

CURRICULUM VITAE

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VANESSA M. LANIER, PT, DPT

Contact Information

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Present position:

2023-present Associate Professor, Physical Therapy and Orthopaedic Surgery
Washington University in St. Louis School of Medicine

Education:

2003-2007 Washington University in St. Louis; BA, Earth and Planetary Sciences,
Cum Laude
Saint Louis, MO

2009-2012 Washington University in St. Louis School of Medicine; DPT
Saint Louis, MO

Academic Positions / Employment:

2012-2015 Clinic Associate, Washington University in St. Louis Program in
Physical Therapy
St. Louis, MO

2015-2017 Instructor, Washington University in St. Louis Program in Physical
Therapy
St. Louis, MO

2017-2023 Assistant Professor, Washington University in St. Louis Program in
Physical Therapy
St. Louis, MO

2023-present Associate Professor, Washington University in St. Louis Program in
Physical Therapy
St. Louis, MO

Clinical Title and Responsibilities:

2012-2015 Clinic Associate, Washington University Physical Therapy Clinics

2012-2019 Physical Therapist, Washington University Center for the Treatment of
Bleeding and Blood Clotting Disorders

2015-2107 Instructor, Washington University Physical Therapy Clinics

2017-2022 Assistant Professor, Washington University Physical Therapy Clinics

2023-present Clinical Mentor, Washington University Physical Therapy Clinics

Teaching Title and Responsibilities:

- 2010-2012 Laboratory Assistant, Open Lab, Washington University Program in Physical Therapy
- 2010-2012 Tutor, Washington University Program in Physical Therapy
- 2012-present Clinical Instructor, Washington University Program in Physical Therapy
- 2013-2014 Mentor, Clinical Fellowship in Diagnosis and Management of Movement Impairment Syndromes, Washington University Program in Physical Therapy
- 2014-present Laboratory Instructor, Essential Clinical Skills I (PT 603), Washington University Program in Physical Therapy
- 2014-present Mentor, Diagnosis & Evidence Analysis in Physical Therapy Practice III (PT650)/Case Integration Lab III (PT 654), Washington University Program in Physical Therapy, 1-2 students/year
- 2015-present Course Assistant, Diagnosis & Evidence Analysis in Physical Therapy Practice I (PT 601), Washington University Program in Physical Therapy, 88 students/year
- 2016-present Lecturer and Laboratory Instructor, Diagnosis and Management of Musculoskeletal Conditions III (PT638), Washington University Program in Physical Therapy, 88 students/year
- 2017-present Lecturer and Laboratory Instructor, Diagnosis and Management of Musculoskeletal Conditions I (PT614), Washington University Program in Physical Therapy, 88 students/year
- 2019-present Course Assistant, Kinesiology II (PT613), Washington University Program in Physical Therapy, 88 students/year
- 2019-present Laboratory Instructor, Diagnosis and Management of Musculoskeletal Conditions II (PT624), Washington University Program in Physical Therapy, 88 students/year
- 2019-present Lecturer, Essential Clinical Skills II (PT627), Washington University Program in Physical Therapy, 88 students/year
- 2021-present Course Assistant, DMMC III (PT638), Washington University Program in Physical Therapy, 88 students/year
- 2020-2024 Curriculum Build Team Module 5 Co-Lead, Washington University Program in Physical Therapy
- 2021-2022 Evidence Thread Member, Washington University Program in Physical Therapy
- 2022-present Evidence Thread Co-Lead, Washington University Program in Physical Therapy
- 2023-present Pain Thread Co-Lead, Washington University Program in Physical Therapy
- 2024-present Module 5 Lead, Washington University Program in Physical Therapy

Medical Licensure and Board Certification:

- 2012-present Missouri Board of Registration for the Healing Arts
License # 2012023537
- 2015-present American Board of Physical Therapy Specialties:
Board Certified Orthopedic Clinical Specialist

Honors and Awards:

- 2005 NSF Research Experience for Undergraduates Fellow, University of Arkansas

2006	Hoopes Undergraduate Research Award, Washington University in St. Louis
2009-2012	Research Assistantship, Washington University in St. Louis, Program in PT
2009-2012	Merit Scholarship, Washington University in St. Louis, Program in PT
2010	Stephen J. Rose Diversity Development Scholarship, Washington University
2011	William and Ivy Kwong Scholarship, Washington University in St. Louis

Editorial Responsibilities:

2018-present	Manuscript Reviewer, <i>Physiotherapy Theory and Practice</i>
2020-present	Manuscript Reviewer, <i>Disability and Rehabilitation</i>
2021-present	Manuscript Reviewer, <i>PLOS ONE</i>
2021-present	Manuscript Reviewer, <i>JAMA Otolaryngology</i>
2022-present	Manuscript Reviewer, <i>Musculoskeletal Science and Practice</i>
2024-present	Manuscript Reviewer, <i>BMJ Open</i>

National Panels, Committees, Boards:

2018-2023	American Board of Physical Therapy Specialties; Specialization Academy of Content Experts
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Community Service Contributions/University and Program Committees:

2014	Clinical Practice Mission Statement Committee, Washington University Program in Physical Therapy
2014	Talent Development Action Planning Committee, Washington University Program in Physical Therapy
2014-2015	Faculty Search Committee, Washington University Program in Physical Therapy
2015-present	Clinical Mentoring Committee, Washington University Program in Physical Therapy
2015-2016	Clinic Associate Search Committee, Washington University Program in Physical Therapy
2017	Research Strategic Planning Committee, Washington University Program in Physical Therapy
2018	Clinic Associate Search Committee, Washington University Program in Physical Therapy
2018-2019	Learning Science Consideration Team, Curriculum Renewal, Washington University Program in Physical Therapy
2019-2020	Clinical Faculty Search Committee Interviewer, Washington University Program in Physical Therapy
2020	Clinic Associate Search Committee, Washington University Program in Physical Therapy
2023-present	Program Representative, Executive Committee of the Faculty Council, Washington University School of Medicine.

Professional Societies and Organizations:

2009-present	American Physical Therapy Association
2009-present	American Physical Therapy Association – Missouri

Invited Lectures:

- 2014 Pain and Prolonged Sitting. Washington University Medical Student Support Services. Saint Louis, MO. March 6, 2014.
- 2014 Aging Well with a Bleeding Disorder. Gateway Hemophilia Association Family Education Weekend. Saint Louis, MO. July 12, 2014.
- 2015 Movement and Technology. Hemophilia Alliance Annual Advanced Social Worker Conference. Las Vegas, NV. February 27, 2015.
- 2015 The Movement “Check-Up” – An Introduction to Movement Analysis. Great Lakes Hemophilia Regional Meeting. Maumee Bay, OH. October 12, 2015.
- 2016 Management of TMD – A Movement System Approach. Greater St. Louis Dental Society, Southern District Meeting. Saint Louis, MO. January 20, 2016.
- 2016 Motor Skill Training for Low Back Pain. Washington University School of Medicine Program in Physical Therapy, Clinical Rounds. Saint Louis, MO. March 8, 2016.
- 2016 Positioning for Success – Alignment and Studying. Washington University Medical Student Support Services. Saint Louis, MO. March 8, 2016.
- 2016 Motor Skill Training in People with Chronic Low Back Pain: An Alternative to Traditional Therapeutic Exercise? APTA Combined Sections Meeting. Anaheim, CA. 2016.
- 2016 Physical Therapy: Cervical Spine. Comprehensive Spine Care Conference. St. Louis, MO. October 15, 2016.
- 2016 Physical Therapy: Lumbar Spine. Comprehensive Spine Care Conference. St. Louis, MO. October 15, 2016.
- 2017 Movement-Based Examination and Treatment of Temporomandibular Joint Disorder. APTA Combined Sections Meeting. San Antonio, TX. February 17, 2017.
- 2017 Managing the Pain, Alternative Treatments. Gateway Hemophilia Association Family Education Weekend. Saint Louis, MO. July 22, 2017.
- 2017 Physical Therapy: Cervical Spine. Comprehensive Spine Care Conference. St. Louis, MO. September 16, 2017.
- 2017 Movement-Based Examination and Treatment of the Cervical Spine and Temporomandibular Joint. Belleville Memorial Hospital. Belleville, IL. November 1, 2017.
- 2018 Well Positioned – The Ergonomics of Studying. Washington University Medical Student Support Services. Saint Louis, MO. April 9, 2018.
- 2018 Implementing Skill Training in the Treatment of People with Low Back Pain: The Why and the How. APTA Annual Orthopaedic Section Meeting. Baltimore, MD. April 28, 2018.
- 2018 Why Do I Hurt? Gateway Hemophilia Association Family Education Weekend. Saint Louis, MO. July 14, 2018.
- 2018 Movement-Based Examination and Treatment of Temporomandibular Joint Disorder. Temporomandibular Joint Disorder Seminar for Dentists. Saint Louis, MO. November 1, 2018.
- 2019 Posture and Positioning in Medical Training. Washington University Medical Student Support Services. Saint Louis, MO. March 11, 2019.
- 2019 Movement and Alignment in Obstetrics and Gynecology Training. Washington University Obstetrics and Gynecology Residency Wellness Curriculum. March 21, 2019.

- 2019 Motor Skill Training in Functional Activities for Low Back Pain. Missouri Physical Therapy Association Spring Meeting. Saint Louis, MO. April 13, 2019.
- 2019 Motor Skill Training Principles and Implementation. Washington University Physical Therapy Clinics Quarterly Clinical Discussion Meeting. Saint Louis, MO. December 16, 2019.
- 2020 Motor Skill Training for Chronic Low Back Pain: Evidence and Implementation. Missouri Physical Therapy Association, Eastern District Meeting. Saint Louis, MO. January 14, 2020.
- 2020 Why and how to implement motor skill training in functional activities for low back pain. Missouri Physical Therapy Association Spring Meeting. Accepted. Meeting canceled for COVID-19.
- 2020 The Ergonomics and Body Mechanics of Studying: Making distance learning less painful. Washington University Medical Student Support Services. Saint Louis, MO. April 16, 2020.
- 2020 Moving Well: Alignment, positioning, and movement precision for OBGYNs. Washington University Obstetrics and Gynecology Residency Wellness Curriculum. Saint Louis, MO. April 23, 2020.
- 2021 TMD – Can Physical Therapy Help? American Academy of Women Dentists Greater St. Louis Chapter. Saint Louis, MO. January 21, 2021.
- 2021 Person-specific motor skill training in functional activities: a paradigm shift in chronic low back pain rehabilitation. Washington University Orthopaedic Resident Curriculum. Virtual. February 17, 2021.
- 2021 Exercise-Based Low Back Pain Treatments Require Different Numbers of Booster Sessions When Prescription is Performance-Based. APTA Missouri Spring Conference. Virtual. April 17, 2021.
- 2021 Motor Skill Training in Functional Activities in People with Chronic Low Back Pain. Alumni Update. Washington University Program in Physical Therapy. Virtual. June 27, 2021.
- 2021 Motor Skill Training for People with Chronic Low Back Pain. Advanced Application of the Examination, Diagnosis and Treatment of Movement System Impairment Syndromes of the Lumbar Spine and Hip: A Hybrid Course. St. Louis, MO. October 2, 2021.
- 2022 Person-specific motor skill training in functional activities: a paradigm shift in the treatment of musculoskeletal pain problems? APTA Missouri Fall Conference. Virtual. October 8, 2022.
- 2023 Implementation of motor skill training in functional activities for musculoskeletal pain problems. USC Orthopedic Physical Therapy Residency. February 19, 2023.
- 2024 Implementation of Motor Learning Principles to Improve Function in People with Musculoskeletal Pain Problems. APTA Combined Sections Meeting. February, 2024.
- 2024 Motor Skill Training to Improve Function in People with Low Back Pain. California Physical Therapy Association Webinar. May 1, 2024.

Consulting Relationships and Board Memberships:

2014-2018 Missouri Physical Therapy Association, Eastern District, Board of Directors; Membership Chair

2016-present Missouri Physical Therapy Association, Board of Directors; Research Chair

Research:

2018-2020 “Spinal control during functional activities to improve low back pain outcomes” NIH R01 HD047709 (PI-Van Dillen, 20% effort)

2023-present “Significance of Spinal Movement Impairments in Acute Low Back Pain” NIH R01 HD108240 (PI-Van Dillen, 20% effort)

Bibliography:

Manuscripts:

1. Original, peer reviewed articles

1. Chivers PT, Benanti EL, **Heil-Chapdelaine V**, Iwig JS, Rowe JL. Identification of Ni-(L-His)₂ as a substrate for NikABCDE-dependent nickel uptake in *Escherichia coli*. *Metallomics*. 2012 Oct;4(10):1043-50.
2. Marich AV, **Lanier VM**, Salsich G, Van Dillen LR. Immediate effect of a single session of motor skill training on the lumbar movement pattern during a functional activity in people with low back pain. *Physical Therapy*. 2018 Jul 1;98(7):605-615.
3. Francois SJ, **Lanier VM**, Marich AV, Wallendorf M, Van Dillen LR. A Cross-Sectional Study Assessing Treatment Preference of People with Chronic Low Back Pain. *Archives of Physical Medicine and Rehabilitation*. 2018 Dec;99(12):2496-2503.
4. **Lanier VM**, Lang CE, Van Dillen LR. Motor skill training in musculoskeletal pain: a case report in chronic low back pain. *Disability and Rehabilitation*. 2019 Aug;41(17):2071-2079.
5. Van Dillen LR, **Lanier VM**, Steger-May K, Wallendorf M, Norton BJ, Civello JM, Czuppon SZ, Francois S, Roles K, Lang CE. Effect of motor skill training in functional activities vs strength and flexibility exercise on function in people with chronic low back pain. *JAMA Neurology*. 2020 Dec 28:e204821.
6. Hooker QL, **Lanier VM**, Van Dillen LR. Consistent Differences in Lumbar Spine Alignment between Low Back Pain Subgroups and Genders during Clinical and Functional Sitting Tests. *Musculoskeletal Science and Practice*. 2021 Jan 26; 52:102336.
7. Hooker QL, **Lanier VM**, Roles K, Van Dillen LR. Motor Skill Training versus Strength and Flexibility Exercise in People with Chronic Low Back Pain: Preplanned Analysis of Effects on Kinematics during a Functional Activity. *Clinical Biomechanics*. 2022 Feb;92:105570.
8. **Lanier VM**, Lohse KR, Hooker QL, Francois SJ, Van Dillen LR. Treatment preference changes after exposure to treatment in adults with chronic low back pain. *Physical Medicine and Rehabilitation*. 2022 Sep 15:10.1002/pmrj.12897. doi: 10.1002/pmrj.12897.
9. Hooker QR, **Lanier VM**, van Dillen LR. Person-specific Characteristics of People with Low Back Pain Moderate the Movement Pattern within Motor Skill Training and Strength and Flexibility Exercise: Secondary Analysis of a Randomized Clinical Trial. *In review*.

10. **Lanier VM**, Lohse KR, Hooker QL, Civello JM, van Dillen LR. Booster session attendance, prescription, and outcomes in adults with chronic low back pain: Secondary analysis of a randomized clinical trial. *In review*.

Abstracts:

1. **Heil-Chapdelaine V**, Boss SK. Mapping Landscape Change: An Historic and Bathymetric Study of Lake Sequoyah. GSA Annual Meeting. Salt Lake City, UT. 2006.
2. Smith JR, Kieniewicz JM, Adelsberger KA, **Heil-Chapdelaine V**. Reconstructing Pleistocene pluvial phase environments, Western Desert, Egypt, from the geochemistry of authigenic water-lain deposits. *Geochemica et Cosmochemica Acta*. 2006;70(18):A599-A599.
3. Wang J, Bennett KJ, Scholes D, Arvidson R, Ward JG, Slavney S, Guinness EA, Stein TC, **Heil-Chapdelaine V**. Planetary Data Access Through the Orbital Data Explorer from the PDS Geosciences Node. Lunar and Planetary Science Conference. Houston, TX. 2009.
4. Stein TC, Arvidson RE, Scholes DM, **Heil-Chapdelaine VM**. Phoenix Analyst's Notebook: A Holistic Tool for Accessing Integrated Mission Data and Documents. Lunar and Planetary Science Conference. Houston, TX. 2009.
5. Wang J, Stein TC, Heet T, Scholes DM, Arvidson RE, **Heil-Chapdelaine V**. A WebGIS for Apollo Analyst's Notebook. *GEOProcessing*. 2010.
6. Gelber JR, **Lanier VM**, Sahrman SA, Hastings MK. Movement testing and movement pattern modification to alter foot and ankle pain. MPTA Spring Meeting. St. Louis, MO. 2013
7. **Lanier VM**, Gelber JR, Hastings MK. A modified standing heel-rise test for ankle plantar flexor strength. MPTA Spring Meeting. St. Louis, MO. 2013
8. Gelber JR, **Lanier VM**, Royer N, Hastings MK. Comparison of static alignment to movement pattern in individuals who have foot and ankle pain. *Journal of Orthopaedic and Sports Physical Therapy*. 2014;44(1):A75.
9. **Lanier VM**, Gelber JR, Royer N, Hastings MK. A modified standing heel-rise test for ankle plantar flexor strength. *Journal of Orthopaedic and Sports Physical Therapy*. 2014;44(1):A23
10. Marich AV, **Lanier V**, Van Dillen LR. The effects of within session motor skill training during a functional activity test: a pilot study. In *Proceedings of 9th Interdisciplinary World Congress for Low Back and Pelvic Pain*, October 31 – November 3, 2016, Singapore, Singapore, p. 143.
11. Marich AV, **Lanier VM**, Lang CE, Sahrman SA, Van Dillen LR. Feedback needed to modify lumbar movement patterns during motor skill training: A preliminary report. *Journal of Orthopaedic and Sports Physical Therapy*. 2018; 48(1):A147.
12. Civello JM, Francois SJ, **Lanier VM**, Czuppon S, DeGeeter RM, Wallendorf M, Van Dillen LR. Factors associated with booster visit prescription in adults with low back pain. *Journal of Orthopaedic and Sports Physical Therapy*. 2018; 48(1):A94.
13. **Lanier VM**, Lang CE, Van Dillen LR. Application of a motor skill training program in an individual with chronic low back pain. *Journal of Orthopaedic and Sports Physical Therapy*. 2018; 48(1):A140-141.
14. Van Dillen LR, Norton BJ, Steger-May K, **Lanier VM**, Civello JM, DeGeeter RM, Czuppon SJ, Johnson J, Holtzman GW, Weaver A, Wallendorf M, Francois S, Roles

- KM, Putnam S, Lang CE. Effects of skill training versus strength and flexibility exercise on functional limitations and pain in people with chronic low back pain over a 6 month period. *International Society for the Study of the Lumbar Spine*. Banff, Canada. May 14-18, 2018.
15. Van Dillen LR, Norton BJ, Steger-May K, **Lanier VM**, Civello JM, DeGeeter RM, Czuppon SJ, Johnson J, Holtzman GW, Weaver A, Wallendorf M, Francois S, Roles KM, Putnam S, Lang CE. Short and long-term effects of skill training vs. strength and flexibility exercise on functional limitations and pain in people with chronic low back pain. *Journal of Orthopaedic and Sports Physical Therapy*. 2019; 49(1):CSM147
 16. Hooker Q, Roles K, **Lanier VM**, Francois SJ, Van Dillen LR. Short- and long-term effects of skill training vs. strength and flexibility exercise on knee, hip, and lumbar spine kinematics in people with chronic low back pain. *Journal of Orthopaedic and Sports Physical Therapy*. 2019; 49(1):CSM15.
 17. Hooker Q, Roles K, **Lanier VM**, Francois SJ, Van Dillen LR. Consistent differences in lumbar alignment during clinical tests and a functional task between low back pain subgroups. *Journal of Orthopaedic and Sports Physical Therapy*. 2019; 49(1):CSM104.
 18. Hooker QL, Roles K, **Lanier VM**, Van Dillen LR. Effects of motor skill training vs. strength and flexibility exercise on functional limitations, pain, and movement characteristics in people with chronic low back pain. *Association for Clinical and Translational Sciences Meeting*, Washington, DC, March 5-8, 2019.
 19. Hooker QL, Roles K, **Lanier VM**, Van Dillen LR. Males and Females with Chronic Low Back Pain Display Consistent Differences in Lumbar Spine Alignment During Clinical Tests and a Functional Task. *27th Congress of the International Society of Biomechanics*. Calgary, Alberta, CA. July 31-August 5, 2019; p. 822.
 20. Hooker QL, Roles K, **Lanier VM**, Van Dillen LR. Motor Skill Training vs. Strength and Flexibility Exercise in People with Chronic Low Back Pain: Effects on Short- and Long-term Limitations in Function, Pain Intensity, and Movement Characteristics. *27th Congress of the International Society of Biomechanics*. Calgary, Alberta, CA. July 31-August 5, 2019; p. 862.
 21. Hooker QL, **Lanier VM**, Van Dillen LR Consistent Differences in Lumbar Spine Alignment Between Low Back Pain Subgroups and Sexes during Clinical and Functional Sitting Tests. *Translational Science 2020*. Washington, DC, April 14-17, 2020.
 22. **Lanier VM**, Hooker QL, Lohse KR, Van Dillen LR. Exercise-Based Low Back Pain Treatments Require Different Numbers of Booster Sessions When Prescription is Performance-Based. *Journal of Orthopaedic and Sports Physical Therapy*. 2021: 51(1):CSM111
 23. Chen S, Durand L, **Lanier VM**, Hooker QL, Van Dillen LR. Validity of an Operational Definition of a Recurrence of an Episode of Low Back Pain. *Journal of Orthopaedic and Sports Physical Therapy*. 2021: 51(1):CSM72.
 24. **Lanier VM**, Hooker QL, Lohse KR, Van Dillen LR. Exercise-Based Low Back Pain Treatments Require Different Numbers of Booster Sessions When Prescription is Performance-Based. APTA Missouri Spring Conference. Virtual, April 16-18, 2021.
 25. Chen S, Durand L, **Lanier VM**, Hooker QL, Van Dillen LR. Validity of an Operational Definition of a Recurrence of an Episode of Low Back Pain. APTA Missouri Spring Conference. Virtual, April 16-18, 2021.

26. **Lanier VM**, Lohse KR, Hooker QL, Civello JM, van Dillen LR. No Evidence That Booster Attendance Changes Trajectory of Pain or Function in Low Back Pain. *Journal of Orthopaedic and Sports Physical Therapy*. 2023;53(2):OPL56.
27. **Lanier VM**, Hooker QL, van Dillen LR. Person-Specific Characteristics Moderate the Movement Pattern in Exercise-Based Treatments in Adults with Low Back Pain. *Journal of Orthopaedic and Sports Physical Therapy*. 2023;53(2):OPL58.
28. **Lanier VM**, Lohse KR, Hooker QL, Civello JM, van Dillen LR. Variables That Predict Who Needs Additional Booster Sessions in Adults with Chronic Low Back Pain. *Journal of Orthopaedic and Sports Physical Therapy*. 2023;53(2):OPL61.
29. **Lanier VM**, Lohse KR, Hooker QL, Francois SJ, van Dillen LR. Treatment preference changes following treatment in adults with chronic low back pain. *Journal of Orthopaedic and Sports Physical Therapy*. 2023;53(2):OPL64.
30. Van Dillen LR, **Lanier VM**. Spinal movement impairments in non-chronic low back pain: A potentially clinically important biomarker. In *Proceedings of 11th Interdisciplinary World Congress for Low Back and Pelvic Pain*, November 1-5, Melbourne, Australia 2023, pp. 69-74, ISBN/EAN 978-90-816016-8-9.
31. Van Dillen LR, **Lanier VM**, McDonnell DF. Within-session effects of treating person-specific spinal movement impairments in people with acute low back pain presenting to the Emergency Department: A feasibility study. In *Proceedings of 11th Interdisciplinary World Congress for Low Back and Pelvic Pain*, November 1-5, Melbourne, Australia 2023, p. 264, ISBN/EAN 978-90-816016-8-9.
32. **Lanier VM**, Hooker QL, Van Dillen LR. Person-specific characteristics moderate the effect of motor skill training in adults with low back pain. In *Proceedings of 11th Interdisciplinary World Congress for Low Back and Pelvic Pain*, November 1-5, Melbourne, Australia 2023, p. 149, ISBN/EAN 978-90-816016-8-9.
33. **Lanier VM**, Lohse KR, Hooker QL, Civello JM, Van Dillen LR. Booster prescription and outcomes in adults with low back pain. In *Proceedings of 11th Interdisciplinary World Congress for Low Back and Pelvic Pain*, November 1-5, Melbourne, Australia 2023, p. 303, ISBN/EAN 978-90-816016-8-9.