Module Specification

Cognition and Behaviour

Version: 2026-27, v3.0, 12 Feb 2024

Contents

Part 1: Information

Module title: Cognition and Behaviour

Module code: UFCE45-30-3

Level: Level 6

For implementation from: 2026-27

UWE credit rating: 30

ECTS credit rating: 15

College: College of Arts, Technology and Environment

School: CATE School of Computing and Creative Technologies

Partner institutions: University Centre Weston

Field: Computer Science and Creative Technologies

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Within this module you will explore how mental models can govern how humans interact with user interfaces, this is then furthered by identifying how mental representations inform the development of accurate mental models. In this unit, you will create representations of your users through cognitive psychological methods. User interfaces are designed to aid a user in their tasks, but many UI designs do not match mental models, to be able to develop for this we will also observe the errors and mistakes of users and how to address them; learned helplessness is a mental

state that users may develop to also hinder their usage of your interfaces, you will study the causes of this and gain insight into how to avoid such mental states.

Throughout the module you will look at models to describe how users interact with your interfaces and applications, such as the Goal Operation Method Selection model, and identify how to break user interaction into modellable actions.

Features: Not applicable

Educational aims: As this module aims to explore how humans behave and think, you will analyse, develop, and undertake in situ experiments and investigations on user behaviour. You will aim to predict user actions, in a given, context based on previous knowledge and identify how sociological factors may also influence user actions.

You will begin to develop analysis tools for insight into user knowledge and ability, while using knowledge on cognition to design systems that accommodate for distributed cognition. As with previous modules, you will use equity-focused design to ensure interfaces support all users; however, you will use the socio-psychological knowledge gained to assist in the resolution of societal issues through your systems.

Outline syllabus: Understand cognition in context

Mental Models

User Representations

Psychological research methods, both Qualitative and Quantitative

User errors, slips, and mistakes

Learned helplessness

Modelling user cognition

Equity-focused design

Societal issues

Part 3: Teaching and learning methods

Teaching and learning methods: This module will focus on users in a specific context at the beginning, leading to a focus on user-based labs, seminars, and lectures that look at viewing design methods through a psychological lens. After previous design methods have been reviewed, the lectures will transition to a focus on modelling the user while seminars will cover seminal works on cognition. In the latter part of the module, cognition and psychology will be analysed within a global context; this leads to labs transitioning from user-focused to an experimental focus, this will include recreating social and cognitive experiments as well as undertaking your own psychological research.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Critically evaluate arguments, assumptions, abstract concepts allowing you to make judgements and to frame appropriate questions to achieve a solution to problems that users are experiencing.

MO2 Creatively explore and devise a range of design solutions for specific user needs using a range of models to aid the development of interactive prototypes and user interfaces.

MO3 Articulate and communicate complex psychology-based information, concepts and ideas effectively and concisely.

MO4 Identify the preferences, motivations, strengths and limitations of users and apply these insights in order to design effective user interfaces.

MO5 Select, formulate and apply qualitative and quantitative user research methods from the fields of Human Computer Interaction (HCI), sociology, psychology and ethnography.

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 204 hours

Face-to-face learning = 96 hours

Total = 300

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://rl.talis.com/3/uwe/lists/68F4CB50-F468-F12E-B0A5-368C68F585C9.html?lang=en-GB&login=1

Part 4: Assessment

Assessment strategy: The first assessment allows you to use your psychological knowledge to construct lab tests and collate useable HCI analytics on an existing user interface, using socio-psychological factors to verify changes; this will allow for in-depth analysis of users to identify the psychological models they use to interact with existing systems, enabling identification of errors caused by mismatching of the user model and the interface model to construct a hypotheses and recommend improvements.

In the second assessment you will prototype changes based upon your hypotheses and apply psychological theories within digital UX and conduct further laboratory data analysis to assess the effectiveness of your recommendations.

The resit assessment follows the same format as the first sit.

Assessment tasks:

Project (First Sit)
Description: Based upon the testing and data analytics used to construct your hypothesis you will create a functional prototype and conduct further lab based analytics to observe user interaction, allowing you to verify and validate the proposed mental and interaction models for users of the system and compare your results to your initial findings to validate your predictions and effectiveness of the

improvements made.

You will evaluate your findings, comparing datasets constructed from your primary user testing to devise and sustain argument for the effectiveness and accuracy of your hypotheses, further performance gains and the quality of the primary research undertaken.
Weighting: 60 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO2, MO3, MO4

Laboratory Report (First Sit)
Description: Using appropriate data gathering/User Interaction analytics you will conduct user interaction testing to evaluate and comment on the performance of existing system which you can effectively survey the user-base to define the mental models which users utilise when interacting with the system.

Your analysis should identify common user errors, slips, and mistakes that have been developed from the system's interfaces to construct a hypothesis. The experiment should aim to show insight into how a psychological theory can be applied to technical solutions. You may replicate seminal research within the context of computing, such as the Stanford Marshmallow Experiment, or aim to produce a new experiment to test one of the psychological heuristics within the context of HCI (2000 words).
Weighting: 40 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO5

Project (Resit)
Description: Based upon the testing and data analytics used to construct your hypothesis you will create a functional prototype and conduct further lab based analytics to observe user interaction, allowing you to verify and validate the proposed mental and interaction models for users of the system and compare your results to

your initial findings to validate your predictions and effectiveness of the improvements made.

You will evaluate your findings, comparing datasets constructed from your primary user testing to devise and sustain argument for the effectiveness and accuracy of your hypotheses, further performance gains and the quality of the primary research undertaken.
Weighting: 60 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO2, MO3, MO4

Laboratory Report (Resit)
Description: Using appropriate data gathering/User Interaction analytics you will conduct user interaction testing to evaluate and comment on the performance of existing system which you can effectively survey the user-base to define the mental models which users utilise when interacting with the system.

Your analysis should identify common user errors, slips, and mistakes that have been developed from the system's interfaces to construct a hypothesis. The experiment should aim to show insight into how a psychological theory can be applied to technical solutions. You may replicate seminal research within the context of computing, such as the Stanford Marshmallow Experiment, or aim to produce a new experiment to test one of the psychological heuristics within the context of HCI (2000 words).
Weighting: 40 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO5

Part 5: Contributes towards

This module contributes towards the following programmes of study: