow greater freedom for users and interaction*
- *user developed scripts, plugins, add-ons*
- *developer tools, APIs, discussion forums, manuals...*
- *carefully consider security implications*

Users and Skills

Fun exercise - part 2

Continue the design of a mobile or web based application to help users search for properties...

Then, outline the following

- consider further features and functionality for **intermediate** and **expert** users
- how may we balance these new features with the previous requirements &c. for a **beginner** user?

Users and Skills

skills change over time

- familiarity, experience, and comfort with an application often increase a user's skills
- skills tend to improve as follows
 - *improved awareness of the application's options, tools, and capacity*
 - *improved and increased awareness of how to perform tasks, handle special cases successfully*
 - *a much lower rate of errors, issues, and mistakes*
 - *increased rate of productivity and completion, speed, efficiency, and so on...*
 - *a general increase in confidence and greater ease at achieving a sense of flow with the application...*
- might also expect general improvement in quality of work
 - *quality often hard to define, measure, and assess*
 - *easier for procedural tasks and jobs than conceptual*

Users and Skills

practice makes perfect

- improve skills through regular practice
- for our applications and products
 - *ensure users practice and repeatedly perform given tasks*
- some application scenarios naturally make it easier for users to practice
- simple act of repetition of regular tasks often mimics regular practice
 - *practice due to necessity*
- "people generally become skilled in whatever becomes routine for them."
 - *Card et al. P.188. 1983.*
- **deliberate practice** is the act of intentionally practicing with focused attention
 - *specific goal of improving skill levels, working and training at increasing levels of difficulty*
 - *often requires careful monitoring and evaluation of work and results*
 - *motivation and self-improvement important*

Users and Skills

Fun exercise - part 3

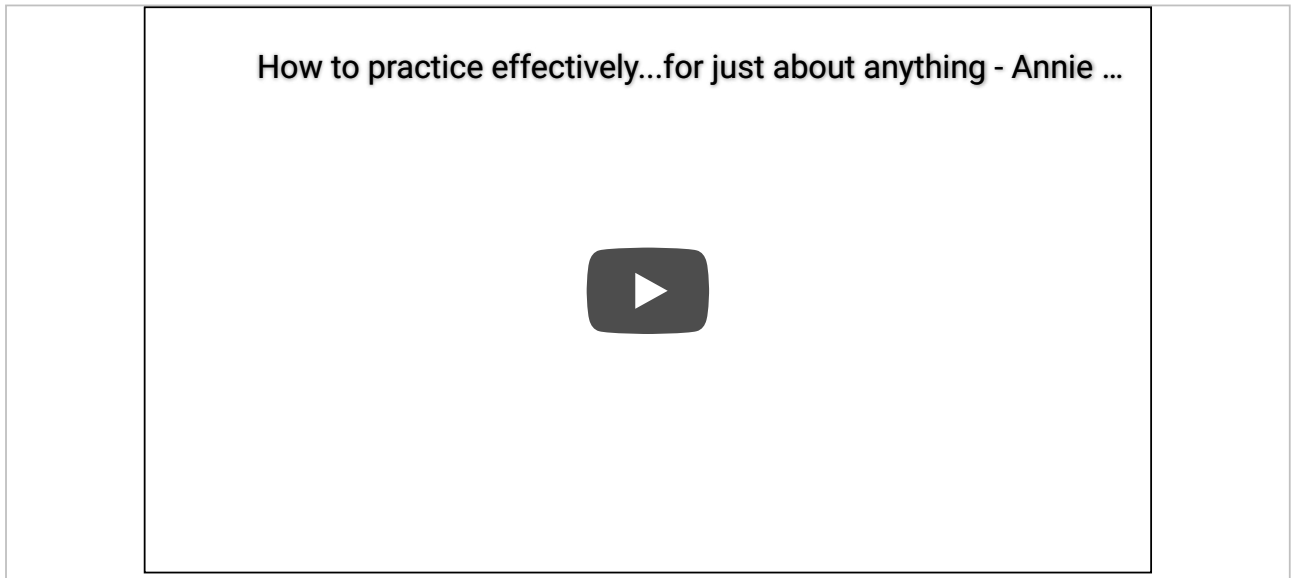
Continue the design of a mobile or web based application to help users search for properties...

Then, outline the following

- consider training and practice options for **beginner** and **intermediate** users
- how may we introduce both *implicit* and *explicit* options?

Video - Users and Skills

How to practice effectively...



'How to practice effectively...'

Source: TED-Ed - YouTube

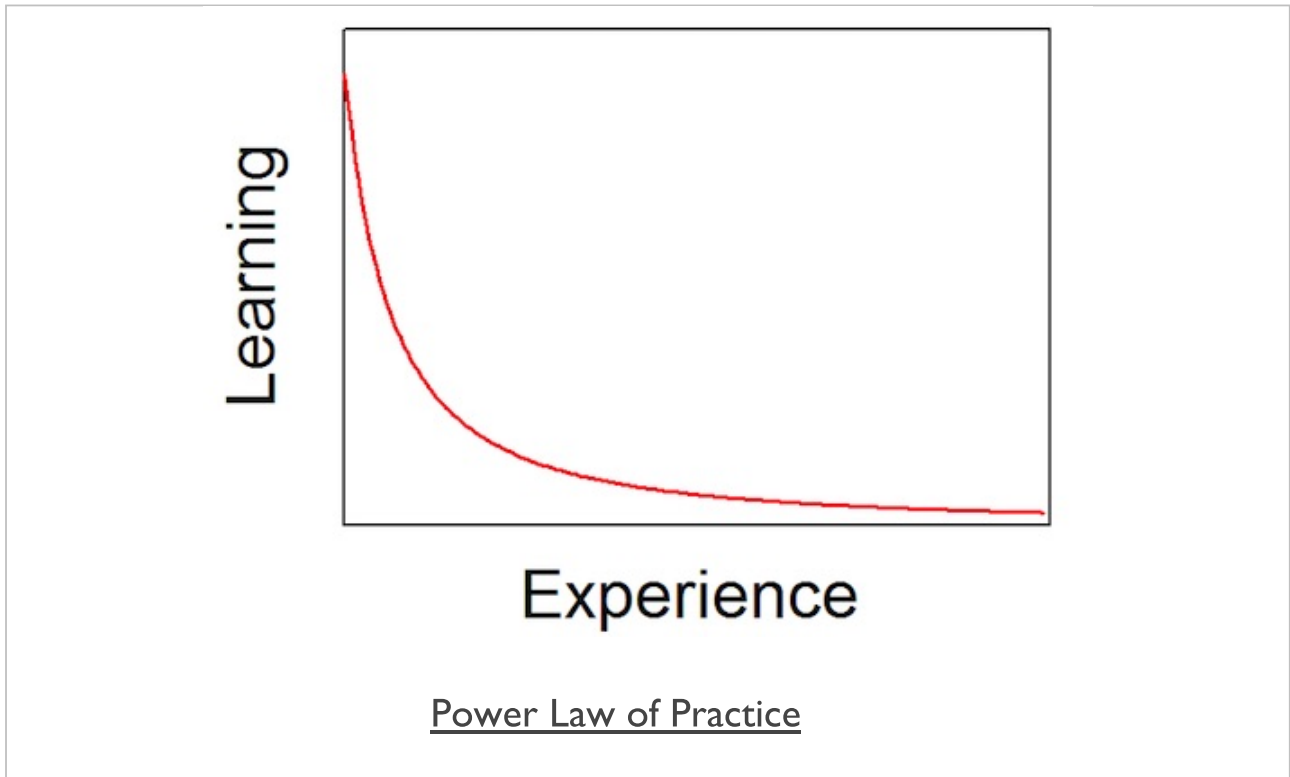
Users and Skills

monitoring practice and skills

- **Power Law of Practice** - Card et al. 1983
 - *applies to most mechanical and cognitive skills, not always relative to knowledge acquisition*
- as users gain in experience relative to increased practice
 - *related application performance tends to increase rapidly, then slow to a steady rate*
 - *steady peak normally reflects attained peak performance for the practiced skill*
- lack of practice naturally leads to loss of performance and skill
 - *drop in frequency and intensity of practice*
 - *motor skills do not normally atrophy as quickly as knowledge based skills*
 - *simple to refresh these skills with a period of further training and practice*
- designers need to be aware of this potential for skills atrophy
 - *complex, detailed applications may consider detailed help systems, options*
 - *allow a user to quickly refresh knowledge using practice exercises, tests, incentives...*

Image - Users and Skills

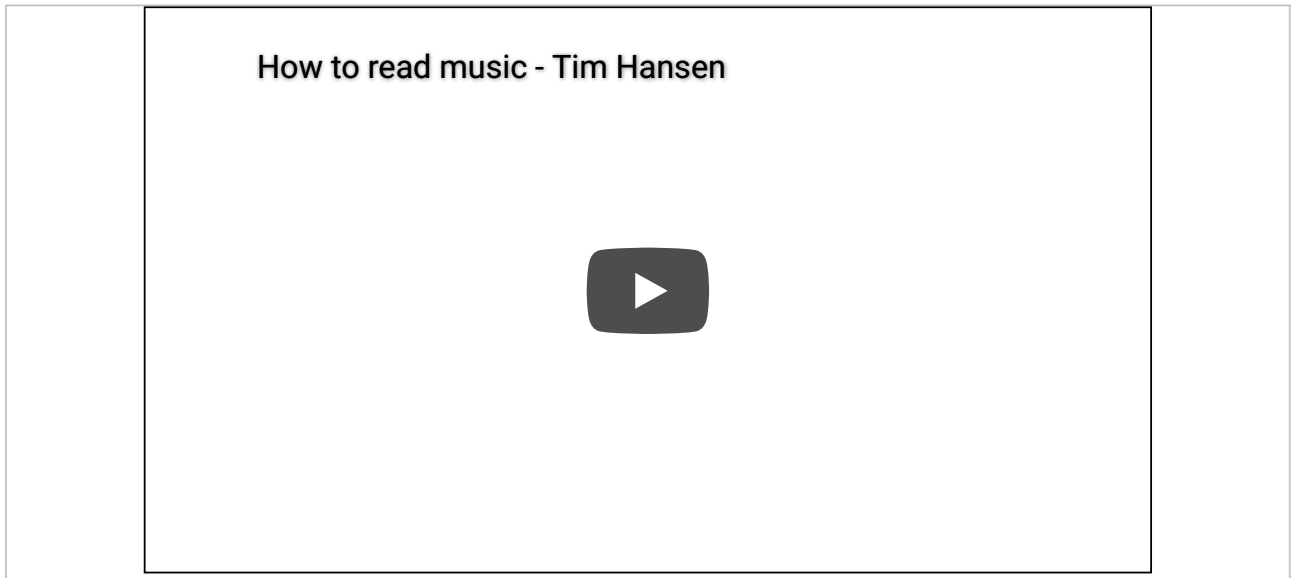
power law of practice



Source - Wikipedia

Video - Users and Skills

How to read music



'How to read music'

Source: TED-Ed - YouTube

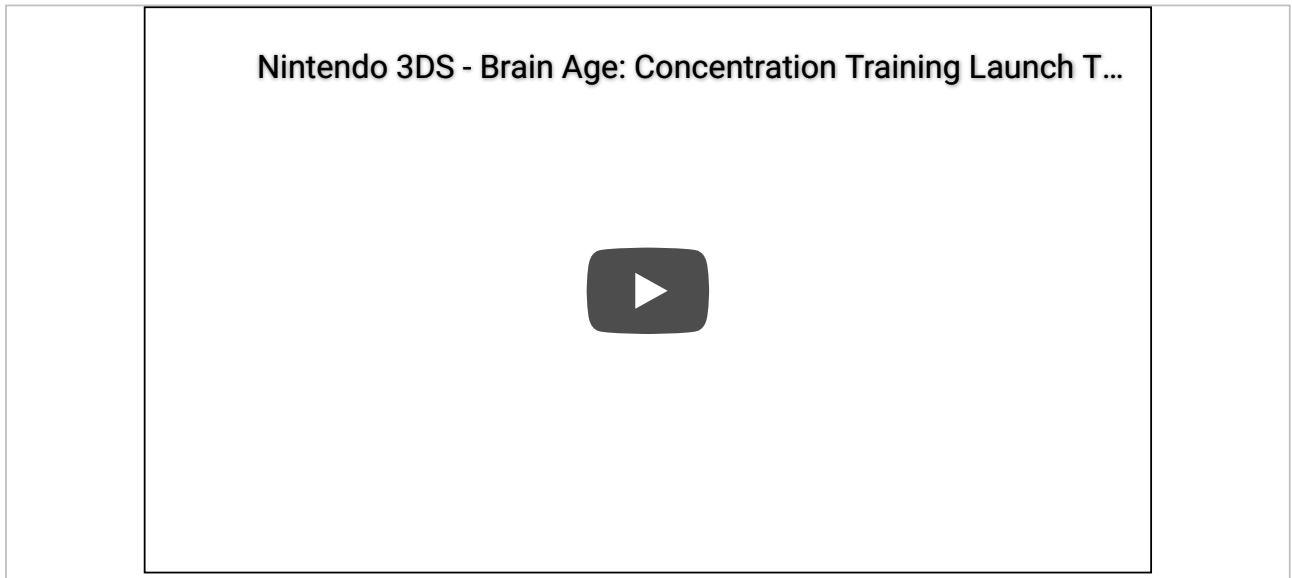
Users and Skills

gaining competence

- practice allows us to determine improvement relative to a given activity
- **four stages of competence** model suggested by Robinson in 1974
- this model suggests the following stages a user may follow to mastering a skill
 - ***unconscious incompetence***
 - user is unaware of how bad he or she may be relative to a particular skill
 - may even be unaware that the skill exists
 - ***conscious incompetence***
 - as user attempts a given skill, they become increasingly aware of a deficiency of skills
 - realise need to improve that skill through further training, learning, practice...
 - may be a daunting and overwhelming realisation for many users
 - ***conscious competence***
 - practice allows a user to engage in training sessions, exercises...
 - effectiveness of such training can vary greatly
 - often dependent upon task itself, suitability of chosen practice and training
 - ***unconscious competence***
 - complete a task without really thinking
 - act of working, completing an exercise has become natural to the user
 - do not really need to think about the given act...
- games are a good example of hands-on training and practice

Video - Users and Skills

Nintendo's Brain Age



Nintendo Brain Age: Concentration
Training

Source: YouTube

Principles for Usability

intro

- consider some of the underlying design principles that help guide our designs
- eg: Don Norman's design principles for usability
 - *Norman, D. The Design of Everyday Things. 1988.*
- Norman introduced a set of basic design principles and concepts
 - *consistency*
 - *visibility*
 - *affordance*
 - *mapping*
 - *feedback*
 - *constraints*

References

- Card, S.K., Moran, T.P. and Newell, A. *The psychology of human-computer interaction*. Lawrence Erlbaum Associates. 1983.
- Robinson, W.L. *Conscious competency - the mark of a competent instructor*. Personnel Journal, 53. PP. 538-9. 1974.
- Shackel, B. *Usability - context, framework, design, and evolution*. Human factors for informatics usability. Cambridge University Press. PP. 21-38. 1991.