



DUBLIN INSTITUTE OF TECHNOLOGY

BSc. (Honours) Degree in Computer Science

Year 2

SUMMER EXAMINATIONS 2014/2015

HUMAN COMPUTER INTERACTION [CMPU2008]

DR. ART SLOAN
DR. DEIRDRE LILLIS
MR. PAUL COLLINS

TUESDAY 12TH MAY 4.00 P.M. – 6.00 P.M.

TWO HOURS

ANSWER QUESTION (1) AND ANY TWO OTHER QUESTIONS

QUESTION (1), CARRIES **40** MARKS.
QUESTIONS (2), (3), AND (4) CARRY **30** MARKS EACH.

1. (a) The user is the most important entity of any interactive system.

- i. Compare and contrast the impact on design for Nondiscretionary and discretionary group of users. (6 marks)
- ii. Discuss three design guidelines for Physically Disabled group of users. (6 marks)

(b) Usability requires project management and careful attention to requirements analysis and testing for clearly defined objectives.

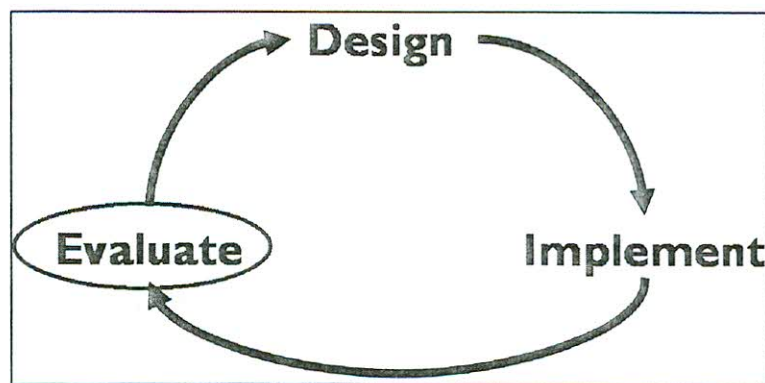


Figure 1: Usability engineering process

- i. Briefly describe the three human factors (usability measures) central to evaluation (6 marks)
- ii. Figure 1 above presents an iterative usability engineering process. Discuss four evaluation approaches used by developers. For each approach, give an example of an evaluation method you would use. (8 marks)

(c) Young children have very different needs to older users with regards to computer systems. Provide three guidelines for an interaction designer when designing for children prior to the age of 8. (6 marks)

(d) The manner in which we deploy our attention has a tremendous effect on how effectively we interact with a system. Discuss the cognitive process of attention, and provide guidelines for the best use of attention in an interface. (8 marks)

2. “Learners construct knowledge for themselves. Learning is an active process. Learning is a social activity”.

(a) What *learning theory* is this describing? (4 marks)

Provide **three** methods for implementing this theory in an interface. (9 marks)

(b) Describe the *behaviourist* learning theory, using examples to support your answer. (8 marks)

(c)

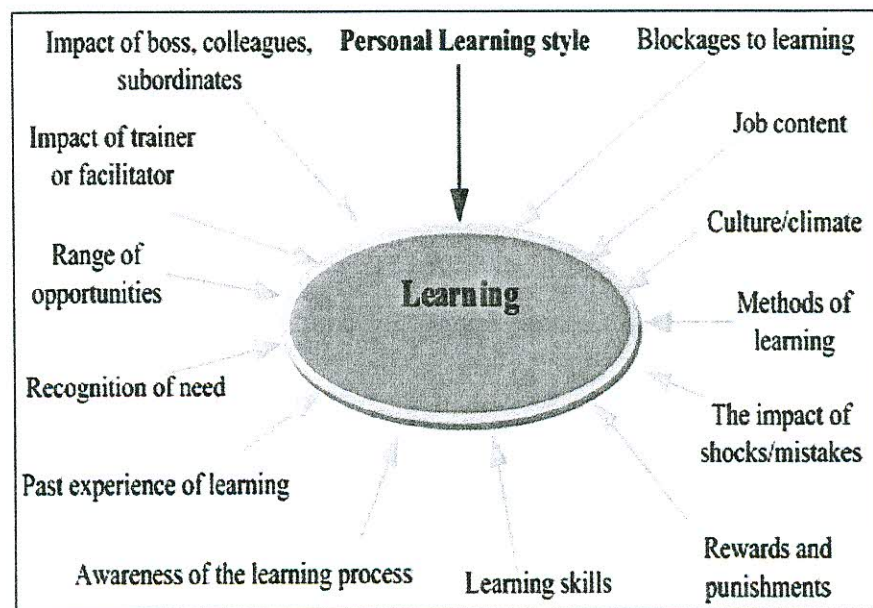


Figure 2: Factors that influence learning

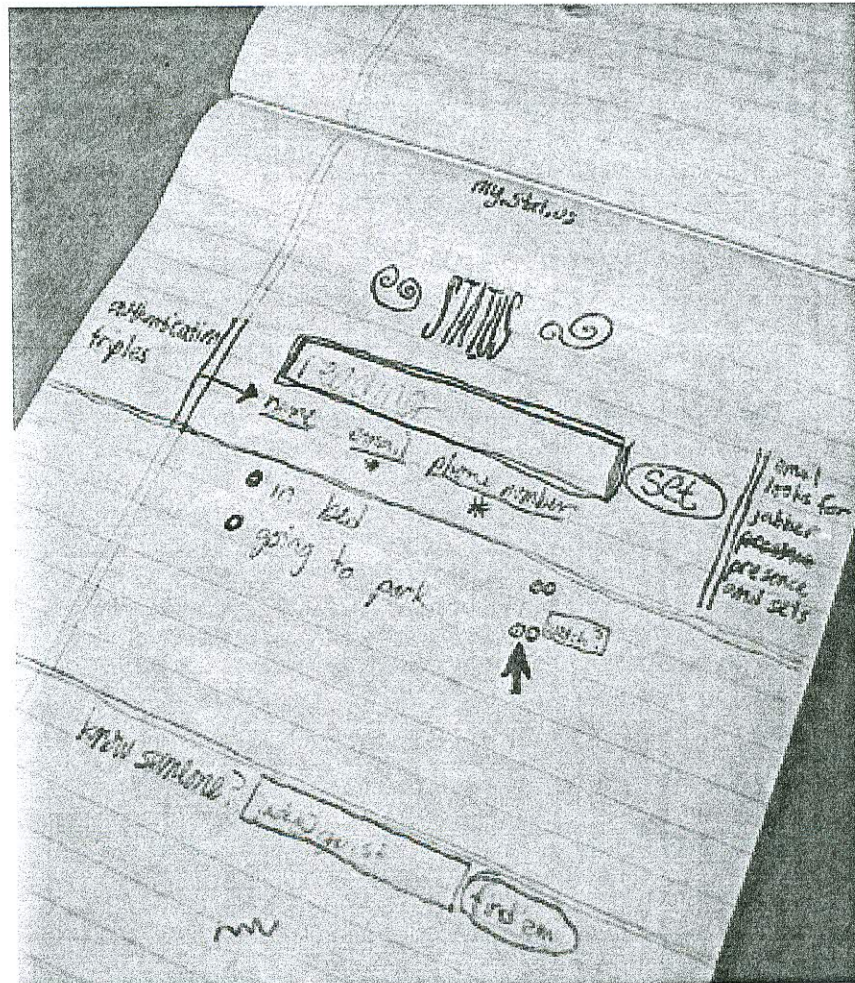
Figure 2 above present's examples of existing factors that influence learning.

(d) Discuss, giving examples the two main approaches that users use when learning new computer systems

(9 marks)

3. The original Apple marketing philosophy from 1977 was encompassed in the following principles:
- **Empathy:** strive for an intimate connection with the feelings of the customer.
 - **Focus:** eliminate all unimportant opportunities.
 - **Impute:** present your product in a creative professional manner.
- (a) What is the difference between *guidelines* and *principles* with regards to HCI. (6 marks)
- (b) Describe **five** of *Nielsen's heuristics*. (10 marks)
- (c) Discuss how Apple's principles are relevant to interface design. (9 marks)
- (d) Discuss whether the use of Nielsen's heuristics could help achieve Apple's marketing philosophy. (5 marks)

4.



- (a) This image is the original low fidelity prototype of **Twitter**. Describe *three* advantages to using a low fidelity prototype as a design tool. (6 marks)
- (b) Discuss the terms *horizontal prototype* and *vertical prototype* with regards to HCI. (8 marks)
- (c) What was the *purpose* of this Twitter prototype, and what *method* was used? (8 marks)
- (d) Compare and contrast the use of *production tools* vs. *prototyping tools*. (8 marks)