Observation of a model has been consistently shown to be effective in motor learning and performance settings (see meta-analyses by Ashford, Bennett, & Davids, 2006; Ashford, Davids, & Bennett, 2007). Ste-Marie et al. (2012), however, argued that the mere observation of a model does not necessarily lead to motor skill acquisition benefits and considered the extant literature on the observation of applied motor tasks within the investigative technique of the 5Ws and 1H framework. That is, they framed their review around research questions associated with (1) why observation was being used (2) where observation research had been conducted (i.e., the context), (3) who was the most effective model for observation benefits, (4) when observation should occur within the context of the overall practice structure, (5) what information was used by the observer and what instructional supplemental features could enhance the effectiveness of observation, and (6) how observation should be implemented to optimize its outcomes.

In that article, Ste-Marie et al. (2012) noted that most of the research has been done in laboratory settings and made a call for more research in naturalistic settings. Further, it was suggested that while we know observation is effective, and that much research has examined ‘who’ we should observe, there was still a dearth of research that addressed other important factors associated with the ‘when,’ ‘what,’ and ‘how’ for the effective use of observation. They argued that it is important to investigate these other factors as the information is necessary to inform practitioners how to successfully implement observational practice in their specific contexts. Moreover, the authors highlighted that much of the observation research was concerned with how it enabled learners to acquire the movement pattern of the action observed, referred to as the skill function by Cumming, Clark, Ste-Marie, McCullagh, and Hall (2005), and that more research on two other functions of observation was needed. Specifically, there was a lack of research on the strategy (observing for the development of execution/game strategies and motor routines) and performance (observing for the development of optimal arousal and mental states) functions of observation.

Ste-Marie is with the School of Human Kinetics, University of Ottawa, Ottawa, Ontario, Canada. Address author correspondence to Diane Ste-Marie at diane.ste-marie@uottawa.ca.
The four articles presented in this special section on the use of observation to enhance motor skill acquisition serve to address some of these research gaps, as well as delving into other important motor learning issues. Interestingly, across the different experiments, observation was used in varied ways, such as through triadic learning groups, dyadic practice, alternating self- and expert-video models, and finally, the more traditional method of observing a single expert model on video. Through using such varied observational formats, we gain a broader understanding of different observational approaches that can be used to influence motor skill acquisition.

To provide an overview of the varied articles, without giving away the findings (we do want you to continue reading, of course!), the first article by Edward Hebert incorporates an experimental paradigm that combines the factors associated with when and why observation is effective. Hebert used a mixed-method approach to examine the influence of the temporal interspacing when more than one model is available to observe (when factor) and the strategies (why factor) that were observed which facilitated motor learning.

Rebecca Robertson’s team (Roberston, St Germain, and Ste-Marie) took an ecologically valid approach and entered into a gymnastics facility to study research questions concerning the combination of different model types (self-as-a-model and expert models) to further enhance the effectiveness of observation. They also wanted to structure the observational practice such that the coaches’ simultaneous input was not necessary. Robertson, et al. thus addressed issues concerning ‘what’ essential instructional features are necessary and ‘how’ to construct effective observation practice that can lead to self-directed learning. Moreover, they heeded the call for more research in a naturalistic setting.

Karlinsky and Hodges considered a different observation scenario and adopted a dyad learning environment to investigate the influences of concurrent and alternating observation schedules to examine both the efficiency and efficacy of the two observational practice structures; thus addressing a ‘how’ feature of observation. The final article, contributed by Frank, Kim, and Schack, implemented the cognitive action architecture approach (see Schack, 2004; Schack & Mechsner, 2006 for an overview) to provide a better understanding of the mental representational structure changes that occur as a result of observational practice and to note the distinct effects of observational versus physical practice on the different levels of action organization. Their findings shed light on the ‘how’ feature of observation and the important interplay between the two forms of practice (i.e., observational and physical).

These four articles are followed by a commentary by Amanda Rymal in which she highlights the unique contributions from each of the articles, in addition to noting shortcomings within both the specific research presented in this special section and the wider scope of observation research. She then uses these shortcomings to fuel recommendations for future research and challenges researchers to step outside of their ‘laboratory’ comfort zone into a less predictable, but more realistic environment.

As a final note, I would like to extend a note of thanks to the contributing authors. I recognize that the original submissions and multiple revisions that occurred to bring this special section together occurred during very busy times. Authors were involved in heavy administration responsibilities, new jobs, not to