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## Research

### Introduction

Per-Olof Hedvall works as Director of Certec, Department of Design Sciences, Lund University, Sweden. His research deals with accessibility, participation, and universal design, with a particular interest in the interplay between people and technology. Working in close collaboration with the disability movement, he focuses on people's lived perspectives and how human and artefactual aspects of products, services and environments can be designed to support people in fulfilling their needs, wishes, and dreams. Hedvall has a background in computer engineering and has a particular interest in people's empowerment and opportunities for participation in their lives.

Per-Olof Hedvall often bases his work on Cultural-Historical Activity Theory. In 2009, Hedvall defended his doctoral dissertation in Rehabilitation Engineering and Design, "The Activity Diamond – Modelling an Enhanced Accessibility", where he developed a model for planned, lived, and long-term aspects of accessibility, as a prerequisite for participation.

### Current research focus: Universal Design, Equity and Categorisation

*For the past 10 years, I have mainly concentrated on trying to contribute to the development and emergence of universal design in Sweden and internationally. I am interested in how it is possible to create designs that do not discriminate against people and that do not lead to inequality and stigma.*

*My current research is about categorisation and how categorisation creates similarities and differences between people. The design of products and environments often places people in compartments such as "man", "woman", "person with a disability", "person without a disability", "children", "elderly", and so on. I think it is interesting how categorisation takes place and what stories it creates / enables.*

*There is a strong force in design, which can be used to open up opportunities, but also to close them. Sometimes exclusionary design takes place completely intentionally, as in the introduction of reclining benches on which it is not possible to sleep, but in most cases exclusion takes place unintentionally. Therefore, it is important to actively work with knowledge and awareness of socially sustainable design that brings people together and enriches society.*

*On a more general level, I am interested in who may and may not exist in today's society, and how it is possible to create conditions so that all people can participate in and contribute to society. The stories we tell about each other - also with and in design - influence the stories about:*

*Who you can be  
and who you can become.*

## Employment

### Senior lecturer

Certec - Rehabilitation Engineering and Design  
Lund University  
Lund, Sweden  
2006 Jan 16 → present

### Guest researcher

Mid Sweden University  
Sundsvall, Sweden  
2018 Jan 1 → present

## Research outputs

1. **Feeling controlled or being in control? Apps for self-management among older people with neurological disability**  
Winberg, C., Kylberg, M., Pettersson, C., Harnett, T., Hedvall, P-O., Mattsson, T. & Månsson Lexell, E., 2021, In: *Disability and Rehabilitation: Assistive Technology*. 16, 6, p. 603-608 6 p.  
Research output: Contribution to journal › Article › peer-review
2. **"Tur att jag inte blev omprövad i år" – Samtal om ett villkorat liv med personlig assistans**  
Egard, H. & Hedvall, P-O., 2021 May 6, In: *Nordisk välfärdsforskning / Nordic Welfare Research*. 6, 1, p. 20 31 p.  
Research output: Contribution to journal › Article › peer-review
3. **Universal Design as Guiding, Striving and Unifying: A Qualitative Study About how Universal Design is understood, practiced and realised in contemporary Sweden**  
Erdtman, E., Rasmus-Gröhn, K. & Hedvall, P-O., 2021 Jun 28, In: *Scandinavian Journal of Disability Research*. 23, 1, p. 158-168  
Research output: Contribution to journal › Article › peer-review
4. **Young, Mobile, and Highly Educated Cyclists: How Urban Planning and Policy Dis/able Users**  
Müller, L., Ericsson, S., Wojahn, D. & Hedvall, P-O., 2021 Apr 16, In: *Scandinavian Journal of Disability Research*. 23, 1, p. 124-135 12 p.  
Research output: Contribution to journal › Article › peer-review
5. **Language that Supports Sustainable Development: How to Write about People in Universal Design Policy**  
Ericsson, S., Wojahn, D., Sandström, I. & Hedvall, P-O., 2020 Nov 17, In: *Sustainability*. 12, 22, p. 1-20 20 p., 9561.  
Research output: Contribution to journal › Article › peer-review
6. **Dynamic multimodal drawing in school: Exploring technology support of drawing skills development in children with visual impairments**  
Szymczak, D., Rasmus-Gröhn, K., Hedvall, P. O. & Magnusson, C., 2019, In: *Technology and Disability*. 31, 3, p. 83-99 17 p.  
Research output: Contribution to journal › Article › peer-review
7. **Bringing human diversity into design processes through empathic modelling**  
Lorentzen, L. & Hedvall, P. O., 2018, *Transforming our World Through Design, Diversity and Education - Proceedings of Universal Design and Higher Education in Transformation Congress 2018*. Craddock, G., Doran, C., McNutt, L. & Rice, D. (eds.). IOS Press, p. 128-136 9 p. (Studies in Health Technology and Informatics; vol. 256).  
Research output: Chapter in Book/Report/Conference proceeding › Paper in conference proceeding › peer-review
8. **Co-Constructing Universal Design in Citizen Science Workshops**  
Hedvall, P. O., Rydeman, B., Granholm, S. & Andersson, M., 2018, *transforming our World Through Design, Diversity and Education*. IOP Publishing, Vol. 256. p. 214-222 9 p. (Studies in Health Technology and Informatics).  
Research output: Chapter in Book/Report/Conference proceeding › Paper in conference proceeding › peer-review
9. **Design for me?**  
Magnusson, C., Hedvall, P. O. & Breidegard, B., 2018 Jan 1, *Computers Helping People with Special Needs - 16th International Conference, ICCHP 2018, Proceedings*. Springer, p. 93-99 7 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics); vol. 10896 LNCS).  
Research output: Chapter in Book/Report/Conference proceeding › Paper in conference proceeding › peer-review
10. **How can we make teaching more inclusive?**  
Rydeman, B., Efring, H. & Hedvall, P-O., 2018, *10:e Pedagogiska Inspirationskonferensen*. Lund University, (Pedagogiska inspirationskonferensen LTH; vol. 10).  
Research output: Chapter in Book/Report/Conference proceeding › Paper in conference proceeding › peer-review
11. **Stroke and universal design**  
Magnusson, C., Anastassova, M., Paneels, S., Rasmus-Gröhn, K., Rydeman, B., Randall, G., Ortiz Fernandez, L., Bouilland, S., Pager, J. & Hedvall, P. O., 2018, *Transforming our World Through Design, Diversity and Education - Proceedings of Universal Design and Higher Education in Transformation Congress 2018*. Craddock, G., Doran, C., McNutt, L. & Rice, D. (eds.). IOS Press, p. 854-861 8 p. (Studies in Health Technology and Informatics; vol. 256).  
Research output: Chapter in Book/Report/Conference proceeding › Paper in conference proceeding › peer-review
12. **Towards a More Inclusive University - Supporting Teachers Through Universal Design for Learning**  
Rydeman, B., Efring, H. & Hedvall, P. O., 2018, *Transforming our World Through Design, Diversity and Education*. IOP Publishing, Vol. 256. p. 98-106 9 p. (Studies in Health Technology and Informatics).  
Research output: Chapter in Book/Report/Conference proceeding › Paper in conference proceeding › peer-review
13. **Co-designing together with persons with visual impairments**  
Magnusson, C., Hedvall, P. O. & Caltenco, H., 2017 Aug 20, *Mobility of Visually Impaired People: Fundamentals and ICT Assistive Technologies*. Springer International Publishing, p. 411-434 24 p.  
Research output: Chapter in Book/Report/Conference proceeding › Book chapter › peer-review
14. **Delaktighetsforskning och funktionshinder: Kartläggning av kunskapsläge och forskningsbehov med särskilt fokus på teknik- och designperspektiv**  
Hedvall, P-O., 2017 Sep 4, 23 ed. <http://www.mfd.se/stod-och-verktyg/publikationer/rapporter/rapporter-2017/delaktighetsforskning-och-funktionshinder/>: Myndigheten för Delaktighet. 130 p.  
Research output: Book/Report › Report › Research

15. **The Use of Apps for Health in Persons with Multiple Sclerosis, Parkinson's Disease and Stroke - Barriers and Facilitators**  
Winberg, C., Kylberg, M., Pettersson, C., Harnett, T., Hedvall, P. O., Mattsson, T. & Månsson Lexell, E., 2017, *Harnessing the Power of Technology to Improve Lives*. IOS Press, Vol. 242. p. 638-641 4 p. (Studies in Health Technology and Informatics; vol. 242).  
Research output: Chapter in Book/Report/Conference proceeding › Book chapter › peer-review
16. **Eliciting parents' individual requirements for an inclusive digital school system**  
Eftring, H., Rasmus-Gröhn, K. & Hedvall, P. O., 2016, *Universal Design 2016: Learning from the Past, Designing for the Future - Proceedings of the 3rd International Conference on Universal Design, UD 2016*. IOS Press, Vol. 229. p. 211-221 11 p. (Studies in Health Technology and Informatics; vol. 229).  
Research output: Chapter in Book/Report/Conference proceeding › Paper in conference proceeding › peer-review
17. **Demo Hour**  
Fortmann, J., Müller, H., Heuten, W., Boll, S., Kangas, J., Akkil, D., Rantala, J., Isokoski, P., Majaranta, P., Raisamo, R., Orlov, P. A., Bednarik, R., Caltenco, H., Larsen, H. S. & Hedvall, P-O., 2015, In: *Interactions*. 22, 1, January + February 2015, p. 6-9  
Research output: Contribution to journal › Article › peer-review
18. **Empowerment and participation through online photo diaries for children and adults with intellectual disabilities**  
Rydeman, B. & Hedvall, P-O., 2015.  
Research output: Contribution to conference › Abstract › peer-review
19. **Opportunities and challenges in everyday life - a participatory study exploring strategies used by three adults with ADHD**  
Eklöf, L., Boman, I-L. & Hedvall, P-O., 2015.  
Research output: Contribution to conference › Abstract › peer-review
20. **Technical aids and human assistance as integrated in the social construction of self**  
Egard, H., Eklöf, L., Hedvall, P-O. & Rydeman, B., 2015.  
Research output: Contribution to conference › Abstract › peer-review
21. **Towards motive- oriented technical and human assistance – a study of how combinations of technology and people support individuals in their lives**  
Hedvall, P-O., Egard, H., Eklöf, L. & Rydeman, B., 2015.  
Research output: Contribution to conference › Abstract › peer-review
22. **I Have Never Been Universal**  
Hedvall, P-O., 2014, *Trends in Universal Design*.  
Research output: Chapter in Book/Report/Conference proceeding › Book chapter
23. **Shared experiences through online photo diaries**  
Rydeman, B. & Hedvall, P-O., 2014.  
Research output: Contribution to conference › Paper, not in proceeding › peer-review
24. **Universal Design 2014: Three Days of Creativity and Diversity**  
Caltenco, H. (ed.), Hedvall, P-O. (ed.), Larsson, A. (ed.), Rasmus-Gröhn, K. (ed.) & Rydeman, B. (ed.), 2014, IOS Press. (Assistive Technology Research Series)  
Research output: Book/Report › Conference proceeding (editor) › Research › peer-review
25. **Activity Perspectives on VOCA-Mediated Conversations**  
Rydeman, B. & Hedvall, P-O., 2013, *Aided Communication in Everyday Interaction*. Norén, N., Samuelsson, C. & Plejert, C. (eds.). J&R Press  
Research output: Chapter in Book/Report/Conference proceeding › Book chapter › peer-review
26. **Co-Exploring Everyday Life of Adults with ADHD**  
Eklöf, L., Boman, I-L. & Hedvall, P-O., 2013, *Assistive Technology Research Series*. IOS Press, Vol. 33. p. 622-627 6 p.  
Research output: Chapter in Book/Report/Conference proceeding › Paper in conference proceeding › peer-review
27. **Inclusion Through Design - Engaging Children with Disabilities in Development of Multi-Sensory Environments**  
Hedvall, P-O., Larsen, H. S. & Caltenco, H., 2013, *Assistive Technology Research Series*. IOS Press, Vol. 33. p. 628-633 6 p.  
Research output: Chapter in Book/Report/Conference proceeding › Paper in conference proceeding › peer-review
28. **Interaction and Mediation in Multi Sensory Environments**  
Hedvall, P-O., Larsen, H. S. & Caltenco, H., 2013.  
Research output: Contribution to conference › Abstract › peer-review
29. **Actors in AAC Activities**  
Hedvall, P-O., 2012.  
Research output: Contribution to conference › Abstract

30. **A Real-World Study of an Audio-Tactile Tourist Guide**  
Szymczak, D., Rasmus-Gröhn, K., Magnusson, C. & Hedvall, P-O., 2012, *Proceedings of the 14th international conference on Human-computer interaction with mobile devices and services*. Association for Computing Machinery (ACM), p. 335-344 10 p.  
Research output: Chapter in Book/Report/Conference proceeding › Paper in conference proceeding › peer-review
31. **Bridging children's contexts with online photo diaries**  
Rydeman, B. & Hedvall, P-O., 2012.  
Research output: Contribution to conference › Paper, not in proceeding › peer-review
32. **Bringing the Mobile Context into Industrial Design and Development**  
Magnusson, C., Larsson, A., Warell, A., Efring, H. & Hedvall, P-O., 2012, *NordiCHI 2012 Proceedings of the 7th Nordic Conference on Human-Computer Interaction: Making Sense Through Design*. Association for Computing Machinery (ACM), p. 149-152 4 p.  
Research output: Chapter in Book/Report/Conference proceeding › Paper in conference proceeding › peer-review
33. **Demonstration of an Audio-tactile Tourist Guide**  
Szymczak, D., Rasmus-Gröhn, K., Magnusson, C. & Hedvall, P-O., 2012, *MobileHCI '12 Proceedings of the 14th international conference on Human-computer interaction with mobile devices and services companion*. Association for Computing Machinery (ACM), p. 151-152  
Research output: Chapter in Book/Report/Conference proceeding › Paper in conference proceeding › peer-review
34. **Enhancing Multisensory Environments with Design Artifacts for Tangible Interaction**  
Caltenco, H., Larsen, H. S. & Hedvall, P-O., 2012, *International Workshop on Haptic and Audio Interaction Design*. p. 45-47 3 p.  
Research output: Chapter in Book/Report/Conference proceeding › Paper in conference proceeding › peer-review
35. **Ideation and ability: When actions speak louder than words**  
Larsen, H. S. & Hedvall, P-O., 2012, *ACM DL PDC '12 Proceedings of the 12th Participatory Design Conference: Exploratory Papers, Workshop Descriptions, Industry Cases*. Simonsen, J. & Halskov, K. (eds.). Association for Computing Machinery (ACM), Vol. Volume 2. p. 37-40 4 p.  
Research output: Chapter in Book/Report/Conference proceeding › Paper in conference proceeding › peer-review
36. **Mobility and modality - perceptualization in situated activities**  
Rydeman, B. & Hedvall, P-O., 2012.  
Research output: Contribution to conference › Paper, not in proceeding › peer-review
37. **Motivation, Peer Learning and Feedback in Flexible Learning**  
Larsson, A., Rydeman, B. & Hedvall, P-O., 2012. 4 p.  
Research output: Contribution to conference › Paper, not in proceeding › peer-review
38. **Navigating the world and learning to like it - mobility training through a pervasive game**  
Magnusson, C., Waern, A., Rasmus-Gröhn, K., Bjernryd, Å., Bernhardsson, H., Jakobsson, A., Salo, J., Wallon, M. & Hedvall, P-O., 2011, *Proceedings of the 13th International Conference on Human Computer Interaction with Mobile Devices and Services*. Association for Computing Machinery (ACM), p. 285-294 10 p.  
Research output: Chapter in Book/Report/Conference proceeding › Paper in conference proceeding › peer-review
39. **A Cultural-Historical Design Approach to Augmentative and Alternative Communication**  
Hedvall, P-O. & Rydeman, B., 2010.  
Research output: Contribution to conference › Paper, not in proceeding › peer-review
40. **An activity systemic approach to augmentative and alternative communication.**  
Hedvall, P-O. & Rydeman, B., 2010, In: *Augmentative and Alternative Communication: Aac*. 26, 4, p. 230-241  
Research output: Contribution to journal › Article › peer-review
41. **Aktivitetsdiamanten: Modellering av en vidareutvecklad tillgänglighet**  
Hedvall, P-O., 2009 Dec 4, Lund University. 254 p.  
Research output: Thesis › Doctoral Thesis (compilation)
42. **New Challenges for Participation in Participatory Design in Family, Clinical and Other Asymmetrical, Non-work Settings**  
Olav, B. & Hedvall, P-O., 2009, *Lecture Notes in Computer Science*. Springer, Vol. 5727. p. 971-972 2 p.  
Research output: Chapter in Book/Report/Conference proceeding › Paper in conference proceeding › peer-review
43. **The Activity Diamond - Modeling an Enhanced Accessibility**  
Hedvall, P-O., 2009, 254 p.  
Research output: Thesis › Doctoral Thesis (monograph)
44. **Towards the Era of Mixed Reality: Accessibility Meets Three Waves of HCI**  
Hedvall, P-O., 2009, *HCI and Usability for E-Inclusion, Proceedings*. Springer, Vol. 5889. p. 264-278 15 p.  
Research output: Chapter in Book/Report/Conference proceeding › Paper in conference proceeding › peer-review
45. **Who is in Control? AAC seen through the FACE tool**  
Rydeman, B. & Hedvall, P-O., 2008. 3 p.  
Research output: Contribution to conference › Paper, not in proceeding › peer-review

46. **Xings for Augmented Family Communication**  
Hedvall, P-O., 2008. 28 p.  
Research output: Contribution to conference › Paper, not in proceeding
47. **Situerad design för alla - till improvisationens lov**  
Hedvall, P-O., 2007, 184 p.  
Research output: Thesis › Licentiate Thesis
48. **Computer games as life quality for disabled players**  
Ferreira, J. & Hedvall, P-O., 2006.  
Research output: Contribution to conference › Paper, not in proceeding › peer-review