

Errol Thompson PhD

Telephone +44 121 2438146

Mobile: +44 7951 213782

email: kiwiet@acm.org

*An experienced **computing educator** and **software engineer** who is passionate about continual learning, doing, and teaching. Committed to delivering courses and software to verifiable requirements. A strong advocate of building conceptual understanding that has a practical application. Teaching is grounded with wide experience in the computing industry and a sound knowledge of educational principles. Fully conversant with course design and assessment principles based on cognitive hierarchies, analysis of the space of learning, and using variations to outline space of learning. Fully conversant with the latest software development principles from requirements through to ongoing support of the code base. Committed to utilising abilities, conceptual understanding, and skills for the benefit of an organisation and to encourage others to utilise their abilities and skills.*

EMPLOYMENT HISTORY

- 2009-2011 School of Computer Science, University of Birmingham
Sep - Jun **Teaching Instructor** teaching of programming concepts
- Lead the teaching of First Year Software Workshop (introductory programming) and Team Java project courses
 - delivered lectures on using Java for introductory programming, XML processing, graphics, AJAX programming,, JSP/Servlets, and threads.
 - wrote assessments
 - lead tutorial groups
 - tutored in the use of Hibernate, Spring, Acegi, and Wicket.
 - Supervising MSc, final year, individual study projects
- 2009 - 2009 CDSM Interactive Solutions through Parasol Ltd and Roc Search
Aug - Aug **Contract Flex Developer** involved in the development a visual message board.
- Developed code using test-driven development techniques and a mocking framework that implemented a model-view-presenter framework.
 - Utilised Adobe Flex SDK3, FlexUnit, and Mock4As
 - Contract terminated when CDSM's client withdrew funding
- 2008 - 2009 Telecom New Zealand International through Hudson Global Resources (NZ) Ltd
Nov - June **Contract Flex Developer and Architect** involved in the development of software for the management of routing optimiser logic for voice calls and advised on the architecture for Flex code implementation based on model-view-presenter (MVP) principles
- Wrote user interface code using Adobe Flex (Actionscript and MXML) to build a rich Internet application (RIA) front-end talking to a Swing / Java / Hibernate middle tier running under JBoss application server, back end database was Oracle
 - Designed and built own UI components for multiple selection and tree selection in a combobox
 - Implemented Maven build script for Adobe Flex
 - Utilised FlexUnit for programmer tests
 - Migrated from Adobe Flex SDK 2 code to Adobe Flex SDK 3
 - Evaluated model-view-controller (MVC) frameworks for Adobe Flex (Cairngorm, PureMVC)
 - Evaluated and implemented test suites in testing frameworks (FlexUnit, Fluint, FUnit, Fluxunit)
 - Worked with Subject Matter Experts (SMEs) to write use cases for some of the functionality
 - Used FlexBuilder (Eclipse based), Maven, JBoss, Subversion, Beyond Compare
- 1999 - 2007 Massey University in Wellington (previously Wellington Polytechnic)

Mar - Dec **Lecturer in Department of Information Systems** teaching object-oriented programming and design concepts and development of web-based applications and conducting educational research into programming related topics.

- Taught a range of project management strategies including SDLC based approaches, agile (XP), and theory of constraints
- Subjects taught utilised UML, Java, C#, VB.NET, XML, XSLT, NUnit, JUnit, design patterns, Borland's JBuilder, Visual Studio, XMLSpy, Oxygen XML Editor, and MySQL.
- Member of the Program Management Committee for the Bachelor of Information Science programme
- Focus of the teaching was on understanding concepts and how they are implemented to provide practical solutions
- Where practical utilised real world scenarios as both learning and assessment exercises
- Conducted research as described in research projects.

1991-1999 Taught at tertiary level in Information Systems, Business Computing and Computer Science
1977-1978 (The Open Polytechnic of New Zealand, Unitec Institute of Technology, University of
1973-1974 Canterbury)

1975-1976 Employed in the IT related industry as:

- 1979-1990 • Information Systems Manager (Bible College of NZ)
- 1993-1996 • Account manager (Centron Corporation)
- Team Leader (Centron Corporation)
- Consultant and Trainer (Centron Corporation)
- Analyst Programmer (IDAPS Computer Science, Fisher and Paykel, Challenge Computers, Centron Corporation)
- Technical Support (Centron Corporation)
- Systems Programmer (Canterbury Savings Bank, IDAPS Computer Science)

A more detailed description of previous employment history is in appendix 7.

QUALIFICATIONS

2009 **PhD** (Education, Computer Science), Massey University, NZ
1980 **Masters of Science** (Computer Science), University of Canterbury, Christchurch, NZ
1975 **Bachelor of Science** (Computer Science), University of Canterbury, Christchurch, NZ
1999 **Certificate on Online Education and Training**, Institute of Education, University of London

OTHER STUDY

Research Methods, The Open Polytechnic of New Zealand
1997 Research Methods and Interpretation

Adult Education, Carrington Polytechnic

1991 Tutor preparation and Presentation Skills, Student-Centred Methods
1992 Assessing Student Achievement, Experiential Learning Strategies

Theology, New Zealand Baptist Theological College

1985 Early Church History, Old Testament I
1986 Pastoral Care

PROJECTS

See Appendix 4

PUBLICATIONS

See Appendix 1

PUBLICATIONS REVIEWED

See Appendix 2

PROFESSIONAL SOCIETY MEMBERSHIP

- Association of Computing Machinery (1974-1983, 1986-Current)
- IEEE Computer Society (2000-Current)
- European Association for Research on Learning and Instruction (EARLI) (2008-Current)
- New Zealand Computer Society (1974-1988, 1997-2009) MNZCS (1986-1988, 2002-2009)

VOLUNTARY WORK

- British Cycling Road and Track Commissaire (2010-Current)
- BikeNZ Track and Road Commissaire (2005-Current)
Officiated at:
 - International Road and Track events
 - Regional Road and Track events
 - Club Road and Track events
- Served on committees for cycling club
- Massey Wellington Chaplaincy Board (August 2006 – June 2007) Secretary (October 2006 – June 2007)
- Served in various capacities with different Christian groups including as:
 - Church Secretary
 - Deacon
 - Youth Group Leader

PERSONAL INTERESTS

- Landscape, wildlife, and spherical photography
- Cycling
- Genealogy

Appendix 1: PUBLICATIONS

Book

Thompson, E. (2011). *How do practitioners understand? Practitioner perceptions of an object-oriented programming*. Saarbrücken, Germany: VDM Verlag Dr. Müller GmbH KG.

Book chapters

Thompson, E. (2003). Giving a context to learning. In E. Errington (Ed.), *Developing Scenario-based Learning: Practical insights for tertiary teachers* (pp. 74-82). Palmerston North: Dunmore Press. ISBN: 0-86469-443-1

PhD Thesis

Thompson, E. (2008). *How do they understand? Practitioner perceptions of an object-oriented program*. Dissertation, Massey University, Palmerston North. Available from: <http://www.teach.thompsonz.net/Research.html>

Journal articles

Clear, T., Lister, R., Simon, Bouvier, D., Carter, P., Eckerdal, A., Jacková, J., Lopez, M., McCartney, R., Robbins, P., Seppälä, O., & Thompson, E. (2009). Naturally occurring data as research instrument: Analyzing examination responses to study the novice programmer. *Inroads - The SIGCSE Bulletin*.

Fuller, U., Johnson, C. G., Ahoniemi, T., Cukieman, D., Hernán-Losada, I., Jackova, J., et al. (2007). Developing a Computer Science-specific Learning Taxonomy. *Inroads - The SIGCSE Bulletin*, 39(4), 152-170.

Refereed Conference Papers

Whalley, J., Clear, T., Robbins, P., & Thompson, E. (2011). *Salient elements in novice solutions to code writing problems*. Paper presented at the 13th Australasian Computing Education Conference (ACE 2011), Perth, Australia.

Thompson, E. (2010). *Using the Principles of Variation to Create Code Writing Problem Sets* Paper presented at the 11th Annual Conference of The Higher Education Academy - Information and Computer Sciences, Durham University.

Thompson, E. (2010) From Phenomenography Study to Planning Teaching. *Proceedings of the 15th annual conference on Innovation and technology in computer science education*. Bilkent, Ankara, Turkey. ACM.

Sheard, J., Carbone, A., Lister, R., Simon, B., Thompson, E., & Whalley, J. L. (2008). Going SOLO to assess novice programmers, *Proceedings of the 13th annual conference on Innovation and technology in computer science education*. Madrid, Spain: ACM.

Clear, T., Whalley, J., Lister, R., Carbone, A., Hü, M., Sheard, J., et al. (2008). Reliably classifying novice programmer exam responses using the SOLO taxonomy. In S. Mann & M. Lopez (Eds.), *21st Annual conference of the National Advisory Committee on Computing Qualifications (NACCQ 2008)*. Auckland: NACCQ.

Simon, Sheard, J., Carbone, A., de Raadt, M., Hamilton, M., Lister, R., et al. (2008). Eight years of computing education papers at NACCQ. In S. Mann & M. Lopez (Eds.), *21st Annual conference of the National Advisory Committee on Computing Qualifications (NACCQ 2008)*. Auckland: NACCQ.

Thompson, E., Luxton-Reilly, A., Whalley, J., Hu, M., & Robbins, P. (2008). Bloom's Taxonomy for CS assessment. In Simon & M. Hamilton (Eds.), *Tenth Australasian Computing Education Conference (ACE 2008)* (Vol. 78, pp. 155-162). Wollongong, NSW, Australia: ACS. From <http://crpit.com/confpapers/CRPITV78Thompson.pdf>

Clear, T., Edwards, J., Lister, R., Simon, B., Thompson, E., & Whalley, J. (2008). The teaching of novice computer programmers: bringing the scholarly-research approach to Australia. In Simon & M. Hamilton (Eds.), *Tenth Australasian Computing Education Conference (ACE 2008)* (Vol. 78, pp. 63-68). Wollongong, NSW, Australia: ACS. From <http://crpit.com/confpapers/CRPITV78Clear.pdf>

Suhonen, J., Thompson, E., Davies, J., & Kinshuk. (2007). Applications of variation theory in teaching programming. In R. Lister & Simon (Eds.), *Seventh Baltic Sea Conference on Computing Education Research (Koli Calling 2007)* (Vol. 88). Koli National Park, Finland: Australian Computer Society, Inc.

- Thompson, E. (2007) Holistic assessment criteria - Applying SOLO to programming projects. In Mann, S. & Simon (Eds.) *Proceedings of the Ninth Australasian Computing Education Conference (ACE2007)*. Ballarat, Victoria, Australia, Australian Computer Society Inc.
- Thompson, E., Whalley, J., Lister, R. & Simon, B. (2006) Code Classification as a Learning and Assessment Exercise for Novice Programmers. *The 19th Annual Conference of the National Advisory Committee on Computing Qualifications: Preparing for the Future — Capitalising on IT*. Wellington. ISSN 1176-8082. (Received Citrus Award for Collaborate Research and highly commended in Best Paper Award)
- Lister, R., Simon, B., Thompson, E., Whalley, J. & Prasad, C. (2006) Not seeing the forest for the trees: Novice programmers and the SOLO taxonomy. *Innovation and Technology in Computer Science Education (ITICSE 2006)*. Bolonga, Italy.
- Thompson, E. (2006). Using a subject area model as a learning improvement model. In D. Tolhurst & S. Mann (Eds.), *Eighth Australasian Computing Education Conference (ACE2006)* (Vol. 52, pp. 197-203). Hobart, Tasmania, Australia: Australian Computer Society Inc. ISBN: 1-920-68234-1, ISSN: 1445-1336
- Thompson, E., Hunt, L. M., & Kinshuk. (2006). Exploring learner conceptions of programming. In D. Tolhurst & S. Mann (Eds.), *Eighth Australasian Computing Education Conference (ACE2006)* (Vol. 52, pp. 205-211). Hobart, Tasmania, Australia: Australian Computer Society Inc. ISBN: 1-920-68234-1, ISSN: 1445-1336
- Whalley, J., Lister, R., Thompson, E., Clear, T., Robbins, P., Kumar, A., et al. (2006). An Australasian study of reading and comprehension skills in novice programmers, using the Bloom and SOLO taxonomies. In D. Tolhurst & S. Mann (Eds.), *Eighth Australasian Computing Education Conference (ACE2006)* (Vol. 52, pp. 243-252). Hobart, Tasmania, Australia: Australian Computer Society Inc. ISBN: 1-920-68234-1, ISSN: 1445-1336
- Thompson, E. (2004) Does the sum of the parts equal the whole? Mann, S. and Clear, T., (Eds.) *Proceedings of the seventeenth annual conference of the National Advisory Committee on Computing Qualifications*. pp 440-445. Hamilton, New Zealand: National Advisory Committee on Computing Qualifications. ISBN: 0-476-00726-7
- Thompson, Errol (2003) Teaching to Foster Implicit Knowledge. *Information Systems Education Conference ISECON 2003*. San Diego, CA. ISSN: 1542-7382. Also published as Thompson, E. (2003) Teaching to foster implicit knowledge. *Information Systems Education Journal* 1 (2), 3-10. <http://isedj.org/1/2/> ISSN: 1545-679X.
- Thompson, Errol (1998) Delivering education that satisfies industry. *Collaborate '98: 11th Annual Conference*. Auckland National Advisory Committee on Computing Qualifications.

Unrefereed Conference Presentations

- Thompson, E. (2009). *Phenomenography Study to Planning Teaching*. Paper presented at the First Swedish Research Link Symposium on Variation Theory and Learning Study.
- Thompson, E. (2006). *Conceptual frameworks for object-orientation* [Research report - oral presentation]. OOPSLA 2006 Educators' Symposium, Portland, OR.
- Thompson, E. (2005). Improving learning in object-oriented software development, *Phenomenography Interest Group Symposium*. University of Sydney, Sydney.

Posters

- Thompson, E. (2006) Why is writing an object-oriented program so difficult? (Poster) *OOPSLA 2006 Educators' Symposium*, Portland, OR.
- Thompson, E. (2000). Learning process maturity. *ITICSE 2000*, Helsinki, Finland: ACM.

Unrefereed Papers

- Thompson, E (2005) With whom do we liaise? The role of the industry liaison committee. *Association for Computing Machinery New Zealand Bulletin*. 1. ISSN: 1176-9998. <http://is-alt.massey.ac.nz/acmnz/bulletin/issue1/>
- Hutton, J Lynley and Thompson, Errol (1998) *Using the Internet Today: The Open Polytechnic of New Zealand*. TUANZ AGM. Wellington

Technical Reports

- Thompson, E. (2004). Towards a learning process maturity model. In C. Freyberg, S. Hartmann, R. Kaschek, Kinshuk, K.-D. Schewe & J. M. Turull Torres (Eds.), *PhD Workshop 2004* (Technical Report No. 9/2004, pp. 8-16). Palmerston North: Department of Information Systems, Massey University. ISSN: 1175-1738

Thompson, E. (2004) *Design issues for a scenario-based learning environment*. (Technical Report No. 4/2004), Palmerston North: Department of Information Systems, Massey University. ISSN: 1175-1738

Thompson, E. (2003). Thinking in programming. In R. Kaschek, Kinshuk, K.-D. Schewe & J. M. Turull Torres (Eds.), *PhD Workshop Communications* (Technical Report No. 6/2003). Palmerston North: Department of Information Systems, Massey University. ISSN: 1175-1738

Course Materials

Thompson, E. (2006) *157.131 Programming Principles (Extramural)*, Wellington, Massey University

Thompson, E. (1997) *71253 Systems Design and Development*, Lower Hutt, The Open Polytechnic of New Zealand.

Thompson, Errol. (1992) *CBC-PP100 programming principles workbook*, Auckland, Carrington Polytechnic.

Appendix 2: PUBLICATIONS REVIEWED

Technology for Education (T4E 2011) (3 papers) (Reviewed April 2011)
IEEE Transactions on Education (1 paper) (Reviewed March 2011)
Innovation and Technology in Computer Science Education, (ITiCSE 2011) (4 papers) (Reviewed February 2011)
Handbook of Research on Improving Learning and Motivation through Educational Games: Multidisciplinary Approaches (2 chapters) (Reviewed February 2010)
Innovation and Technology in Computer Science Education, (ITiCSE 2010) (3 papers) (Reviewed January 2010)
IEEE Transactions on Education (1 paper) (Reviewed October 2009)
IEEE Transactions on Education (1 paper) (Reviewed July 2009)
IEEE Computer (1 paper) (Reviewed September 2008)
Journal of Computer Science Education – Special issue on testing and debugging (1 paper) (Reviewed October 2007)
Innovation and Technology in Computer Science Education, (ITiCSE 2007) (2 papers) (Reviewed February 2007)
Technical Symposium on Computer Science Education (SIGCSE 2007) (3 papers) (Reviewed September 2006)
Informing Science Journal (1 paper)(Reviewed August 2006)
Journal of Information Technology Education (1 paper)(Reviewed May 2006)
Distance Education Association of New Zealand conference (DEANZ2006) (2 papers) (Reviewed March 2006)
Innovation and Technology in Computer Science Education, (ITiCSE 2006) (3 papers) (Reviewed February 2006)
Journal of Information Technology Education (1 paper)(Reviewed November 2005)
Campus-Wide Information Systems Journal (1 paper)(Reviewed November 2005)
Informing Science: the International Journal of an Emerging Transdiscipline (1 paper) (Reviewed October 2005)
Technical Symposium on Computer Science Education (SIGCSE 2006) (3 papers) (Reviewed September 2005)
Journal of Information Technology Education (2005) (1 paper) (Reviewed July 2005)
International Conference on Computers in Education (ICCE 2005) (5 papers) (Reviewed June 2005)
35th ASEE/IEEE Frontiers in Education Conference (FIE 2005) (2 papers) (Reviewed April 2005)
International Conference on Advanced Learning Technologies (ICALT 2005) (1 Paper) (Reviewed March 2005)
Informing Science and Information Technology Education Conference (InSITE 2005) (3 papers) (Reviewed January 2005)
Innovation and Technology in Computer Science Education, (ITiCSE 2005) (4 papers) (Reviewed December 2004)
Technical Symposium on Computer Science Education (SIGCSE 2005) (3 papers) (Reviewed September 2004)
Australasian Conference on Information Systems (ACIS 2004) (2 papers) (Reviewed August 2004)
International Conference on Advanced Learning Technologies (ICALT 2004) (6 papers) (Reviewed March 2004)
Technical Symposium on Computer Science Education (SIGCSE 2004) (4 papers) (Reviewed September-October 2003)
3rd Pan Commonwealth Forum (2003) (10 Abstracts)
Journal of Information Technology Education (2003) (1 paper)
Information Systems Education Conference (ISECON) (2003) (3 papers)
International Conference on Computers in Education (2003) (7 papers)(Reviewed June 2003)
International Conference on Advanced Learning technologies (ICALT) (2003) (7 papers)(Reviewed March 2003)
International Conference on Information Technology: Research and Education (ITRE) (2003) (2 papers for Technology for Education in Developing Countries (TEDC) Workshop)
Journal of Information Technology Education (2003) (1 paper)
Australasian Conference on Information Systems (ACIS 2002) (1 paper - Knowledge management practices in academia: A case study)
Journal of Information Technology Education (2002) (1 paper)
International Conference on Computers in Education (2002) (5 papers)
Journal of Information Systems Education (2002) (1 paper)
Educational Technology and Society Journal (ISSN 1436-4522) (2002) (1 paper - What do we want more of? Appreciative program evaluation)

Henderson-Sellers, B and Firesmith, D.G. (2001) *The OPEN process framework: An introduction*, Addison-Wesley
Innovation and Technology in Computer Science Education, June 2001, Kent: UK (2 papers)
International Conference on Advanced Learning Technology, August 6-8, 2001, Madison: USA (5 papers)
Interactive Learning Environments Journal (ISSN 1049-4820) (Special Issue on Cognitive Skills and Life Long Learning) (2001) (2 papers)
Henderson-Sellers, B. and Unhelkar, B. (2000) *OPEN modelling with UML*, Addison-Wesley.

Appendix 3: Dissertations Examined

Thota, N. J. (2010). *Developing a holistic approach to learning and teaching introductory object-oriented programming*. Doctor of Philosophy Dissertation, University of Saint Joseph, Macau.

Appendix 4: Projects

- 2010 – Current Object-oriented programming visualisation
Develop a visualisation of the workings of an object-oriented program that allows the programmer to see relationships between objects, the status of objects, the flow of control between objects, and the relationship to class code.
- 2009 – Current Improving the learning of programming
Exploring the use of variation theory and practitioner conceptions of programming to improve learning of programming. Current emphasis is on designing a course focused on object-oriented programming
- Currently to streams of investigation. These are:
1. Initial work is on exploring how to represent variations between alternative solutions, and development sequence based on source version control techniques.
 2. Representing variations in programming paradigms.
- 2010 – Current Road Race Commissaire Training and Management System
System explores game-based learning, user interface design, software architecture, and dynamic networking techniques. Also explores the use of variation theory in designing learning scenarios.
- 2010 – Current Using game-based learning to promote alternative economic thinking
System explores game-based learning, user interface design, software architecture, and dynamic networking techniques. Also explores the use of variation theory in designing learning scenarios. Project also requires exploration of economic theories and challenges
- 2008 August – September Landmark Technologies Corporation
Successfully completed Java and Flex programming exercises for employment application beyond expected level. Due to change in structure of the company the position was no longer available
- Exercises were
 - test-driven programming exercise in Java using JUnit
 - developing a user interface interaction in Adobe Flex, testing framework (FlexUnit, Fluint, Funit, FluxUnit) and the Cairngorm MVC framework
- 2007 – 2008 Web site development (www.thompsonz.net)
Developed our personal website (www.thompsonz.net) using XML and XSLT to generate the HTML
- Site layout was originally based on a template and although it still has the same look and feel, there is now no duplicated XML code across the pages
 - Site has it own schema (XSD), transformation code (XSLT), and cascading style sheets (CSS). No HTML is edited directly
 - Generated HTML complies with the standards

RESEARCH

- 2004 – 2010 BRACElet - A Multi Institutional Study of Program Reading and Writing Skills in Novice Programming Students, Project member
- Brief:**
A multi-institutional computer education research study of novice programmers' reading and writing abilities. The project has been through a number of research cycles involving a greater number of academics and institutions.

- 2009 ITiCSE'09 Working Group – A Multi-National Investigation of a Possible Hierarchy of Programming Skills
Brief:
 Expand the BRACELet data gathering and analysis work into the European computing education community. The group gathered data based on BRACELet 2009 009.1 common core. The core consists of exam-type questions which fall into one of three categories, described below: (1) Basic Knowledge & Skills; (2) Reading / Understanding; and (3) Writing. This data was analysed using the SOLO taxonomy.
- 2001 – 2008 How do they understand? Practitioner perceptions of an object-oriented program. PhD Project
 Supervisor: Associate Professor Janet Davies, School of Curriculum and Pedagogy, College of Education, Massey University.
 Assistant Supervisor: Professor Kinshuk, Director, School of Computing and Information Systems, Athabasca University, Canada.
Abstract:
 In the computer science community, there is considerable debate about the appropriate sequence for introducing object-oriented concepts to novice programmers. Research into novice programming has struggled to identify the critical aspects that would provide a consistently successful approach to teaching introductory object-oriented programming. Starting from the premise that the conceptions of a task determine the type of output from the task, assisting novice programmers to become aware of what the required output should be, may lay a foundation for improving learning. This study adopted a phenomenographic approach. Thirty one practitioners were interviewed about the ways in which they experience object-oriented programming and categories of description and critical aspects were identified. These critical aspects were then used to examine the spaces of learning provided in twenty introductory textbooks. The study uncovered critical aspects that related to the way that practitioners expressed their understanding of an object-oriented program and the influences on their approach to designing programs. The study of the textbooks revealed a large variability in the cover of these critical aspects.
- 2008 AWPOCCELIPS – Classification of conference and journal computing education research articles (2008)
Brief:
 A classification system for computing education papers was enhanced and applied to computing education papers presented at NACCQ conferences.
- 2007 WSCER - Working with Statistics in Computing Education Research
Brief:
 Quantitative data analysis is difficult for those who lack skills in statistics. This is confounded further by the relatively complex structure of some of the available statistical software. In this workshop we will explore the way in which a social science or educational statistician can be used as an expert resource to the educational researcher. This two-day workshop will be directed towards educational researchers who have limited statistical knowledge, focusing upon the researchers as users of statistical services. See attached document for more details.
- 2007 ITiCSE'07 Working group – Developing a Computer Science-specific Learning Taxonomy
Brief:
 The aim of this working group is to investigate the role of learning taxonomies in computer science education, both by studying existing taxonomies (such as that of Bloom et al.) and by devising a new taxonomy which takes into account aspects of learning that are specific to computer science. Before the conference participants will carry out some practical work consisting of making an evaluation of assessments used at their university, and talking to the people who teach courses on introductory computer science. This, together with background reading on taxonomies, will form the background and evidence-base for the work done in the group, which will produce a subject-specific analysis of learning taxonomies and propose a new taxonomy taking these into account.

Appendix 5: SEMINARS / PRESENTATIONS PRESENTED

- Thompson, E. (2010) $\frac{4}{3}$ Practitioner Conceptions of an Object-Oriented Program, School of Computer Science, University of Kent, 2 June, Canterbury, UK
- Thompson, E. (2010) Critical aspects of Object-Oriented Programming. School of Computer Science Seminar series, University of Birmingham, 4 February, Birmingham, UK
- Thompson, E. (2009) Phenomenography study to planning teaching. First Swedish Research Link Symposium on Variation Theory and Learning Study, University of Hong Kong. 3-4 December, Hong Kong
- Thompson, E. (2009) Naturally occurring data as research instrument. School of Computer Science Seminar series, University of Birmingham, 5 November, Birmingham, UK
- Thompson, E. (2009) I know the programming language so I can write your program!, *Department of Computer Science Research Seminars*, University of Victoria, 17 June, Wellington, New Zealand. Also presented at *Java User Group*, Equinox, 17 June, Wellington, New Zealand.
- Thompson E. (2008) Flex testing frameworks. *Flex User Group*, 24 November, Wellington, New Zealand
- Thompson, E. (2008) Applying scholarship of teaching: The BRACELet phenomenon, *Department of Computer Science Research Seminars*, University of Victoria, 22 April, Wellington, New Zealand
- Thompson, E. (2008) How do they understand? Practitioner perceptions of an object-oriented program, *Department of Computer Science Research Seminars*, University of Victoria, 8 April, Wellington, New Zealand
- Thompson, E. (2007) Understanding variation theory in relation to teaching, *Department of Computer Science and Statistics EdTech Research Seminars*, Joensuu University, 21 September, Joensuu, Finland
- Thompson, E. (2007) Improving learning in software development, *Department of Computer Science and Statistics EdTech Research Seminars*, Joensuu University, 13 August, Joensuu, Finland
- Thompson, E. (2006) Conceptual frameworks for object-orientation. (Research report – Oral presentation) *OOPSLA 2006 Educators' Symposium*, October 23, Portland, OR.
- Thompson, Errol (2006) Improving learning in Object-oriented Programming, *Wellington Java User Group*, October 11, Wellington, NZ
- Thompson, Errol (2006) BRACELet - An Australasian Study of Reading and Comprehension Skills in Novice Programmers, using the Bloom and SOLO Taxonomies. *Department of Information Systems Seminar Series*, Massey University, March 30, Wellington, NZ
- Thompson, Errol (2006) Exploring Learner Conceptions of Programming – A phenomenographic perspective. *Department of Information Systems Seminar Series*, Massey University, March 30, Wellington, NZ
- Thompson, Errol (2004) Thinking object-oriented or not OO. *Department of Information Systems Seminar Series*, Massey University, July 15, Wellington, NZ
- Thompson, Errol (2004) Learning process maturity. *Department of Information Systems Seminar Series*, Massey University, July 5, Wellington, NZ
- Thompson, Errol (2003) Agile development. *Department of Information Systems Seminar*, Massey University, July 14, Wellington, NZ
- Thompson, Errol (2003) Agile development. *Information Technology Services Training Session*, Massey University, June 3, Palmerston North, NZ
- Thompson, Errol (2003) Thinking about thinking in programming. *Department of Information Systems Seminar Series*, Massey University, May 22, Wellington, NZ
- Thompson, Errol (2002) Test-first programming in teaching. *Department of Information Systems Seminar Series*, Massey University, March 7, Wellington, NZ
- Thompson, Errol (2002) A vision for scenario-based learning in Information Systems papers. *Department of Information Systems Seminar Series*, Massey University, Palmerston North, NZ
- Thompson, Errol (2002) A vision for scenario-based learning in Information Systems papers. *Department of Information Systems Seminar Series*, Massey University, Wellington, NZ
- Thompson, Errol (1990) *Disaster Recovery or Contingency Planning*, Auckland, IBM AS/400 User Group.
- Thompson, Errol (1998) Process capability maturity: application to learning. *Research Seminar Series*, The Open Polytechnic of New Zealand, October 16, Lower Hutt, NZ

Appendix 6: CONFERENCES ATTENDED

Annual Conference of The Higher Education Academy - Information and Computer Sciences (24 – 26 August 2010, Durham University)

Innovation and Technology in Computer Science Education (ITiCSE 2010) (28-30 June 2010, Bilkent, Ankar, Turkey)

First Swedish Research Link Symposium on Variation Theory and Learning Study. (3-4 December 2009, University of Hong Kong, Hong Kong)

Innovation and Technology in Computer Science Education (ITiCSE 2009) (3-8 July 2009, Paris, France)

Australasian Computing Education (ACE2009) (20 – 23 January 2008, Wellington, New Zealand)

Australasian Computing Education (ACE2008) (22 – 25 January 2008, Wollongong, New South Wales, Australia)

Object-Oriented Programming Systems, Languages, and Applications (OOPSLA 2007) (21 – 25 October 2007, Montreal, Canada)

Innovation and Technology in Computer Science Education (ITiCSE 2007) (23-27 July 2007, Dundee, Scotland)

Australasian Computing Education (ACE2007) (30 January – 2 February 2007, Ballarat, Victoria, Australia)

Object-Oriented Programming Systems, Languages, and Applications (OOPSLA 2006) (21 – 27 October 2006, Portland, Oregon, United States of America)

The 19th Annual Conference of the National Advisory Committee on Computing Qualifications(NACCQ06): Preparing for the Future — Capitalising on IT (7-10 July 2006, Wellington, New Zealand) (Member of local organising committee responsible for poster sessions, photography, judging of posters, and some aspects of technical support. Also chaired session of keynote speaker on opening day)

Australasian Computing Education (ACE2006) (16–19 January 2006, Hobart, Tasmania, Australia)

Phenomenography Symposium (5-6 December 2005 – University of Sydney, Sydney, NSW, Australia)

Australasian Computer Education Conference (ACE2005) (January 2005, Newcastle, NSW, Australia)

New Zealand Action Research Network Conference (July 2004 - Christchurch, New Zealand)

Seventeenth annual conference of the National Advisory Committee on Computing Qualifications (July 2004 - Christchurch, New Zealand)

Information Systems Education Conference (November 2003 - San Diego, USA)

International Conference on Computers in Education (December 2002 - Auckland, New Zealand)

International Workshop on Advanced Learning Technologies (2000 - Palmerston North, New Zealand)

JADE Tertiary Education Conference (2000 - JADE Development Centre, Christchurch, New Zealand)

Innovation and Technology in Computer Science Education (ITiCSE 2000 - Helsinki, Finland)

Australasian Conference on Information Systems (ACIS 1999 - Wellington, New Zealand)

Virtual Interactive Training and Learning (VITAL 1998 - Online Conference)

INZide Te Papa - Interactive New Zealand Forum (1998 - Wellington, New Zealand)

National Advisory Committee on Computing Qualifications Conference (1998 - Auckland, New Zealand)

TUANZ AGM Conference (1998 - Wellington, New Zealand)

TUANZ AGM Conference (1996 - Internet and Education sessions)

International Christian Computing and Missions (1994 - Taylor University, Indiana, USA)

NZ Computer Society conference (1993 – Auckland)

Information Technology for Training and Education (ITTE 1992 - Brisbane, Australia)

NZ Computer Society conference (1976 - Hamilton, New Zealand)

Appendix 7: WORK RELATED APPOINTMENTS

- NZ Chapter of Association of Computing Machinery, Industry Liaison Chair, Editorial Editor for ACM NZ Bulletin (May 2005 – May 2008)
- Member of the Information Sciences Programme Management Committee, College of Sciences, Massey University (2005 – 2007)
- Member of Organising Committee for the The 19th Annual Conference of the National Advisory Committee on Computing Qualifications(NACCQ06): Preparing for the Future — Capitalising on IT, Wellington, 7-10 July 2006
- Member of the College of Business Student Learning Experience Board, Massey University (2001)
- Member of Internet Teaching Strategy Committee, The Open Polytechnic of New Zealand (1998-1999)
- Technical Editor and Advisor for the writing of Bachelor of Information Technology papers, The Open Polytechnic of New Zealand (1997-1999).
- Bachelor of Business Studies Information Systems specialisation proposal author and Degree Co-ordinator, Unitec Institute of Technology (1992-1993)

Appendix 8: EARLY EMPLOYMENT HISTORY

- 1996-1999 The Open Polytechnic of New Zealand
Aug - Feb **Lecturer in Information Systems** to develop and teach courses on the analysis, design, and implementation of information systems. Courses used a scenario-based learning approach
- Subjects taught used C++, Delphi, UML, DFDs, and ER diagrams
 - Technical advisor on the development of new courses in degree programme
- 1993-1996 Bible College of New Zealand
Apr - Jul **Manager of Information Technology** managing computing resources and redeveloping administrative databases and processing structures
- Applications included Contact Management, Student Administration, and Donor Management
 - Developed software using Magic, a table driven development environment.
- 1994-1996 Unitec Institute of Technology (previously Carrington Polytechnic)
1991-1994 Carrington Polytechnic
Part-time Lecturer in Business Computing
Lecturer in Business Computing
- Taught a range of subjects including introductory programming using Pascal
 - Developed introductory programming workbook
 - Developed the proposal for a new degree programme
 - Lead the introduction of the degree programme
- 1988-1990 Centron Corporation (previously Challenge Computers Ltd)
Team Leader, AS/400 Consultant and Trainer, Account Manager
- Business continuance planning
 - AS/400 consulting working on the support of an Enterprise Resource Planning system
 - RPG (AS/400).
- 1984-1988 Challenge Computers Ltd
Contract Analyst/Programmer, Team Leader
- Supported a finance company system on ageing Burroughs equipment using COBOL
 - Worked closely with client representative on revisions and testing of system conversion to IBM mainframe based on CICS and COBOL applications
- 1982-1984 Fisher and Paykel Ltd.
Analyst Programmer, Operations Supervisor, Technical Support
- Supported manufacturing requirements planning applications
 - Took operational responsibility for the divisions systems
 - Software development was in COBOL on Burroughs midrange computers
- 1981-1982 IDAPS Computer Science Ltd
Systems Programmer, Analyst Programmer, Facilities Management Project Leader
- Supported IBM DOS operating system
 - Managed a project implementing a progress claim system for a construction company
 - Worked closely with and trained client representatives
 - Worked with COBOL on Data General mini-computers
- 1979-1981 Canterbury Savings Bank
Systems Programmer
- Oversaw the move to the IBM 4300 series equipment and migration to the DOS/VSE operating system
 - Implemented a VM/370 environment for development work

- Software development was in primarily in PL/I and IBM assembler

1977-1978 University of Canterbury
Teaching assistant, Part-time Operator

1975-1976 Systems and Programs Ltd.
Programmer

- Assigned to a project implementing a law enforcement system
- Worked on the implementation of shared code tables and a system for managing software upgrades
- Programming work included COBOL on Burroughs midrange machines and Univac mainframe, and Univac Assembler

1973-1974 University of Canterbury
Teaching assistant, Research assistant

- Assisted with programming papers
- Implemented error message compression algorithms
- Programming was in Fortran, Burroughs ALGOL, BCPL, and other experimental languages

Appendix 9: VOLUNTARY WORK

- British Regional Road Commissaire (2010-Current)
 - Paramount Circuit Race Series Event 3, Shrewsbury, UK (26 March 2011)
 - Wyre Forest Circuit Races, Stourport Sports Club (12 August 2010)
 - Tudor Grange Circuit Races, Solihull (5 August 2010)
 - Beacon Circuit Races, Solihull (23 June 2010)
 - Newport Shropshire Cycling Club Summer Road Race (23 May 2010)
 - Lichfield Cycling Club Spring Road Race (2 May 2010)
 - Stan Jones Road Race, Shrewsbury (11 April 2010)
 - Evesham Vale Road Race, UK (21 March 2010)
 - Paramount Circuit Race Series Event 1, Shrewsbury, UK (6 March 2010)
- British University & Colleges Sport (BUCS)
 - Track Cycling Championships, Manchester (6 -7 November 2010)
 - Track Cycling Championships, Halesown, West Midlands (13 June 2010)
- BikeNZ Track and Road Commissaire (2005-Current) Officiated at:
 - New Zealand National Road Championships (23 – 26 October 2008)
 - New Zealand Secondary Schools Cycling Championships (27-29 September 2008 – Chief Timekeeper for time trials, Assistant Chief Commissaire for 29 September 2008)
 - Wanganui Cycling Club Grand Prix, NZ (6 September 2008)
 - New Zealand National Track Championships (25 February to 1 March 2008)
 - New Zealand Elite Road Championships (11-13 January 2008) – Chief Timekeeper
 - International Veterans Cycle Tour, NZ (6 – 9 April 2007)
 - Wellington Centre Track Championships, NZ (17 – 18 February 2007)
 - Wellington Centre Time Trial Championships, NZ (10 February 2007)
 - New Zealand Elite Road Championships (11-13 January 2007) – Chief Judge
 - New Zealand Schools Road Cycling Championships (24 September 2006)
 - Levin South-End Cycles 3 stage Tour, NZ (13 August 2006)
 - Wellington Road Cycling Championships, NZ (March 2006)
 - Wellington Track Cycling Championships, NZ (10-11 February 2006)
 - Oceania Track and Road Championships, NZ (30 November – 4 December 2005)
 - New Zealand National Road Championships (20-23 October 2005)
- Port Nicholson Ponake Cycling Club, NZ - Track Committee (2005/2006 Season). Responsible for:
 - Track Maintenance and Wellington City Council Liaison
- Wellington Veterans' Cycling Club, NZ - Event Race Manager (2000-2001)

- Massey Wellington Chaplaincy Board (August 2006 – June 2007)
 - Secretary (October 2006 – June 2007)
- Christian Ministries Support Services (1990-1995)
 - Trustee
 - Newsletter Editor, and
 - Chairperson
- Christian Ministry Bulletin Board
 - Organiser and Operator (1989-1995)

- One Tree Hill Baptist Church (1987-1988)
 - Church Secretary
- Avondale Baptist Church
 - Deacon (1984-1985)
 - Easter Camp Organiser (1985)
- Various churches - Youth Group leader (1976-1985)

REFEREES

Dr Volker Sorge,
Senior Lecturer,
School of Computer Science,
University of Birmingham,
Edgbaston,
Birmingham B14 2TT,
United Kingdom.

Phone: +44 (121) 414 3746
Fax: +44 (121) 414 4281

Email

I assisted Dr Sorge with the Software Systems Components course writing a number of the assessments and delivering supplementary lectures that focused on practical issues related to the completing of the assignments.

Dr Tom Chothia,
Lecturer,
School of Computer Science,
University of Birmingham,
Edgbaston,
Birmingham B14 2TT,
United Kingdom.

Phone: +44 (121) 414 4799

Email T.P.Chothia@cs.bham.ac.uk

I assisted Dr Chothia with the Internet Computing Workshop course delivering two lectures, leading two tutorial groups, and reworking an assessment. We also worked together on planning the Team Java course which I managed.

Professor Kinshuk,
Associate Dean,
Faculty of Science and Technology,
Athabasca University,
1 University Drive,
Athabasca,
Alberta AB T9S 3A3
Canada.

Phone: +1 (780) 6756812
Mobile: +1 (780) 9345310

Email kinshuk@ieee.org

Professor Kinshuk was the director of the Advanced learning technologies Research group at Massey University prior to taking up his appointment at Athabasca University. He has been a supervisor for my PhD research.

Dr Tony Clear
Associate Head of School - Industry &
Development
School of Computing & Mathematical Sciences
Faculty Of Design & Creative Technologies
Auckland University of Technology
Private Bag 92006
Auckland 1020
New Zealand

Phone: +64 9 921 9999 xtn 5329
Mobile: +64 21 747 099
Fax: +64 9 921 9944

Email: tclear@aut.ac.nz

I have worked with Tony Clear on a number of research studies that have been part of an international, multi-national research project into the learning of programming (BRACELet). Part of the goal of this project is to improve the research capability in tertiary institutions. This project has been recognised as providing valuable results with respect to the learning of programming and had fostered a research culture around the teaching of introductory programming.

Dr Raymond Lister
Senior Lecturer
School of Software
University of Technology, Sydney
Faculty of Information Technology,
University of Technology, Sydney
PO Box 123
Broadway
NSW 2007
Australia

Phone: +61 2 9514 1850

Email: raymond@it.uts.edu.au

I have worked with Raymond Lister on a number of research studies that have been part of an international, multi-national research project into the learning of programming (BRACELet). Part of the goal of this project is to improve the research capability in tertiary institutions. This project has been recognised as providing valuable results with respect to the learning of programming and had fostered a research culture around the teaching of introductory programming.