

Usability Testing for e-Learning Applications

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eLearning Forum Asia 2016



Learning

Learning Management System (LMS)

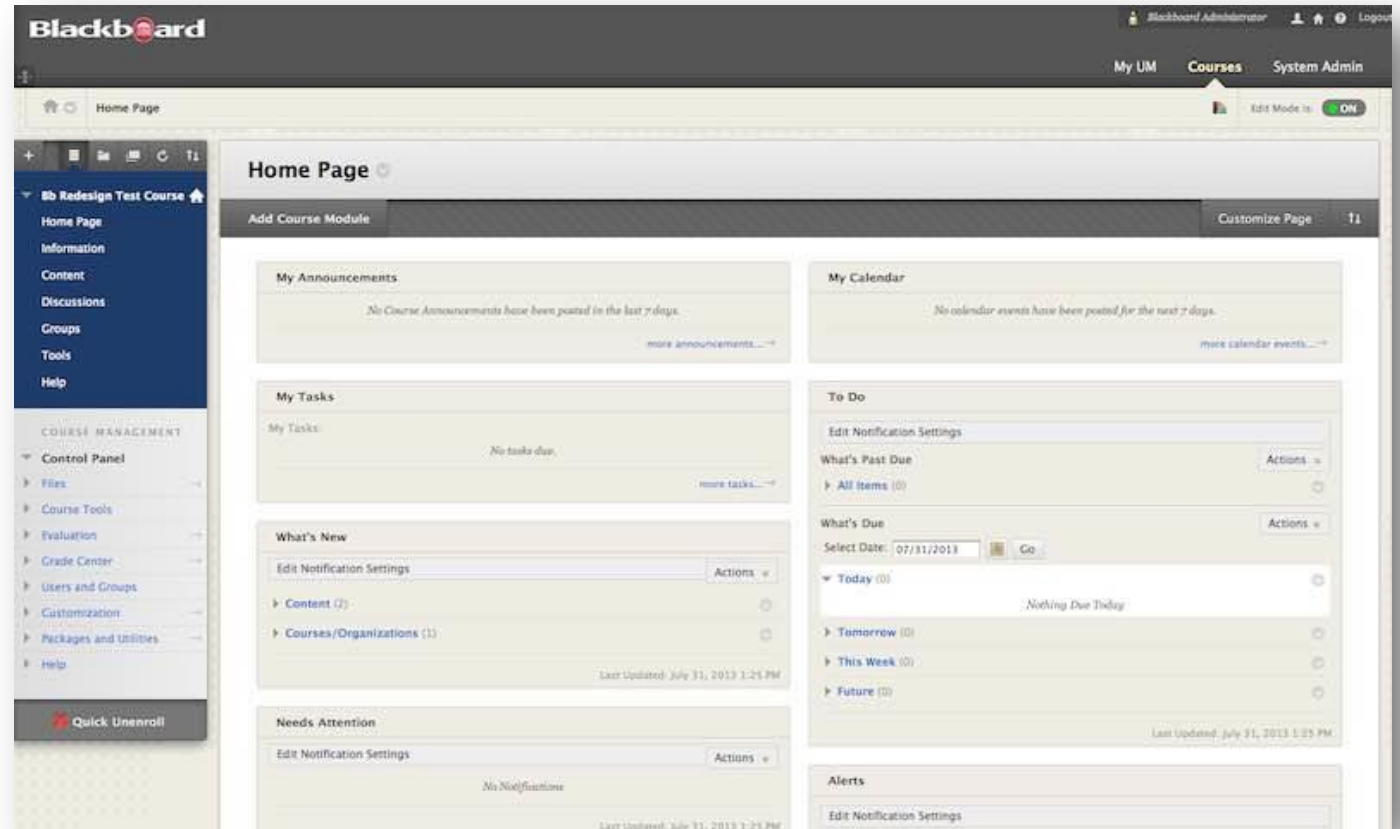
Mobile learning apps



Learning Management Systems



canvas



You become a web designer!

Mobile Learning Apps



Benefits of Good Usability

Business

- **Increased sales**
- **Reduced support costs**
- **Reduced development costs**

e-Learning

- **Increase repeated usage**
- **Reduced support costs**

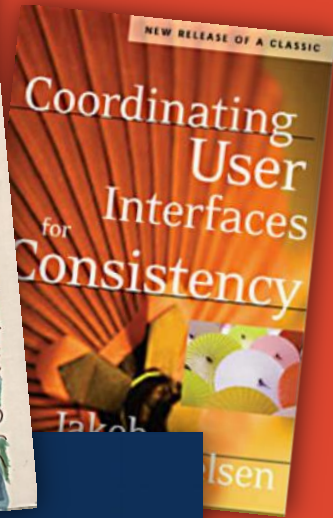
(Ehrlich and Rohn, 1990)

What is Usability?
可用性

“User-Friendly”

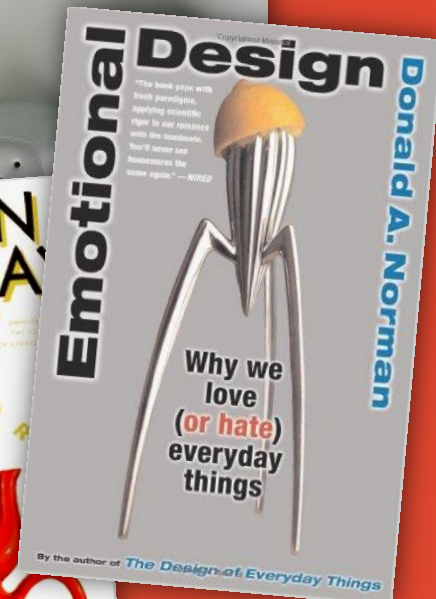
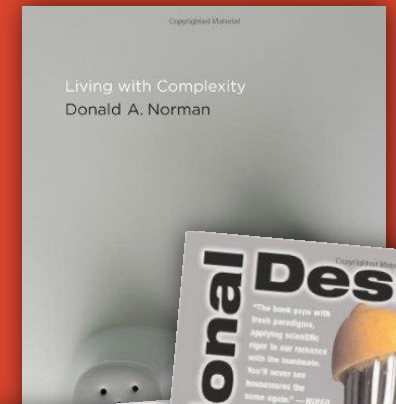
好用的 / 容易使用的 /
方便用戶的 / 人性化設計

Jakob Nielsen & Don Norman



Jakob Nielsen

Designing
Web Usability



Good Usability Defined

- Visibility of system status
 - Match between system and the real world
 - User control and freedom
 - Consistency and standards
 - Error prevention
 - Recognition rather than recall
 - Flexibility and efficiency of use
 - Aesthetic and minimalist design
 - Help users recognize, diagnose, and recover from errors
 - Help and documentation
- ...most of us are
NOT trained in design / HCI !

(Nielsen and Molich 1990)

How do I know
if my course site, mobile learning apps
are user-friendly (or not)?



User-friendly designs are transparent.

Bad designs are readily visible!



**Qualitative
& Observable**

Observe how your students use and
FAIL in using your course sites, apps, etc.



Usability Testing

(Affordable & DIY!)

Steps in Usability Testing

1. **Tasks Design**
2. **Recruitment**
3. **Conduct Testing**
4. **Reporting**

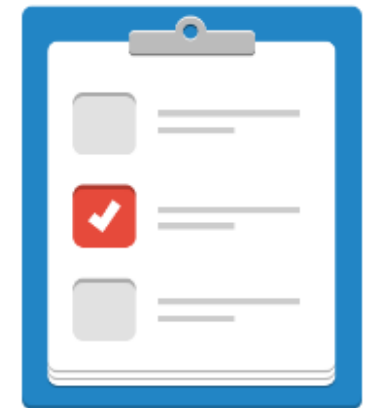


1. Tasks Design

“Find the date of the second final exam from the course website“

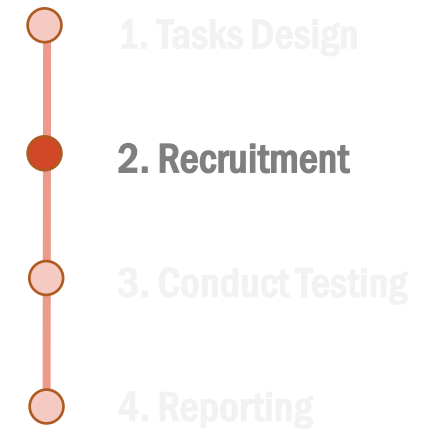
“Reply a message on the discussion forum for Assignment 2”

“Find the pronunciation of the word ‘Revolution’ in the mobile app”



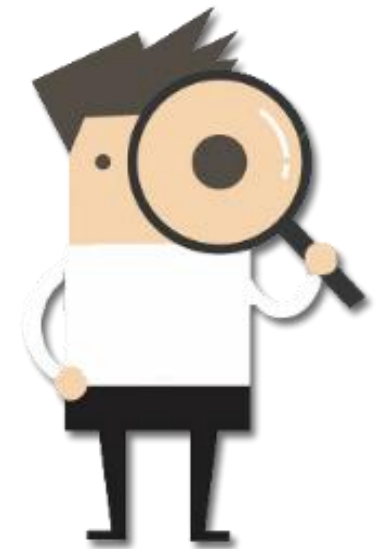
2. Recruit Students

- Representative users (age & background)
- Number of students: **5 to 6**
- Incentive: Cash or Starbucks coupons



3. Conduct Test

- A quiet room with computer / mobile device
- Two chairs
- Ask user to perform 5-6 tasks on the device
- ~30 minutes per user session
- *Example Task Video*



3. Conduct Test

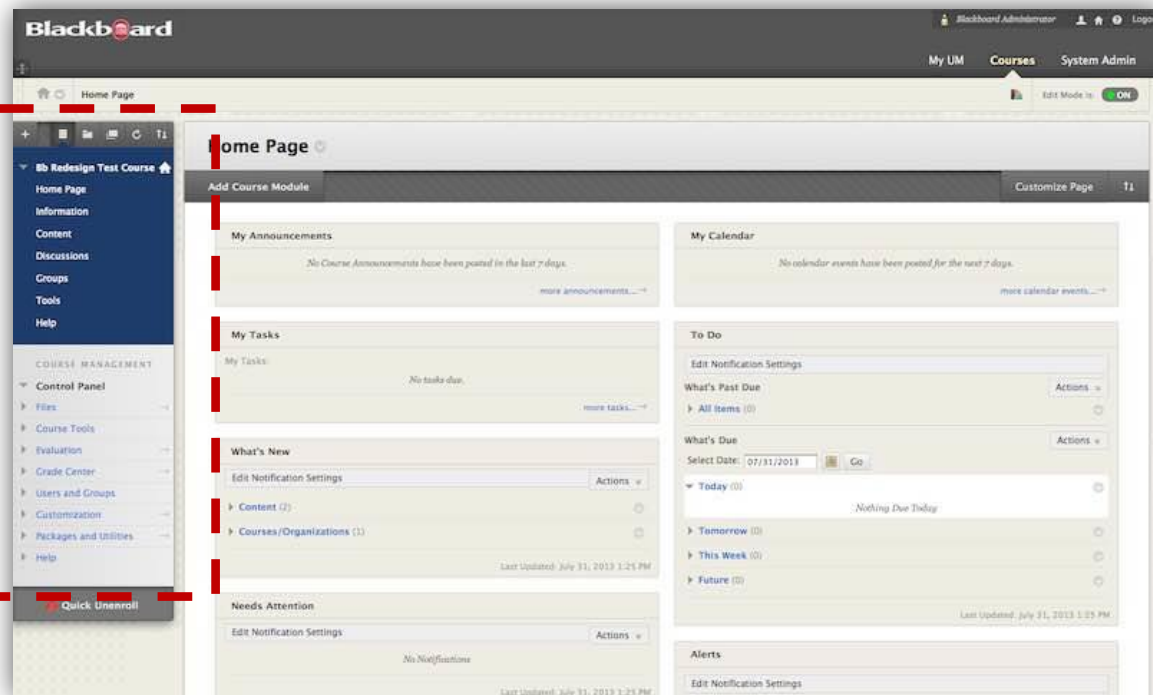
- Observe (and write down) issues
- Don't Answer and Don't Help at first sight!
- AFTER completing (or failing) a task, revisit elements and find out WHY they were not working



4. Reporting for Improvements

Example 1:

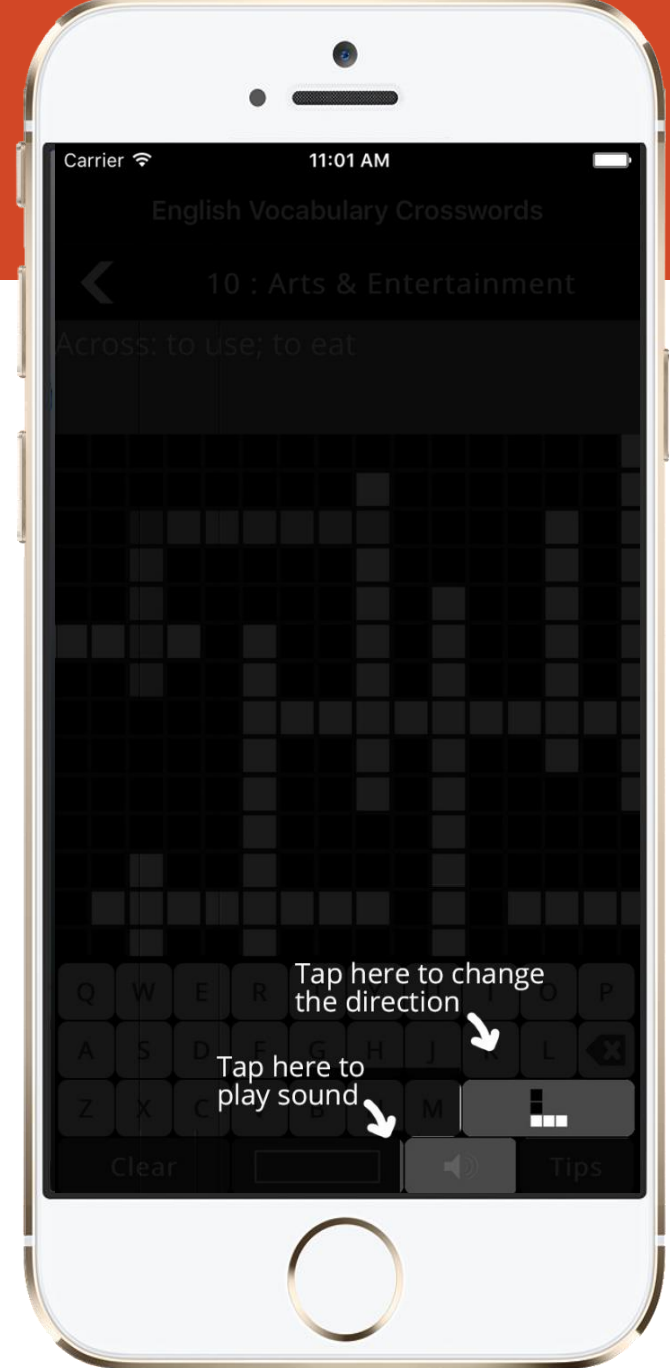
- Issue: 3 out of 5 students cannot find homework assignment #2 from navigation menu
- Severity: **HIGH**
- Improvements:
 - 1) Make the menu link more prominent (bold, larger font)
 - 2) Add a visible link to assignments on landing page



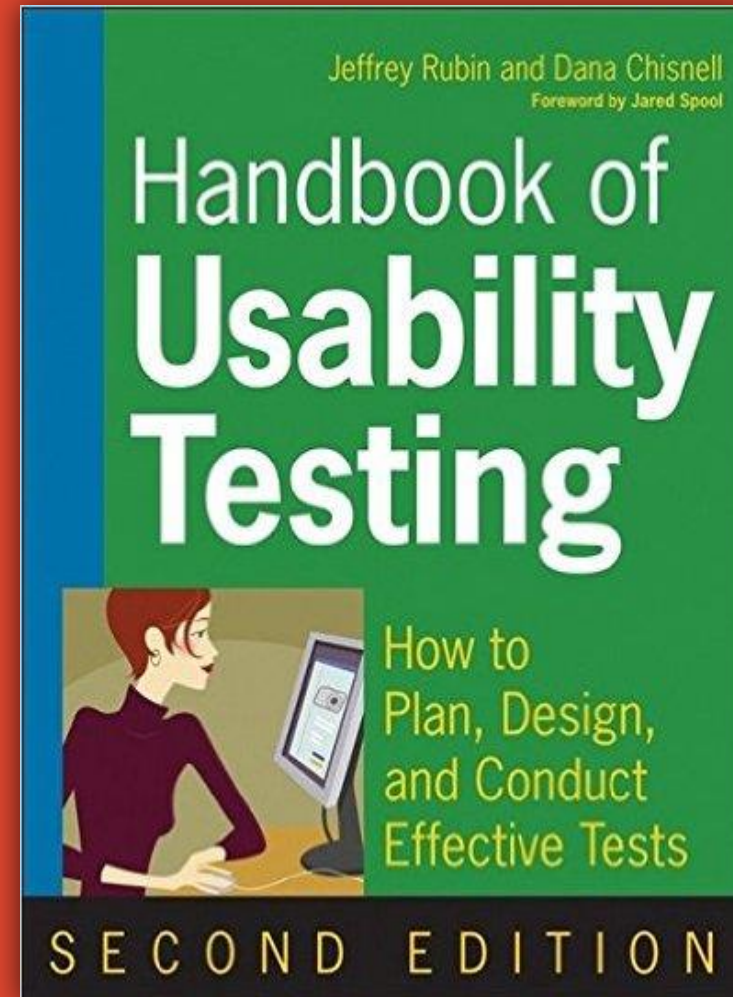
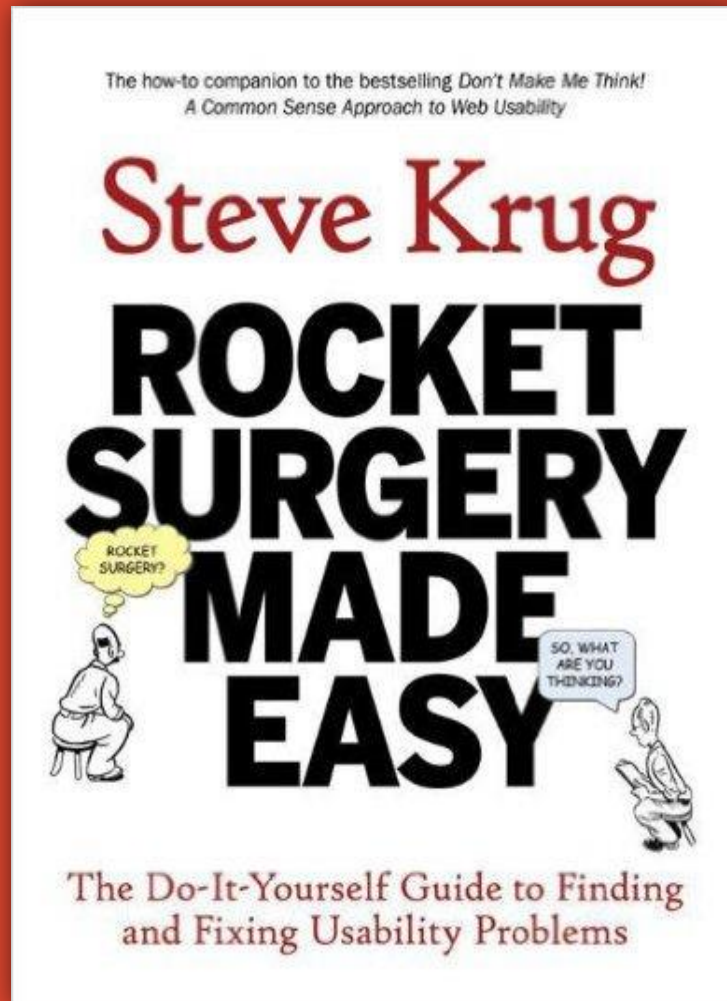
4. Reporting for Improvements

Example 2:

- **Issue**: 2 out of 5 users did not find the pronunciation button
- **Severity**: Moderate
- **Improvement**: Include on-screen help to prompt users



Suggested Readings



UXPA China (中国用户体验专业协会)



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User Friendly²⁰¹⁶

熔合

大用户体验之道

Melting Pot, Greater User eXperience

苏州 日航酒店 2016.11.17 - 2016.11.20

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References

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Molich, R., and Nielsen, J. (1990). Improving a human-computer dialogue, *Communications of the ACM* **33**, 3 (March), 338-348.

Nielsen, J., (2000). "Why You Only Need to Test with 5 Users", URL: <https://www.nngroup.com/articles/why-you-only-need-to-test-with-5-users/>

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Thank you!



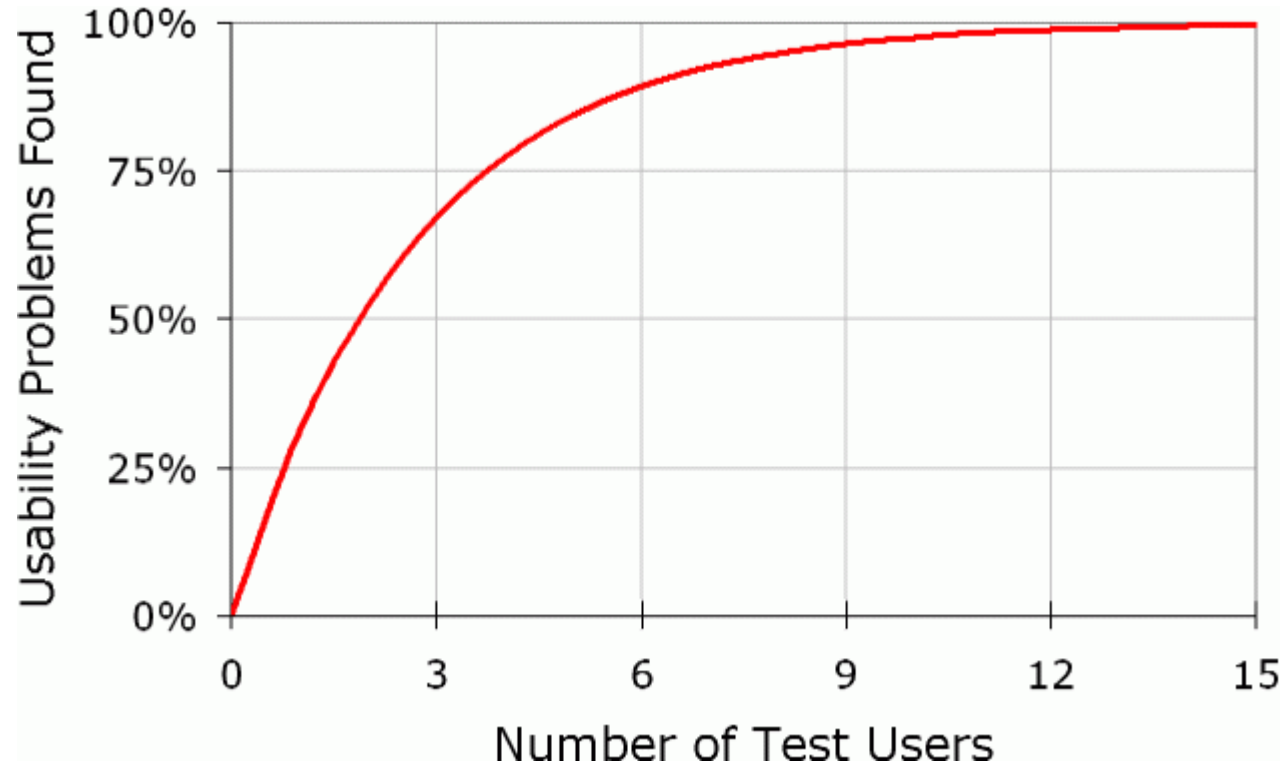
Design & planning usability test for
your course site, education software,
mobile apps, etc., contact:

choweric@hkbu.edu.hk

Usability Testing vs. UAT (User Acceptance Test)

- UAT - test if a product meets certain requirement (e.g. if output are correct, if user complete task or not)
- Usability Test – reveals **how** users complete task, and any space for design improvement

Number of Students to Test



Taken from Nielsen Norman Group website
(<https://www.nngroup.com/articles/why-you-only-need-to-test-with-5-users/>)

WIX / Weebly: creating teaching / learning portfolios

ABOUT ME ACADEMIC TRAINING OVERSEA LEARNING EXPERIENCE LOCAL LEARNING EXPERIENCE SCHOOL LIFE PERSONAL GOALS TRAVELLING BLOG

WELCOME TO MY E-PORTFOLIO

人生沒有白頭腦的旅行，唯有「邊學邊玩」，邊玩邊學那感覺。

Be Geography

A Little About Myself

Geographer & Traveler
Hello, I am happy to see that you are reading and exploring my life today.

I am Lau Yiu Cheung, an undergraduate student from Hong Kong Baptist University, studying Geography. I had a dream when I was in secondary school, my dream was to become a traveller. This is the main reason why I choose studying Geography in which provides many field trips and overseas learning experiences. To be honest, I love traveling and realize that the earth is mysterious so I want to visit every amazing place in the world. I have visited many countries like China, The USA, Taiwan during the past years. Now, I am a final year student and prepared for my job-seeking! I finally realized that if I want to do something excellence in my life, I should go where fantastic things are made in the world. You can click the button below to visit my FB.

LEARN MORE

Jolie's E-portfolio

ABOUT ME MY LEARNING EXPERIENCE OTHER GE EXPERIENCE REFLECTION

JOLIEJOLIEJOLIEJOLIE

Hello!
Welcome to my Eportfolio!
My name is JOLIE.

JOLIEJOLIEJOLIEJOLIE

1908

JOLIE stands for

- J- Joyful
I am happy all the time.
- O- Optimistic
I will never give up!
- L- Lively
I am a active person.
- I- Interesting
I always make others happy.
- E- Energetic
I love to play many kinds of sports.

YOUTH!

易玲GE小分享

October 19, 2015

A dip of May Forth Movement and Xinhai Revolution

October 19, 2015

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When to Test?

- **After production and BEFORE you release
(pre-semester break, summer)**

Jakob's 10 Usability Heuristics

Visibility of system status

The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

Match between system and the real world

The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

User control and freedom

Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

Consistency and standards

Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

Error prevention

Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.

Jakob's 10 Usability Heuristics

Recognition rather than recall

Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

Flexibility and efficiency of use

Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

Aesthetic and minimalist design

Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

Help users recognize, diagnose, and recover from errors

Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.

Help and documentation

Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

