

## **Introductory statement for *The Journal of Sport and Exercise Science* special issue: Skill acquisition – research and practice**

Job Fransen<sup>1\*</sup>, Gert-Jan Pepping<sup>2</sup>, Clare MacMahon<sup>3</sup>

<sup>1</sup>*Human Performance Research Centre, School of Sport, Exercise and Rehabilitation, Faculty of Health, University of Technology Sydney, Australia*

<sup>2</sup>*School of Behavioural and Health Sciences, Australian Catholic University, Brisbane, Australia*

<sup>3</sup>*Sport and Exercise Science, School of Allied Health, Human Services and Sport, La Trobe University, Melbourne, Australia*

Skill acquisition, as a subdiscipline of sport and exercise science, is broad and multidisciplinary. It encompasses motor learning, motor control, neuroscience, the study of expertise, sport and exercise psychology, and crosses over into other exercise science fields of research like strength and conditioning, biomechanics and exercise prescription. As the subdiscipline has evolved, a number of so-called parent disciplines have been represented, ranging from Education and Physical Education, to Psychology, and Physiology (neuropsychology and neurophysiology). The emphasis on other complementary subdisciplines has also evolved to contemporary areas, such as data analytics and computer science. As such, defining the impact that skill acquisition researchers have in the broader sport and exercise landscape can be difficult. Furthermore, some of the fundamental concepts related to any field of study within sport and exercise, such as transferability of practice, practice design and the relationship between feedback and performance, have all been discussed extensively in skill acquisition research. It is, therefore, clear that despite being considered a separate subdiscipline, skill acquisition scientists' research extends into other sport and exercise science subdisciplines.

As a result of this diversity of disciplines represented in the skill acquisition area of research, the dissemination of research findings is often dispersed over different mediums, from coaching handbooks and blogs, to peer-reviewed international publications in scientific journals from a variety of research domains and disciplines. However, there is currently no skill acquisition specific journal that researchers can use to publish the findings of their studies. This often makes it difficult for skill acquisition researchers to build on existing research evidence, and for practitioners to find evidence that can inform best practice. In fact, in a study published in the *Journal of Strength and Conditioning Research*, Fullagar and colleagues (Fullagar, Harper et al., 2019) asked 67 United States practitioners about their perspectives on evidence-based practice in sport. Interestingly, when asked about the degree to which they perceived that the contribution of sport science outweighs that of expertise or experience in a variety of research domains, 75% of the research domains that were rated as more informed by personal experience over scientific evidence, commonly fall within the domain of skill acquisition research (i.e., mental training and preparation, tactical/strategical components of performance, talent development/recruiting). Additionally, Fullagar, McCall et al. (2019) reviewed current perceptions of practitioners, researchers and coaches in sport. The respondents indicated that “knowing how to coach”, “participant and athlete needs”, and “skill acquisition” are areas of research that can directly benefit coaching practice. Moreover, when Steele et al. (2014) sought to understand the underuse of skill acquisition specialists, they revealed a lack of understanding of the role by pre-elite and elite coaches and athletes. Since that time, when participants reported few experienced skill acquisition specialists in applied fields, anecdotal evidence suggests that there has been a modest increase in the number of experienced and well-trained practitioners in a range of professional and Olympic and Paralympic sports. However, the visibility issue in this subdiscipline still persists.

While skill acquisition research is abundant, it does not seem to be available to the same degree as research in other domains of sport and exercise science. In a modest attempt to address some of these challenges, the Australasian Skill Acquisition Research Group (ASARG) was founded in 2007 to unite skill acquisition researchers in the Australia-Pacific region and to provide a platform for aspiring undergraduate and postgraduate students and sport, exercise, and health practitioners. Since then, the group has held meetings every year and its following has expanded and broadened to incorporate a varied practitioner base interested in furthering their understanding and application of skill acquisition knowledge. To reflect the increasing reach and inclusive nature of the group, ASARG was renamed ASAN in 2017, the Australasian Skill Acquisition Network.

---

\*Corresponding Author: Job Fransen, School of Sport, Exercise and Rehabilitation, Faculty of Health, University of Technology Sydney, Australia, [job.fransen@uts.edu.au](mailto:job.fransen@uts.edu.au)

This special issue stems from the 13<sup>th</sup> meeting of ASAN in Hamilton, New Zealand, at the University of Waikato in November 2019. This special issue highlights the breadth of research and healthy state of the subdiscipline in the region. The issue includes research on motor control during a jumping task in injury-prone patients (Hanzlíková, Masters, & Hébert-Losier 2020), neuropsychological function in athletes who had sustained a concussion at elevation (Treacy & Heflin, 2020), the degree to which motor learning in a golf-putting task can be affected by the performance of a hand contraction task (Hoskens et al., 2020), the influence of apparel colour on self-perceived and actual kicking performance (Kam et al., 2020), the relationship between coach instructions and decision-making in football players (Beavan & Fransen, 2020), the influence of a neurofeedback intervention on decision-making when stopping penalties (Pillai, Blanchfield, & Cooke, 2020), the degree to which music can elicit enduring positive affective states in footballers (McGuckian & Pepping, 2020), how normalised brake work algorithms can be used to analyse mountain biking performance (Miller & Fink, 2020), and what training professional esports players engage in before competing in a major international tournament (Pluss et al., 2020).

Collectively, these studies provide a good overview of current topics that are of interest to Australasian Skill Acquisition research, as well as display the broad skill set and interests that these researchers possess. We hope you enjoy this special issue, that you find value in its contents, and that the studies included in this special issue both guide and inspire you to further propel our field into the spotlight.

Finally, we would like to thank the authors for their work during what was a challenging period globally, due to the COVID-19 pandemic, which also unfortunately led to the first cancellation in the history of ASARG/ASAN meetings. We particularly thank our reviewers, who were instrumental in the process of pulling together this special issue, and mostly drawn from the ASAN membership. This collaboration bodes well for the continued strength and collegiality of the network.

Guest Editors,

Job, Gert-Jan and Clare

## References

- Beavan, A., & Fransen, J. (2021). The influence of coaching instructions on decision-making in soccer. *The Journal of Sport and Exercise Science*, 5(1), 3-12.
- Fullagar, H. H., Harper, L. D., Govus, A., McCunn, R., Eisenmann, J., & McCall, A. (2019). Practitioner perceptions of evidence-based practice in elite sport in the United States of America. *The Journal of Strength & Conditioning Research*, 33(11), 2897-2904.
- Fullagar, H. H., McCall, A., Impellizzeri, F. M., Favero, T., & Coutts, A. J. (2019). The translation of sport science research to the field: A current opinion and overview on the perceptions of practitioners, researchers and coaches. *Sports Medicine*, 49(12), 1817-1824.
- Hanzlíková, I., Masters, R. S. W., & Hébert-Losier K. (2021). Propensity for conscious control of movement is unrelated to asymptomatic hypermobility or injury-risk scores. *The Journal of Sport and Exercise Science*, 5(1), 13-20.
- Hoskens, M., Uiga, L., Cooke, A., Capio, C. M., & Masters, R. S. W. (2021). Effects of unilateral hand contractions on conscious control in early motor learning. *The Journal of Sport and Exercise Science*, 5(1), 21-31.
- Kam, K. W. K. Uiga, L., Lam, W. L., & Capio, C. M. (2021). The colour we wear: Impact on self-predicted and actual motor performance. *The Journal of Sport and Exercise Science*, 5(1), 32-38.
- McGuckian, T., & Pepping, G.-J. (2021). Music can induce positive affect before football training, but is it maintained throughout training? *The Journal of Sport and Exercise Science*, 5(1), 39-48.
- Miller, M. C., & Fink, P. W. (2021). A normalized brake work algorithm designed to output a single metric to predict non-propulsive mountain bike performance. *The Journal of Sport and Exercise Science*, 5(1), 49-55.
- Pillai, J. S., Blanchfield, A., & Cooke, A. (2021). Effects of 15-mins of electroencephalographic neurofeedback on time perception and decision making in sport. *The Journal of Sport and Exercise Science*, 5(1), 56-68.
- Pluss, M. A., Novak, A. R., Bennett, K. J. M., Panchuk, D., Coutts, A. J., & Fransen, J. (2021). The relationship between the quantity of practice and in-game performance during practice with tournament performance in esports: An eight-week study. *The Journal of Sport and Exercise Science*, 5(1), 69-76.
- Steel, K., Harris, B., Baxter, D., King, M., & Ellem, E. (2014). Coaches, athletes, skill acquisition specialists: a case of misrecognition. *International Journal of Sports Science and Coaching*, 9(2), 367-378.
- Treacy, J., & Heflin, L. (2021). Neuropsychological functioning in athletes with untreated concussion at moderate elevation. *The Journal of Sport and Exercise Science*, 5(1), 77-91.