

Gloria Gomez  
Assistant Professor  
Institute of Technology and Innovation  
SDU Innovation and Design Engineering  
Email: gege@iti.sdu.dk

## Bio

**Research background and focus:** Dr Gomez is an assistant professor at the University of Southern Denmark and an honorary senior lecturer at Sydney Medical School in Australia. She undertakes applied design research in educational practice with Bridging Design Prototypes (BDP). With a PhD in design from Swinburne University of Technology (Australia) and a bachelor in graphic design from Universidad Pontificia Bolivariana (Colombia), her contributions to educational practice have informed research and development of new concept products for preschool concept mapping and online medical study. Together with an informal research network, she has started researching educational resources for the Transition to Early Algebra. Her work promotes cutting edge research that enables the emergence of innovative areas of practice within early childhood and online education.

**Research through teaching and supervision:** Dr Gomez lectures and supervises master students of mixed engineering and design backgrounds on human-centred design methods (including the BDP approach). These methods are used to conceptualise, design and implement information systems for innovative practices in education, welfare, government, energy and manufacturing. Student research activities are undertaken in collaboration with user communities and small organisations (SMEs and/or production technology researchers).

As a guest lecturer, she has taught on topics ranging from educational design to human-computer interaction in Australia, Colombia, Finland, the Netherlands, New Zealand, Spain, and the USA. She has prepared lectures upon request for universities and professional organisations on topics including identity and gender, design and early childhood education, elearning, and early product development.

**Research outputs:** Her publication topics and venues are multidisciplinary and relevant to human-centred design methods (participatory design, co-design, user-oriented design, user-centred design, inclusive design, human-computer interaction, interaction and interface design). Her publications, publications under review and in progress contribute knowledge to the areas of human-centred design, inclusive design, visual impairment, strategic design, prototyping and entrepreneurship, and educational practice (concept mapping, elearning, and the transition to early algebra).

**Funding applications** span areas such as smart learning technologies, entrepreneurship & prototyping, early childhood education, early mathematics, inclusive education and design. In 2015, Dr Gomez led writing and was scientific coordinator on a Horizon 2020 proposal titled FULCRUM: smart learning technologies for the transition to early algebra. She has attracted funds from the Danish Ministry of Higher Education and Science as well as Young Enterprise Denmark.

**Multidisciplinary research and networks:** Dr Gomez has research project experience in academia and professional practice. In Europe, this experience is being built through memberships such as the funded EU Game Jams Network (JamToday), Nordtek, and two Erasmus teaching mobility grant (University of Girona). In other parts of the world, it has been built through an honorary appointment, membership to scientific research and conference committees, and writing publications in collaboration.

Prior to her current appointments, she worked in multidisciplinary software projects such as the award-winning Proyecto Ludomatica in Colombia as well as the CmapTools project in the United States. In New Zealand, she intermittently worked for the University of Otago in diverse research and professional capacities between 2008 and 2012. In addition to her academic roles, she is a co-owner and strategic consultant in the educational and interaction design of OB3 a web application for online academic study that is being developed by OceanBrowser Ltd.

## Other appointments

Honorary Senior Lecturer  
Sydney Medical School, The University of Sydney, Australia  
Dec 2014 - Dec 2017

## Qualifications

Swinburne University of Technology  
PhD in Design, 2009

Universidad Pontificia Bolivariana  
Bachelor in Graphic Design, 1999, 5 years + thesis

## Research areas

Experience design as it relates to human-centred product development, bridging design prototypes

Product development as it relates to strengthening the role of design in small organisations

Interaction design as it relates to teaching and learning technologies (e.g. interactive games, software for studying, multimedia materials for educational activities)

User groups and user behaviours as these relate to case study research, social inclusive products for the public service system

## Grants

GRANTED in December 2016: E-learning Project Fund 2017 for the project titled "Virtual Reality som E-learningplatform". With Christian Hammerich (PI) and Thomas Lambertsen Binzer (PDI student). Amount: DKK 42400 (approx. 5700 euros)

GRANTED in September 2014: Uddannelses-og Forsknings Ministeriet (EUopStart) for setting up European Consortium on "Designing Early Algebra". With Claus Michelsen and Peder Thusgaard Ruhoff. Amount: DKK 112500 (approx. 15000 euros)

GRANTED in September 2013: Fonden for Entreprenørskab / Young Enterprise Danmark. With Søren Jensen (PI) and Christian Hammerich. Amount: DKK 110000 (approx. 20000 euros)

## Small research awards

2015-2016 and 2013-2014 Erasmus Teaching Mobility Grant to visit Universitat de Girona in Spain

Free Summer Seminar Award granted by the Institute for Humane Studies at George Mason University, to participate in the workshop on Social Change, Brown University, Jun 21 – 27, 2008

Online Research Training Programme Award granted by the Australian Technology Network, to participate in Research Commercialisation Course, Sep – Nov, 2007

2005-2006 Qantas/Kistend Postgraduate Travel Scholarship, to visit Carnegie Mellon University and the Institute for Human and Machine Cognition, Feb – Mar 2006

## Employment History

University of Southern Denmark, Denmark  
Department of Technology and Innovation,  
August 2012 – January 2017

University of Otago, New Zealand  
- Department of Aviation Medicine Sep 2008 - Mar 2009  
- Department of Applied Sciences (former Design Studies), Aug 2009 - Mar 2010  
- Higher Education Development Centre, Jun - Dec 2010  
- Environmental Studies Working Party, Sep 2011 – Jul 2012

OceanBrowser Ltd., New Zealand  
Apr 2009 – Jul 2012

Institute for Human and Machine Cognition - IHMC, USA  
Aug 2001 – Nov 2003

Universidad de Los Andes, Colombia  
Laboratorio de Informatica Educativa (LIDIE), Departamento de Ingeniería  
Jan 1998 – Jan 2001

Universidad Pontificia Bolivariana, Colombia  
1997 (less than a year)

## Current projects

Bridging Design Prototypes for the transition to early algebra  
Leader of research partnership with University of the Arts Utrecht (Netherlands), University of Girona (Spain), and University of Otago (New Zealand)  
2014 - ongoing

How people study online with OB3  
Research partnership with SME Oceanbrowser Ltd (New Zealand) and University of Sydney (Australia)  
2014 -ongoing

How six professionals with severe impairments use technology for working or studying: a short qualitative study  
Leader of research partnership with Pontificia Universidad Javeriana Cali (Colombia) and Oceanbrowser Ltd (New Zealand)  
2013 - 2015

Strengthening the role of design in small organisations through Bridging Design Prototypes (BDPs)  
Sole investigator  
2013 - ongoing

Educational Robots in Mainstream Kindergartens  
Research partnership with Gunver Majgaard from MMMI and a PDI graduate Maria Saragia  
2015 - ongoing

GaMeS - Gamification Management System for Learning Environments  
Research partner in consortium coordinated by the University of the Arts Utrecht (Netherlands)  
2016 - ongoing

## **Past projects**

Title: Design and implementation of elective "prototyping as a tool in the entrepreneurial process"  
Role: co-researcher together with Christian Hammerich (SDU) and Søren Jensen (PI)  
Funding: Fonden for Entreprenørskab / Young Enterprise Danmark.  
Period: 2013 - 2015

Title: Study activities with mobile devices via Moodle: A qualitative survey of a 2012 aviation medicine class  
Role: Principal researcher  
Funding: E-learning Enhancement Grant  
Unit: Occupational and Aviation Medicine Unit, University of Otago, New Zealand  
Period: Mar - Oct 2012

Title: How people study online: a case study to inform the development of OB3 version 1  
Role: Research consultant in interaction and educational design  
Funding: OceanBrowser Ltd. (New Zealand)  
Period: Apr 2010 – Jul 2012

Title: How current University of Otago students transform majors and minors into environmentally-focused degrees: a short case study to inform product development  
Role: Educational designer  
Funding: University Quality Enhancement Grant  
Unit: Environmental Studies Working Party, University of Otago (New Zealand)  
Period: Aug 2011 – Jul 2012

Title: My Otago First Year: a short case study to inform product development  
Role: Professional Practice Fellow (Educational Design)  
Unit: Higher Education Development Centre (HEDC), University of Otago (New Zealand)  
Period: Jun – Dec 2010 (Part-time)

Title: Visual survey research for multiplayer computer games  
Role: Research assistant  
Principal investigator: Mr Ralf Hebecker  
Funding: University of Otago Research Grants (New Zealand)  
Unit: Department of Applied Science (Former Design Studies)  
Period: Jul 2009 – Feb 2010

Title: Concept mapping in student assessment: an exploratory case study  
Role: Principal researcher  
Co-researchers: Rob Griffiths and Poshan Navathe  
Funding: E-learning Enhancement Grant  
Unit: Occupational and Aviation Medicine Unit, University of Otago, New Zealand  
Period: Sep 2007 – Nov 2008 (Part-time)

## PhD Dissertation

Issues in preschool concept mapping: an interaction design perspective  
Faculty of Design Swinburne University of Technology, Australia  
Granted in 2009

## Teaching experience

Department of Technology and Innovation, University of Southern Denmark  
Assistant Professor, Master in Product Development and Innovation (PDI)  
Sep 2012 - Jan 2017

Department of Computer Science, Universidad Javeriana de Cali, Colombia  
Guest Lecturer, Course on Human-Computer Interaction (Elective)  
Oct 6, 2012 and Mar – Apr 2011

Facultad de Artes y Humanidades, Universidad de Caldas, Colombia  
Visiting Lecturer, Doctorado y Maestría en Diseño y Creación  
Mar 19-22, 2013 and Apr 14 – 16, 2011

Department of Applied Sciences (Former Design Studies), University of Otago, New Zealand  
Visiting Tutor, DESI 335 (Special Topic), Summer School, Jan 5 – Feb 28 2011

Occupational and Aviation Medicine Unit, University of Otago, New Zealand  
Concept Mapping Instructor, Aviation Medicine Course 714, Semester II, 2008

School of Language and Performing Arts, University of Otago, New Zealand  
Spanish Tutor, Spanish Programme, Semester I, 2001

## Research scholar visits

Universitat de Girona (UdG), Faculty of Education and Psychology, Mar 1 to 14, 2014 and May 10 to 19, 2016

University of the Arts Utrecht (HKU), Jan 24 to 29, 2014

Mgr. Hanssenschool special education school for children with speech and hearing impairments, the Netherlands, April 11 2013

Universidad Complutense de Madrid, Museum I+D+C. Laboratorio de cultura digital y museografía hipermedia, Sep 27 – Oct 2, 2012

University of South Australia, Literacy Teaching Resources Project, Oct 17 – 21st, 2011

University of Rochester, Science Start! Project, May 12 – 14, 2008

Institute for Human and Machine Cognition – IHMC, May 15 to Jun 15, 2006

Carnegie Mellon University, School of Design, Feb to May 2006

University of South Australia, School of Education: Center for Studies in Literacy, Policy and Learning Cultures - CSLPLC, Oct 4-7, 2005

University of Otago, Department of Design Studies, Sep 3 to Oct 3, 2004

## Publications

### **Bridging Design Prototypes in the development of games for formal learning environments**

Gomez, G. & Crombie, D. 2016 *Proceedings of the 8th International Conference on Games and Virtual Worlds for Serious Applications*. IEEE, 4 p.

### **Improving the teaching of children with severe speech-language difficulties by introducing an Authoring Concept Mapping Kit**

Kicken, R., Ernes, E., Hoogenberg-Engbers, I. & Gomez, G. 2016 *Innovating with Concept Mapping: Proceedings of 7th International Conference on Concept Mapping*. Cañas, A., Reiska, P. & Novak, J. (eds.). Springer, p. 112-127 (Communications in Computer and Information Science, Vol. 635).

**How six professionals with severe impairments use technology for working or studying: a qualitative study**  
Contreras, V., Navarro Newball, A. & Gomez, G. 2015 85 p.

**Concept maps as replacements of written essays in efficient assessment of complex medical thinking**  
Gomez, G., Griffiths, R. & Navathe, P. 2014 *Cases on Teaching Critical Thinking through Visual Representation Strategies*. Shedletsky, L. & Beaudry, J. S. (eds.). IGI global, p. 223-271

**Looking normal when I don't see normal: SEEing what can be done about the experience of visual impairment**  
Mai, G. & Gomez, G. 2014 In : IRIS Selected Papers of the Information Systems Research Seminar in Scandinavia. 5

**Reflecting on a conference that crossed disciplinary boundaries**  
Gomez, G. & Bennett, A. G. 2013 In : GLIDE Conference Proceedings. 2, 1, p. 1-2

**Study activities with mobile devices via Moodle: A qualitative survey of a 2012 aviation medicine class**  
Gomez, G. 2013 University of Otago. 44 p.

**Enhancing the online study experience in postgraduate medical education**  
Gomez, G. & Tamblyn, R. 2012

**Product development in a small IT firm: An interaction design perspective**  
Gomez, G. & Tamblyn, R. 2012 5 p.

**Concept mapping with 3- to 6-year olds to support meaningful learning**  
Gomez, G. 2010

**Enhancing autonomy, meaning negotiation, and active inquiry in preschool concept mapping**  
Gomez, G. 2010 *Handbook of Research on Collaborative Learning using Concept Mapping*. Lupion-Torres, P. & Veiga Marriott, R. D. C. (eds.). Hershey: IGI global, p. 383-401 18 p.

**Gaining entry to real settings with a Bridging Design Prototype**  
Gomez, G. 2009 *Proceedings of the 10th International Conference NZ Chapter of the ACM's Special Interest Group on Human-Computer Interaction*. Plymmer, B. (ed.). New York, NY, USA: Association for Computing Machinery, p. 17-20 4 p.

**Issues in preschool concept mapping: an interaction design perspective**  
Gomez, G. 2009

**Use of concept maps for student assessment in an aviation medicine graduate programme**  
Gomez, G. 2008 136 p.

**A Bridging Design Prototype for investigating concept mapping in the preschool community**  
Gomez, G. 2007 *CHI '07 Extended Abstracts on Human Factors in Computing*. New York, NY, USA: Association for Computing Machinery, p. 1747-1752 6 p.

**An Authoring Concept Mapping Kit for the early childhood classroom**  
Gomez, G. 2006 *Proceedings of the Second International Conference on Concept Mapping*. Cañas, A. J. & Novak, J. D. (eds.). San Jose, Costa Rica: Universidad de Costa Rica Editorial, Vol. 1, p. 32-38 6 p.

**CmapTools version 3 graphic interface guidelines: Technical document for software programmers**  
Gomez, G. 2004 33 p.

**CmapTools: a knowledge modeling and sharing environment**

Cañas, A. J., Hill, G., Carff, R., Suri, N., Lott, J., Eskridge, T., Gomez, G., Arroyo, M. & Carvajal, R. 2004 *Concept maps: theory, methodology, technology: Proceedings of the First International Conference on Concept Mapping*. Cañas, A. J., Novak, J. D. & González, F. M. (eds.). Navarra, Spain: Dirección de Publicaciones de la Universidad Pública de Navarra, Vol. 1, p. 125-133 8 p.

**Diseño de los personajes exploradores de La Ciudad Fantástica**

Gomez, G., Bejarano, G., Díaz, M. L., Mariño, O., Trech, M., Vega, G. & Zuluaga, J. C. 2000 *Proyecto Ludomática: Avance de documento técnico* . 18 p. Technical report No. INF-00-02

**Diseño gráfico de ambientes de aprendizaje para niños y niñas del Proyecto Ludomática**

Gomez, G. 2000 12 p.

**Diseño gráfico para ambientes educativos e interactivo para los niños y niñas del Proyecto Ludomática**

Gomez, G. 1 May 1999 In : *Informatica Educativa*. 12, 2, p. 213 226 p.

**Diseño visual de La Ciudad Fantástica**

Gomez, G. & Díaz, M. L. 1999 *Proyecto Ludomática: Avance de documento técnico*. 25 p. Technical Report No. INF-99-01

**Juego de roles vecinos y parientes, exploradores de la cultura: un proyecto colaborativo**

Gomez, G. & Valencia, M. 1999 *Juego, aprendizaje y creatividad* . Pregarán, C., Sequeida, J., Zanocco, P. & Carvajal, L. (eds.). Santiago de Chile: Pontificia Universidad Católica de Chile