1. Development

Biological growth, maturation and behavioural development are complex, on-going processes characteristic of adolescent development (World Health Organisation, 2016) and as such, developmental stages in sport are often characterised by non-linear paths of progression. Young athletes often undergo these developmental processes in sporting environments that ebb and flow between obvious, complicated, complex, and sometimes chaotic environmental interactions.

Actual Kyorugi performance often takes place in the more 'dynamic' complicated, complex, and chaotic landscapes (Figure 1).

Figure 1 Cynefin sense-making framework, adapted from Kurtz and Snowden (2003). The Kyorugi performance landscape is represented by the red oval.

In this sense, the coach's role is in-part to empower the developing athlete such that they can not only make sense of but also act and grow within such environments. Therefore, training must not only look to improve their respective capabilities in the specific sport but should serve to improve the fundamental motor abilities and psychological behaviours that are necessary for progressive development. This in turn gives value to the "developmental health needs of emerging individuals" (Cupples, 2020, p.18). In turn, the design of the training environment itself becomes critical in the development process.

By embedding foundational skills and technicalities into a session / representative design format (e.g., Sensorimotor directed exercise, sparring gameplay, situational problem-solving, constraint-led environments), a young athlete can engage in action-based exploration. Such an approach enables the developing athlete to experiment with coordinative structures through a range of movement solutions (Straiotto *et* al., 2021). In this way, individuals are challenged to not only repeat set-routines or patterns but to have the ability to allow these 'set' processes to develop emergent and often novel solutions. Such varied movements provide many and varied opportunities for action that are critical to promoting motor competence (Flores *et al*., 2019).
The diversification of sporting experience at young ages has been reported as a positive approach to enhancing the fundamental motor abilities of a young athlete. Such approaches are grounded on the principle that exposure to variant perceptual-motor stimuli serves to develop functional and adaptive behaviours that foster a more resilient development outcome (Ranganathan & Newell, 2013).
In a similar way, the connections of the young brain provide the potential for the 'creation' of a diverse and varied experiential base that can then be 'trimmed' through subsequent experiences and exposure to development processes. Therefore, early experience in sport should in-part be characterised by exploration and guided discovery to provide the diverse and varied experiential base from which

progressive 'trimming' can occur (see figure 2). Such an approach lends itself to the gradual emergence of a gameplay identity that has 'memory' of the variation inherent in the exploration phases. As such this results in a gameplay approach that is both structured and stable but that can also embrace variation and creativity should the situation require.

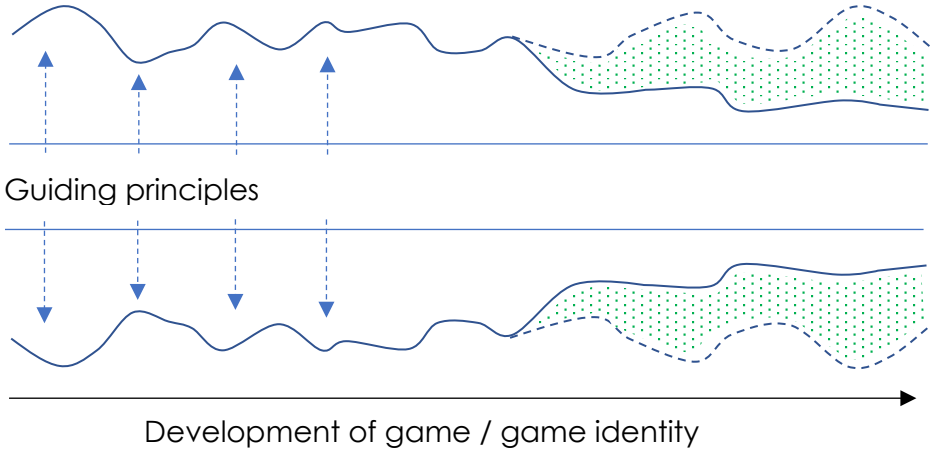

Figure 2 Guiding principles as drivers for explorative actions in a diverse experiential landscape enabling the 'trimming' of a gameplay approach that is stable but that has experiential association to enable variation when necessary.

Coaching point

The challenge for coaches is to not 'trim the tree' too early as this may nudge the athlete towards an overly rigid structure with respect to gameplay characteristics. In this way, coaches should encourage athletes to 'dwell in' the challenges of the session design (do not be in a hurry to provide a distinct answer / instructional framework) and encourage them to not simply focus on isolated aspects but also explore the integrated whole.

2. References

Cupples, B.B, (2020). Holistic athlete development in Australian rugby league: From a better understanding of developmental environments to addressing individual challenges. *Doctoral thesis*. University of Sydney, Australia.

Flores, F., Rodrigues, L. Copetti, F., Lopes, F. and Cordovil, R. (2019). Affordances for motor skill development in home, school, and sport environments: A narrative review. *Perceptual and Motor Skills*, 126(**3**), 366-388.

Kurtz, C. and Snowden, D. (2003). The new dynamics of strategy: Sense-making in a complex and complicated world. *IBM Systems Journal*, 42(**3**), 462-483.

Ranganathanm R. and Newell, K. (2013). Changing up the routine: Intervention-induced variability in motor learning. *Exercise and Sports Sciences Reviews*, 41(**1**), 64-70.

Straiotto, B., Cook, D., James, D. and Seeley, J. (2021). Inter-joint coordination in kicking a moving target: A comparison between elite and non-elite Taekwondo players, *Journal of Applied Biomechanics,* 37(**6**), 513-521.