

THE USE OF A STUDENT MODEL IN A MULTIMEDIA APPLICATION TO CONFIGURE LEARNING

TREVOR BARKER

A thesis submitted in partial fulfilment of the requirements of the
University of Hertfordshire for the degree of

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The programme of research was carried out in the Department of Computer Science,
University of Hertfordshire

August 1999

To the memory of my parents
Alfred and Nellie Barker
and to my brothers
Tony and Graham Barker

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List of Publications and Presentations

- 1 **The creation of task-based differentiated learning materials for students with learning difficulties and/or disabilities.**
Trevor Barker, Sara Jones, Carol Britton and David Messer
Proceedings of CAL97, University of Exeter, March 1997.

- 2 **Evaluation of Horizon Multimedia Learning Materials for Students with Learning Difficulties and Disabilities**
Trevor Barker, Sara Jones, Carol Britton and David Messer
Presented at ALTC-97 University of Wolverhampton,
September, 1997

- 3 **Creating Horizon multimedia learning applications to support students with learning difficulties and disabilities.**
Trevor Barker
Proceedings of EURO EDUCATION 98 Conference, Aalborg Denmark,
May 1998

- 4 **Investigation into the effect of Language on Performance in a Multimedia Food Studies Application.**
Trevor Barker, Sara Jones, Carol Britton and David Messer
To be presented at Interact 99, Edinburgh, September 1999

- 5 **Report of a pilot study of an individually configurable multimedia learning prototype based on a co-operative student model of learner characteristics.**
Trevor Barker, Sara Jones, Carol Britton and David Messer
To be presented at ALT-C99, September 1999

Table of Abbreviations

AI	Artificial Intelligence
ALBSU	Adult Literacy and Basic Skills Unit
ANOVA	Analysis of Variance
CAI	Computer-Assisted Instruction
CAL	Computer-Assisted Learning
CAM	Cognitive Apprenticeship Model
CBI	Computer-Based Instruction
CBL	Computer-Based Learning
CBT	Computer-Based Training
CD-ROM	Compact Disk-Read Only Memory
CF	Cognitive Flexibility
CML	Computer-Managed Learning
CSA	Cognitive Styles Analysis
CSCW	Computer-Supported Co-operative (or Collaborative) Work
DL	Discussion-Level
EB	Electronic Book
EPSS	Electronic Performance Support Systems
FE	Further Education
FEDA	Further Education Development Agency
FEFC	Further Education Funding Council
GCSE	General Certificate of Secondary Education
GNVQ	General National Vocational Qualification
HE	Higher Education
HEFC	Higher Education Funding Council
HND	Higher National Diploma
IBM	International Business Machines
ICT	Information and Communications Technology
IES	Intelligent Educational System
ILT	Information and Learning Technology
IT	Information Technology
ITS	Intelligent Tutoring System
LD&D	Learning Difficulties and/or Disability
LSI	Learning Styles Inventory
NCET	National Council for Educational Technology
NILTA	National Information and Learning Technologies Association
NVQ	National Vocational Qualifications
PC	Personal Computer
PI	Programmed Instruction
PIP	Perspectives Interaction Paradigm
PL	Programmed Learning
PLATO	Programmed Logic for Automated Teaching Operations
SIM	Styles Initiating Module

SMOG ¹	Standard Measure of Gobble-de-gook
S-R	Stimulus-Response
TICCIT	Time-shared Interactive Computer Controlled Information Television
TL	Task-Level
TLTP	Teaching and Learning Technology Programme
VI	Verbaliser-Imager
WA	Wholist-Analyst
WAVI	Wholist-Analyst/Verbaliser-Imager

¹ Personal communication from the Basic Skills Agency, London.