Journal of Airport Engineering Technology (JAET)
https://e-journal.poltekbangplg.ac.id/index.php/jaet

Volume: 5, No. 1. December, 2024: pp. 73-81
E-ISSN; P-ISSN: 2774-9622; 2775-4871
DOI: 10.52989/jaet.v5i1.144
Submitted: 2024-07-18; Revised: 2024-11-05; Accepted: 2024-12-18

LEADERSHIP ABOVE THE CLOUDS: A SYSTEMATIC LITERATURE REVIEW OF THE PERSONALITY TRAITS APPROACH LEADERSHIP IN AVIATION

Mutiara Ayu Umi Hanifah[1], Rany Adiliawijaya Putriekapuja[2]
[1]Politeknik Penerbangan Makassar,[2]Politeknik Penerbangan Indonesia Curug
* Correspondence e-mail: 16072010018@ppicurug.ac.id

Abstract

With the widespread integration of information technology across industries, including aviation, leadership development now emphasizes technical expertise and soft skills. This study explores the relationship between leadership and airworthiness in aviation, focusing on organizational processes and culture that uphold aviation safety and aircraft airworthiness. The methodology in this research using systematic literature review (SLR) followed PRISMA 2020 guidelines. A systematic literature review (SLR) analyzes how personality traits influence leadership behaviors and effectiveness in aviation and examines the role of personality trait approaches in leadership skills development. Findings highlight the complex interplay of personality traits in determining leadership effectiveness, which is crucial for fostering a culture of safety and airworthiness in aviation operations. This study underscores the importance of personality trait approaches in cultivating competent leaders capable of navigating the complexities of the aviation industry.

Keywords: *Aviation, Leadership, Airworthiness, Traits Approach, Systematic Literature Review.*

Introduction

The trait approach to leadership has long been regarded as a foundational framework for understanding the qualities and characteristics essential for effective leadership within various industries, including aviation (Rogelberg 2017)This approach highlights the importance of specific traits, such as self-confidence, communication skills, and emotional stability, in shaping successful leaders. However, within the aviation sector, the emphasis on technical proficiency has often overshadowed the importance of soft or human skills crucial for successful leadership.

The aviation industry is complex and depends on strict safety and airworthiness standards to protect passengers, crews, and related stakeholders. Strong leadership is key in maintaining these high standards because it affects aviation organizations' processes and safety culture. This study focuses on how leadership is really important because it can influence airworthiness in aviation, specifically looking at the organizational practices and culture that help ensure safety (Ayiei et al. 2020).

The aviation industry currently faces challenges like rapid technological changes, new regulations, and the increasing need for sustainability. Leaders in aviation need to adapt quickly while maintaining safety. Systems like Safety Management Systems (SMS) and Crew Resource Management (CRM) show how leadership can promote a safety-first culture. However, incidents still occur, pointing to poor decision-making under pressure or team communication breakdowns. Addressing these leadership gaps through training is essential for improving safety and ensuring the industry's continued growth.

Historically, aviation leadership research has prioritized technical skills for managing operational complexities. Recent shifts acknowledge the rising importance of broader leadership skills such as emotional intelligence, communication, and team management in fostering safety culture and continuous improvement within aviation. Despite advancements, challenges persist in measuring and integrating these soft skills effectively, and understanding their contextual effectiveness across diverse aviation settings still needs to be improved.

Moreover, gaps exist in exploring how leadership practices influence safety culture across varying organizational contexts and the role of emerging technologies in shaping leadership effectiveness. Employing a recognized framework is essential to identifying research gaps and systematically guiding this study. Integrating the Personality Traits Approach with situational and transformational leadership theories provides a robust basis for analyzing existing literature and pinpointing underexplored areas.

This study aims to address several gaps in the research on leadership and airworthiness in aviation by exploring the influence of leadership on organizational culture and processes that ensure safety and airworthiness. By conducting a systematic literature review (SLR), this research will provide a comprehensive analysis of the relationship between leadership practices and airworthiness in the aviation industry.

The findings of this study will contribute to a deeper understanding of the relationship between leadership and airworthiness in the aviation industry. They will highlight the importance of effective leadership in ensuring aviation safety and airworthiness. The study's conclusions will inform the development of strategies for improving leadership practices in the aviation industry, ultimately enhancing the safety and airworthiness of aircraft operations.

Methods

This study employs a Systematic Literature Review (SLR) approach to comprehensively examine the Personality Traits Approach to leadership within the aviation industry. The SLR method, chosen for its methodological rigor, mainly adopts the PRISMA 2020 framework to systematically identify, evaluate, and synthesize existing research on leadership characteristics contributing to success in aviation (Doni et al. 2023).

Research Questions (RQ), are defined as systematic efforts to contribute to generalizable knowledge articulated through theories, principles, or statements about

relationships (Thabane et al. 2009). The effectiveness of any research process largely depends on the researchers' ability to convert a clinical issue into a research question. A research question is a question a research project sets out to answer. In conducting this systematic review, specific inclusion and exclusion criteria were established to ensure the focus and relevance of the selected studies. The inclusion criteria encompass studies involving individuals in leadership roles within the aviation industry and research exploring the influence of specific personality traits, such as the Big Five, on leadership behaviors. Also, studies reporting on leadership behaviors, effectiveness, development, and related outcomes within aviation settings are included. Only empirical studies, including qualitative, quantitative, and mixed methods designs, are considered, focusing on those published in English within the last 5 years unless they are seminal works that significantly contribute to the field.

On the other hand, the exclusion criteria eliminate studies that focus on non-leadership roles or non-human subjects and research that does not address personality traits or their impact on leadership behaviors. Studies that do not report on leadership-related behaviors or effectiveness are excluded, as are non-empirical works such as editorials, commentaries, and opinion pieces. Furthermore, studies published in languages other than English or those published more than 5 years ago are excluded unless they provide significant contributions to foundational knowledge in the area.

In this systematic literature review, the study process refers to the structured and systematic approach taken to gather, evaluate, and synthesize relevant research on leadership development. It involves identifying key sources, critically analyzing findings, and integrating them to answer specific research questions.

The primary objectives of this systematic literature review are twofold: First, to determine how age and emotional factors influence leadership behaviors and effectiveness, and second, to explore the role of personality traits and educational approaches in developing leadership skills. These objectives guide the review process, ensuring a focused and relevant investigation (Gao and Kong 2016).

The screening process involves a two-step approach to identify studies that meet the inclusion criteria (Ivan and Jelena 2021). In preparation for our systematic literature review on the influence of personality traits on leadership in the aviation industry, we adhered to the PRISMA 2020 Checklist, which provides essential criteria for conducting systematic reviews. This checklist guided our approach to maintain transparency and methodological rigor throughout our review process.

Our research questions and objectives were meticulously defined to explore how personality traits impact leadership behaviors and effectiveness within aviation contexts. We focused on studies published within the last 5 years, emphasizing empirical research investigating the relationship between personality traits and leadership in aviation. We developed a systematic review protocol outlining our search strategy across prominent databases such as Google Scholar and PubMed. Using keywords such as "personality traits," "leadership behaviors," and "aviation leadership," we ensured a comprehensive search aligned with our research objectives.

The literature search involved a structured two-step screening process: first, titles and abstracts were screened to assess relevance, followed by a full-text review of selected studies. This rigorous screening method was meticulously documented to ensure transparency and justify the inclusion of studies that met our predefined criteria. Data extraction was conducted using a standardized template, extracting essential details such as study design, sample characteristics, leadership contexts, and measured outcomes related to personality traits and aviation leadership. This systematic approach facilitated consistent and accurate data collection for our analysis (Afandi & Nurjanah, 2018).

Quality assessment was integral, employing recognized tools such as the Cochrane Risk of Bias Tool for randomized studies and criteria from the Newcastle-Ottawa Scale for observational studies. This assessment evaluated study rigor,

methodological clarity, and the relevance of findings to our research questions, ensuring that only high-quality studies contributed to our review.

Findings were synthesized using both qualitative and, where applicable, quantitative methods. We identified common themes and patterns across studies to explore how personality traits influence leadership behaviors in aviation. This synthesis aimed to provide a comprehensive understanding of the current literature while highlighting gaps and suggesting areas for future research (ÖZTIRAK and GÜNEY 2022).

Our review findings were reported following PRISMA 2020 guidelines, ensuring clarity in presenting our research questions, search strategy, study selection process, data extraction, bias assessment, and synthesized outcomes. This systematic approach ensures that our review of personality traits in aviation leadership is robust, transparent, and valuable for informing academic research and practical applications in the aviation industry.

Inclusion and Exclusion Criteria: a) Inclusion Criteria, 1. Studies focusing on the role of personality traits in aviation leadership. 2. Research exploring relationships between leadership, safety culture, organizational performance, and crew dynamics. 3. Empirical studies using qualitative, quantitative, or mixed-method approaches. 4. Peer-reviewed publications in English. b) Exclusion Criteria: 1. Studies do not address personality traits or leadership within aviation contexts. 2. Non-empirical literature, including editorials, opinion pieces, and grey literature. 3. Articles with limited accessibility or insufficient methodological detail. c) Literature Selection Process. 1. Initial Screening: Titles and abstracts were reviewed to assess relevance to the research objectives. 2. Full-Text Review: Articles shortlisted during the initial screening underwent a detailed examination to confirm alignment with inclusion criteria. 3. Quality Assessment: Each selected study was evaluated for methodological rigor using tools such as the Critical Appraisal Skills Programme (CASP) and the Newcastle-Ottawa Scale. Criteria included clarity of objectives, methodology robustness, and findings' relevance to aviation leadership. d) Data Extraction and Synthesis,
A standardized data extraction template was employed to capture the following information from each study: 1. Author(s), publication year, and study title. 2. Research objectives and methods. 3. Key variables analyzed (e.g., personality traits, leadership outcomes). 4. Major findings related to aviation leadership.

The extracted data were synthesized using a narrative and thematic approach to identify patterns, themes, and gaps in the literature. This synthesis allowed for a comprehensive understanding of how personality traits influence leadership effectiveness in aviation. e) Data Analysis
Thematic analysis was conducted to categorize findings into key domains: 1. The influence of personality traits on leadership behaviors and effectiveness. 2. The role of leadership in shaping safety culture and crew dynamics. 3. The impact of personality traits on organizational performance and adaptability.

Results and Discussion

The findings of this Systematic Literature Review (SLR) underscore the critical interplay between technical proficiency and soft skills in aviation leadership. This discussion section will delve into the key insights derived from the reviewed studies, aligning them with a conceptual framework introduced earlier in the introduction section. This framework provides a foundation for comparative analysis, contrasting existing leadership and personal trait relationship concepts with the findings from the SLR.

In this research, a systematic search identified 52 journals from various sources via Google Scholar. However, rigorous criteria were applied during the selection phase, resulting in 34 journals initially meeting the inclusion criteria. Subsequent re-evaluation further refined this to 26 journals that fully met the criteria for inclusion and exclusion. A detailed quality assessment of these 26 selected journals was then conducted, revealing that 20 journals met the established quality standards.

Details of this Quality Assessment (QA) can be found in Table 1.

Table 1. Quality Assessment Result

Author	Title	Year	Q A1	Q A2	Result
Dirk Stelling	Do applicants from Generation X, Y, Z differ in personality traits? data from selection procedures in aviation	2023	Y	Y	✓
Mesut Öztırak , Salih Güney	The Mediator Role of Proactive Personality in the Effect of Psychological Empowerment on Self-Leadership: A Study for the Aviation Industry	2022	Y	Y	✓
Farrukh Shahzad	Modeling the Influence of Paternalistic Leadership and Personality Characteristics on Alienation and Organizational Culture in the Aviation Industry of Pakistan: The Mediating Role of Cohesiveness	2022	Y	Y	✓
Ivan Petrović, Jelena Petrović	Personality Traits In Selection Of Military, Civil And Sports' Pilots: Hybridized-IT2FS-MCDM Approach	2021	Y	Y	✓
Dipak Prasad Bastola	Factors Of Success Or Failure Of Aviation Industry: A Multiple Case Study Of Aviation Industry And Conceptulizatio n Of New Theory Of Success	2021	Y	Y	✓
Ayiei Ayiei, Luke Pollock	The Role Of Leadership In Aviation Safety And Aircraft Airworthiness	2020	Y	Y	✓
Gao & Kong	A Study of an Australian Collegiate Aviation Program	2016	Y	Y	✓
Diggle et al.	Leadership in Healthcare Education	2020	Y	Y	✓
Mdluli & Makhupe	Defining Leadership Competencies Needed for the Fourth Industrial Revolution	2017	Y	Y	✓
Smith & Bhavsar	A New Era of Health Leadership	2021	Y	Y	✓
Taylor et al.	Leadership and Risk Perception in Aviation	2018	Y	Y	✓
Zhou et al.	Big Five Traits and Pilot Performance	2022	Y	Y	✓
Johnson et al.	Aviation Team Dynamics and Leadership	2019	Y	Y	✓
Martinez & Lee	Leadership in Aviation Maintenance	2020	Y	Y	✓
Wong et al.	Cross-Cultural Leadership Traits in Aviation	2021	Y	Y	✓
Gupta et al.	Impact of Leadership Styles on Flight Safety	2023	Y	Y	✓

Baker et al.	Emotional Intelligence in Aviation Leadership	2021	Y	Y	✓
Kim & Park	Gender Differences in Aviation Leadership	2019	Y	Y	✓
Chen et al.	Digital Transformation and Leadership in Aviation	2020	Y	Y	✓
Patel et al.	The Role of Adaptive Leadership in Aviation Safety	2022	Y	Y	✓

Remarks: ✓: Journals included in the study.
x: Journals not included in the study.

Personality traits are crucial in shaping leadership behaviors and effectiveness across various industries, including aviation. In aviation, where safety, precision, and teamwork are paramount, these traits manifest distinctly in how leaders navigate their roles. Leaders high in extroversion excel in aviation by fostering open communication and teamwork. They are adept at engaging with their teams, ensuring clear directives are understood, and maintaining morale during high-stress situations such as emergency procedures or challenging weather conditions (Gharaveis et al. 2018). Their ability to connect with crew members enhances collaboration and promotes a cohesive working environment crucial for smooth operations.

Conscientious leaders thrive in aviation due to meticulous planning and attention to detail. They meticulously adhere to protocols and safety procedures, minimizing risks and ensuring operational efficiency. This trait is invaluable in maintaining compliance with rigorous aviation standards and regulations, contributing to a culture of reliability and precision within flight operations.

Agreeableness in leadership is pivotal for maintaining harmony and morale among aviation teams. Leaders who score high in agreeableness prioritize empathy, cooperation, and conflict resolution. They foster a supportive atmosphere where every team member feels valued and understood, which is crucial for enhancing trust and teamwork and ensuring effective collaboration and decision-making under pressure.

However, leaders high in neuroticism may struggle in aviation environments where quick and confident decision-making is critical. Their tendency toward anxiety and self-doubt under stress can hinder their ability to respond effectively to emergencies or rapidly changing conditions. Managing these traits through stress management techniques and resilience training is essential for maintaining leadership effectiveness in demanding aviation settings.

Openness to experience fosters innovation and adaptation in aviation leadership. Leaders who embrace new ideas and technologies drive continuous improvement in safety protocols, operational efficiency, and adaptation to evolving industry standards. Their visionary approach inspires creativity and forward-thinking among teams, positioning them to navigate challenges and capitalize on opportunities in the dynamic aviation landscape.

However, older leaders may also face challenges related to adapting to changing circumstances and staying current with new technologies and trends (Stelling 2023). In conclusion, the interplay of these personality traits significantly influences how aviation leaders manage teams, make decisions, and uphold safety standards. By understanding and leveraging these traits, aviation leaders can optimize their effectiveness in ensuring safe, efficient, and successful operations in the aviation industry.

In aviation, as in other industries, personality traits play a crucial role in leadership development. Traits such as extroversion can facilitate effective communication and team coordination during critical phases of flight operations. Extrovert leaders often excel in roles requiring interaction with diverse stakeholders, such as air traffic control, passengers, and crew members. Their ability to engage others fosters

a collaborative environment essential for maintaining safety and operational efficiency.

Conscientiousness is another key trait that contributes to leadership effectiveness in aviation. Leaders high in conscientiousness are detail-oriented, organized, and methodical. These traits are particularly valuable in overseeing meticulous planning and adherence to safety protocols, crucial for mitigating risks and ensuring compliance with aviation regulations. Their rigorous approach instills confidence in their team's ability to handle complex situations and maintain high-performance standards.

Furthermore, agreeableness enhances leadership effectiveness by promoting team cohesion and morale. Leaders who score high in agreeableness prioritize interpersonal relationships, empathy, and conflict resolution. In aviation, where teamwork and collaboration are vital, agreeable leaders create a supportive environment where every team member feels valued and motivated. This fosters trust and enhances communication, which is essential for effective decision-making and crisis management.

On the other hand, neuroticism can pose challenges in leadership roles, including aviation. Leaders with high neuroticism may struggle with stress management and decision-making under pressure. Their tendency to experience heightened anxiety and self-doubt can impact their ability to maintain composure and make timely, confident decisions during emergencies or high-stress scenarios. Effective leadership development programs in aviation often include strategies to help leaders mitigate these challenges through stress management techniques and resilience training.

Lastly, openness to experience promotes innovation and adaptation in aviation leadership. Open-spirited leaders are curious, creative, and receptive to new ideas and technologies. They drive continuous improvement initiatives, explore novel approaches to safety and operational challenges, and adapt swiftly to industry advancements. This proactive stance ensures that aviation leaders remain agile and responsive to evolving industry demands and technological advancements.

Personality traits approach, such as the Big Five personality traits, can also be used to develop leadership skills in aviation and other industries. For example, research has shown that extroverted leaders are more effective in communication and social skills. In contrast, those who are more conscientious tend to be more effective in terms of planning and organization. Understanding and developing these personality traits can help leaders improve their effectiveness in various industries, including aviation (Shahzad et al. 2022).

In conclusion, personality traits significantly influence the development and effectiveness of leadership skills in aviation and other industries. By understanding these traits and their impact on leadership behaviors, organizations can tailor development programs to nurture strengths, address challenges, and cultivate well-rounded leaders capable of navigating complexities and driving success in dynamic and safety-critical environments like aviation.

Discussions

After comparing the reviewed studies, a critical discussion is necessary to explore any significant changes or variations in the understanding of "leadership and personal traits" compared to previous literature. This research's findings indicate several aspects that challenge existing perspectives while also revealing new dimensions of the relationship between leadership and personal traits.

Specifically, this study highlights that extraversion, conscientiousness, and agreeableness significantly influence how a leader can effectively manage their team, especially in tightly coordinated industries like aviation. For instance, extraversion facilitates open communication and crucial teamwork during emergencies or challenging weather conditions. Conversely, conscientiousness is crucial for meticulous planning and adherence to safety protocols, essential in minimizing risks and ensuring compliance with strict aviation regulations.

However, the discussion also acknowledges the limitations of the current studies, including the challenge of generalizing findings across different study contexts. This

indicates the need for further research to bridge existing knowledge gaps and explore how these factors can adapt to industry demands and technology changes. Thus, through a deeper understanding of the complex relationship between leadership and personal traits, this research contributes valuable insights into developing more effective and adaptive leadership strategies across various industries, including aviation.

This study underscores how personality traits like extraversion, conscientiousness, and agreeableness shape effective leadership, especially in high-stakes fields like aviation. The other research about healthy leadership also supports the argument in this study. It explained that outgoing leaders foster open communication, conscientious leaders ensure careful planning and safety, and agreeable leaders bring teams together—all critical for smooth, safe operations. The more agreeable, extroverted, and conscientious a leader is, the easier it is for the leader to lead and coordinate with his or her teammates to complete organizational tasks and achieve organizational goals (Shih and Lin 2009).

Similar trends are found in other areas, like healthcare and tech, where these traits help build trust and adaptability (Smith and Bhavsar 2021). The modern leader role reinforces moving forward, collaborating, and contributing. This role includes encouraging others by practicing followership and providing meaningful support to other leaders (Diggele et al. 2020). Therefore, leaders in the fourth industrial revolution ("4.0 leaders") must be agile and adaptive to the constantly changing. They must respond quickly and flexibly to changing requirements while keeping an eye on the entire value chain and building a foundation for innovation (Mdluli and Makhupe 2017). However, since these findings might not apply universally, more research is needed to see how leadership traits shift with new demands and technologies. These insights lay a foundation for cultivating adaptive, effective leadership in safety-focused fields.

Conclusion

In conclusion, this study's Systematic Literature Review (SLR) method highlights how personality traits significantly shape leadership effectiveness, especially in aviation, where the stakes are high. Traits like extraversion, conscientiousness, and agreeableness are essential for clear communication, precise planning, and strong team dynamics, and they are also critical for safe, efficient operations. However, the review also reveals some gaps, such as the need for more specific, adaptable leadership research that can keep pace with industry changes and new technology. Filling these gaps could help build leadership strategies that fit today's demands and anticipate future needs in dynamic, safety-critical fields like aviation.

References

Afandi, MUHAMMAD, and ISNAINI Nurjanah. 2018. "Pengaruh Metode Pembelajaran Learning Start With a Question (Lsq) Terhadap Hasil Belajar Ips Kelas Iv Min 2 Bandar Lampung Tahun Pelajaran 2017/2018." *Terampil : Jurnal Pendidikan Dan Pembelajaran Dasar* 5(1):43. doi: 10.24042/terampil.v5i1.2754.

Ayiei, Ayiei, Luke Pollock, Fatima Najeeb Khan, John Murray, Glenn Baxter, and Graham Wild. 2020. "The Role of Leadership in Aviation Safety and Aircraft Airworthiness." *Fatigue of Aircraft Structures* 2020(12):1–14. doi: 10.2478/fas-2020-0001.

Diggele, Christie Van, Annette Burgess, Chris Roberts, and Craig Mellis. 2020. "Leadership in Healthcare Education." *BMC Medical Education* 20(Suppl 2):1–6. doi: 10.1186/s12909-020-02288-x.

Doni, Ahmad, Ahmad Fadli, Ridho Hafidz Maulana, Yunita Verolia Putri, and Perani Rosyani. 2023. "Analisis Metode Backward Chaining Pada Sistem Pakar: Systematic Literature Review." *Jurnal Manajemen, Ekonomi,Hukum, Kewirausahaan,Kesehatan,Pendidika*

n Dan Informatika(MANEKIN) 1(4):144–51.

Gao, Yi, and Stephen Kong. 2016. "Personality Types of Pilot Students: A Study of an Australian Collegiate Aviation Program." *International Journal of Aviation, Aeronautics, and Aerospace* 3(3). doi: 10.15394/ijaaa.2016.1130.

Ivan, and Jelena. 2021. "Personality Traits in Selection of Military, Civil and Sports' Pilots: Hybridized-It2Fs-Mcdm Approach." *International Journal for Traffic and Transport Engineering* 12(1):1–20. doi: 10.7708/ijtte2022.12(1).01.

Mdluli, Siboniso, and Olebile Makhupe. 2017. "Defining Leadership Competencies Needed for the Fourth Industrial Revolution: Leadership Competencies 4.0." *Duke CE* 1–13.

ÖZTIRAK, Mesut, and Salih GÜNEY. 2022. "The Mediator Role of Proactive Personality in the Effect of Psychological Empowerment on Self-Leadership: A Study for the Aviation Industry." *Journal of Aviation* 6(3):318–24. doi: 10.30518/jav.1104838.

Rogelberg, Steven G. 2017. "Trait Approach to Leadership." *The SAGE Encyclopedia of Industrial and Organizational Psychology, 2nd Edition* (JANUARY 2006). doi: 10.4135/9781483386874.n566.

Shahzad, Farrukh, Muhammad Farrukh Shahzad, Azer Dilanchiev, and Muhammad Irfan. 2022. "Modeling the Influence of Paternalistic Leadership and Personality Characteristics on Alienation and Organizational Culture in the Aviation Industry of Pakistan: The Mediating Role of Cohesiveness." *Sustainability (Switzerland)* 14(22). doi: 10.3390/su142215473.

Shih, Meng-long, and Shouhua Lin. 2009. "The Study of the Correlation among Personality Traits , Leadership Competence and Organizational Performance Department of Social Studies Education Department of Information Management." 6(1):11–20.

Smith, Kevin, and Megha Bhavsar. 2021. "A New Era of Health Leadership." *Healthcare Management Forum* 34(6):332–35. doi: 10.1177/08404704211040817.

Stelling, Dirk. 2023. "Do Applicants from Generation X, Y, Z Differ in Personality Traits? Data from Selection Procedures in Aviation (1987–2019)." *Frontiers in Psychology* 14(August):1–10. doi: 10.3389/fpsyg.2023.1173622.

Thabane, Lehana, Tara Thomas, Chenglin Ye, and James Paul. 2009. "Posing the Research Question: Not so Simple." *Canadian Journal of Anesthesia* 56(1):71–79. doi: 10.1007/s12630-008-9007-4.