JoE

Journal of Expertise
2025. Vol. 8(4)

ISSN 2573-2773

Enhancing Creative Performance Through Radical Interdisciplinarity: A Commentary on Friedlander's (2024) *The Psychology of Creative Performance and Expertise*

George Waddell[1, 2]

[1]Centre for Performance Science, Royal College of Music, UK
[2]Faculty of Medicine, Imperial College London, UK

Correspondence: George Waddell, george.waddell@rcm.ac.uk

In an era of increasing knowledge, specialisation, and human achievement, it can be easy to overlook the commonalities across performance domains and those who perform. *The Psychology of Creative Performance and Expertise* (Friedlander, 2024) makes a significant contribution to a field of expertise research "disproportionately fixated on chess, music, and sports" (p. xi) by considering a much broader realm of human performance as far ranging as the surgical theatre, boardroom, classroom, stage, and home. The field of Performance Science similarly embraces such radical interdisciplinarity to accelerate the understanding, development, and execution of expert practice.

The book's second chapter, surveying methodologies used to explore performance expertise, highlights a key challenge in considering any creative performative domain in our ability to define, evaluate, and predict success. Where some pursuits yield performance outcomes which are defined and quantified with relative ease (e.g., the speed of certain athletes), many are far more abstract, such the quality of a musical performance or the effect of an educator or clinician. This is especially true when human bias influences how performance evaluations are formed (e.g., Waddell et al., 2018; Waddell & Williamon, 2017) and the recursive issue of how one defines and trains the expertise of the expert judge of performance (see Waddell et al., 2019). Friedlander's (2024) cross-disciplinary approach aligns with the view of Performance Science to look across performances and consider the skills and psychology that underpin expertise across domains, allowing us to further a science of performance that focuses on the universals of the human performer rather than the specifics of any one performance output.

In turning to how performance is trained, the book briefly touches upon the potential of simulation as a tool to develop performance expertise, focusing on recent applications in headset-driven Virtual Reality (VR; Friedlander, 2024; p. 404). Further innovation can be found in the development of extended (XR) or mixed reality (MR) environments in which virtual elements presented via screens, projections, and speakers are blended with physical elements and, in some cases, interactions with humans performing theatrical components to capture the complexity and variability of real-world performance environments (Kassab et al., 2015). An example of an MR approach can be found in the Royal College of Music's *Performance Laboratory* in which virtual concert halls, audiences, and audition panels are projected into a physical performance space, adapting and expanding approaches used in aviation and surgical training (Waddell, Bland, et al., 2025; Williamon et al., 2014; see Figure 1). By taking

this approach, the performer can not only experience the visual sensations of intense stage lighting, the acoustic environment driven by a constellation of 64 speakers, and the social interactions with fellow performers on stage, but they can also prepare for the distinct cognitive and physiological challenges faced in a recreated backstage where performance anxiety may pose an equal, if not more intense, challenge during the anticipation of performance (Chanwimalueang et al., 2017). Once they reach the stage, performers can face distractions such as ringing phones, coughing, and sirens, followed by responses ranging from ovations to indifference, allowing each phase of the performance to be tested. Performance-capture technologies including motion capture, eye tracking, physiological measurement, and audiovisual recording collect data that can drive scientific study and provide pedagogical insight, leveraging the potential of technology to drive a cycle of self-regulated learning (Zimmerman, 2002) in which technology can help the expert performer plan, execute, and review their practice (Waddell & Williamon, 2024; Ramirez-Melendez & Waddell, 2022).

Figure 1. The Royal College of Music *Performance Laboratory* featuring a mixed reality simulation of a concert hall, interactive audience, and matching acoustic environment used to study and develop performance disciplines on stage. Photo credit: Phil Rowley.

In considering innovations in performance training, Friedlander (2024, p. 398) rightly highlights the risk of unchecked "performance enhancement" that may have unintended negative consequences for the mental and physical health of those who wish to advance their practice at any cost. Organisations that train expert performers are increasingly aware of this need to ensure performers' health to foster excellence and sustainability in performance, often drawing on knowledge across disciplines (e.g., Waddell, Hockings, et al., 2025). Simultaneously, new models for performers' wellbeing are challenging industry practices to support the mental, physical, social, and economic health of those who work in performance industries (e.g. Spiro et al., 2024).

As musicians are not alone in their need to prepare for on-stage performances, the simulation space described above has been applied in training professionals and executive MBA candidates to engage audiences and investment panels (Lane, 2025). Similar exchanges have embraced the potential of radical interdisciplinarity to demonstrate how expert clinicians can learn from magicians in how to establish trust between, direct the attention of, and navigate complex narratives with their patients (Kneebone et al., 2021). Or how a "Chemical Kitchen" designed and led by professional chefs uses the craft of gastronomy to teach chemistry students procedural knowledge, collaboration, and creativity in the laboratory (Radzikowski et al., 2024). Chapter 11 of Friedlander's (2024) book makes a particular contribution in acknowledging those performance skills inherent to scientific practice and progress, both in the technical skills of the laboratory and the range of cognitive abilities—perception, intelligence, critical thinking, creativity—that contribute to excellence across scientific domains. By bringing together experts across the sciences, arts, and industry, work in Performance Science has highlighted shared challenges that cut across creative performance including how to promote co-creation, to spark serendipitous innovation, and to communicate with the public the practices and value of scientific progress, artistic expression, and expertise (Morgan et al., 2023).

While no single book can capture the full breadth of how performance is learned, trained, prepared, executed, experienced, studied, and evaluated, or its influence on the individuals and communities it affects, *The Psychology of Creative Performance and Expertise* provides a landmark survey of the uniting cognitions and processes underpinning expert performance. By using this book's insights to broaden our perspectives on what creative performance is and to blur the lines between disciplines, we can deepen our understanding of human creativity and endeavour and push expertise to new bounds.

ORCID iD

George Waddell
https://orcid.org/0000-0001-9715-2753

References

Chanwimalueang, T., Aufegger, L., Adjei, T., Wasley, D., Cruder, C., Mandic, D. P., & Williamon, A. (2017). Stage call: Cardiovascular reactivity to audition stress in musicians. *PLoS One*, *12*(4), e0176023. https://doi.org/10.1371/journal.pone.0176023

Friedlander, K. J. (2024). *The psychology of creative performance and expertise*. Routledge. https://doi.org/10.4324/9781003259428

Kassab, E., Tun, J. K., Arora, S., King, D., Ahmed, K., Miskovic, D., Cope, A., Vadhwana, B., Bello, F., Sevdalis, N., & Kneebone, R. (2011). "Blowing up the barriers" in surgical training: Exploring and validating the concept of distributed simulation. *Ann Surg*, *254*(6), 1059–1065. https://doi.org/10.1097/SLA.0b013e318228944a

Kneebone, R., Houstoun, W., & Houghton, N. (2021). Medicine, magic, and online performance. *The Lancet*, *398*(10314), 1868–1869. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8601719

Lane, C (2025). From canvas to campus. *QS Insights Magazine, 31*. https://magazine.qs.com/qs-insights-magazine-31/from-canvas-to-campus

Morgan, R. M., Kneebone, R. L., Pyenson, N. D., Sholts, S. B., Houstoun, W., Butler, B., & Chesters, K. (2023). Regaining creativity in science: insights from conversation. *R Soc Open Sci*, *10*(5), 230134. https://doi.org/10.1098/rsos.230134

Radzikowski, J. L., Delmas, L., Cohen, E., Viola, J., Youssef, J., Spivey, A. C., & Kneebone, R. (2024). Chemical kitchen: A transdisciplinary introduction to a laboratory practice that rebalances students' self-efficacy. *Journal of Chemical Education*, *101*(12), 5353–5360. https://doi.org/10.1021/acs.jchemed.4c00950

Ramirez-Melendez, R., & Waddell, G. (2022). Technology-enhanced learning of performance. In G. E. McPherson (Ed.), *The Oxford handbook of music performance, volume 2* (pp. 527–552). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780190058869.013.24

Spiro, N., Shaughnessy, C., Perkins, R., Waddell, G., Campbell, A., & Williamon, A. (2024). The HEartS Professional Model: A conceptual model for arts professionals' work and wellbeing. *Social Sciences & Humanities Open*, *10*, 101092. https://doi.org/10.1016/j.ssaho.2024.101092

Waddell, G., Bland, R., & Williamon, A. (2025). Simulating and stimulating performance: Developing a next-generation music performance simulator. *Frontiers in Psychology. 16-2025.* https://doi.org/10.3389/fpsyg.2025.1694986

Waddell, G., Hockings, D., & Williamon, A. (2025). The healthy musician. In C. Lawson, D. Salazar, & R. Perkins (Eds.), *Inside the contemporary conservatoire: Critical perspectives from the Royal College of Music, London* (pp. 156-166). Routledge. https://doi.org/10.4324/9781003281573-23

Waddell, G., Perkins, R., & Williamon, A. (2018). Making an impression: Error location and repertoire features affect performance quality rating processes. *Music Perception: An Interdisciplinary Journal*, *36*(1), 60–76. https://doi.org/10.1525/mp.2018.36.1.60

Waddell, G., Perkins, R., & Williamon, A. (2019). The Evaluation Simulator: A new approach to training music performance assessment. *Frontiers in Psychology*, *10*(557), 1–17. https://doi.org/10.3389/fpsyg.2019.00557

Waddell, G., & Williamon, A. (2024). Enhanced performance training. In C. Johnson & A. King (Eds.), *Music, technology, innovation: Industry and educational perspectives* (pp. 59–74). Routledge.

Waddell, G., & Williamon, A. (2017). Eye of the beholder: Stage entrance behavior and facial expression affect continuous quality ratings in music performance. *Frontiers in Psychology*, *8:513*, 1–14. https://doi.org/10.3389/fpsyg.2017.00513

Williamon, A., Aufegger, L., & Eiholzer, H. (2014). Simulating and stimulating performance: Introducing distributed simulation to enhance musical learning and performance. *Frontiers in Psychology*, *5*, 25. https://doi.org/10.3389/fpsyg.2014.00025

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory Into Practice*, *41, No. 2,* 64–70. https://www.jstor.org/stable/1477457

Received: 18 September 2025
Revision received: 7 October 2025
Accepted: 2 November 2025