

Providing Effective Feedback and Instruction - Internal Versus External Focus

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Effective coaching involves enhancing performance, and an effective coach will need to use multiple tools in order to elicit such gains. Two key tools available to the coach are instructions and feedback. Instructions provide guidelines as to how to perform a specific task,⁶ while feedback serves as a basis for correction of errors and guides the performer to the correct movement. Both are critical to effective learning.^{6,9} However, we have all probably encountered situations where our instructions and feedback do not have the desired effect, and even result in a decrement in performance. Could the words we use to deliver instructions and feedback and the resultant focus of attention of the athlete actually influence the quality of performance? This article looks at the role of attentional focus in providing effective instruction and feedback, as well as considering how we can enhance our provision of both by taking a different approach to the way in which we convey information.

Typical instruction and feedback

Augmented feedback has long been a focus of research in motor control,⁶ and aspects such as feedback precision, feedback frequency, and feedback quantity have been closely examined. A more recent development has been the focus on the effects of feedback and instruction on an athlete's attentional focus, and the subsequent effects on learning and performance. In some traditional forms of coaching, instructions and feedback are phrased so that attention is drawn to internal requirements of the skill.⁸ This is especially the case in strength and conditioning coaching, where the physical aspects of performance predominate. This type of coaching normally involves a wide range of aspects such as information on muscle actions, weight distribution, joint positions etc., with the focus being on how to carry out and control movements. These types of instructions and feedback typically produce an internal focus, where the athlete's attention is drawn into the body and at the processes by which skills and movement are produced. Indeed, in some modalities of training and therapy, this internal focus is actively encouraged, with athlete's attention being drawn to the activation of specific muscles. However, a growing body of evidence is developing that suggests an internal focus may actually compromise learning and performance.⁹ Instead, it is suggested that an external focus, (where focus is placed outside of the body), results in higher levels of both learning and performance.⁹

Does attentional focus matter?

Views about optimal attention focus for skill development have been about since the late 19th Century.⁶ Research has consistently found that how performers direct their attention will affect both learning and

performance.⁹ Initial conclusions suggested that any use of internal focus only made sense in the initial stages of learning when the motor composition of the skill is being defined.² Beyond this stage, external focus should predominate with meaningful corrections being made on a whole body basis.² It would appear that, if skilled performers direct their attention to the details of skill execution, the result will be a decrement in performance.^{1,9} In this way, instructions and feedback that result in an athlete taking an internal focus can be to the detriment of skill development. It would appear that approaches where internal focus is actively encouraged may be at odds with the optimal way of learning and the optimal way of performing. External focus, where the focus is directed outside of the body, appears to provide a much more optimal environment for skill learning. The advantages of an external focus of control have been demonstrated in a number of different settings.⁹ These advantages have been shown to be both immediate and long-standing⁶ and are also present under conditions of stress or distraction, just as is required in sport.⁹ Additionally, as task complexity increases, the advantages gained from an external focus also increase. Interestingly, recent studies now suggest that the benefits of an external focus extend across all athlete ability levels,⁹ and that beginners should also be encouraged to take an external focus.

Why does internal attention reduce performance?

Effective movement capacities need to be optimally coordinated by the nervous system, with the potential degrees of freedom effectively controlled. Conscious attempts to control movements interfere with automatic motor control.⁹ An internal focus freezes the degrees of freedom, thus inhibiting movement execution by inadvertently disrupting automatic processes. This results in movements that are often less fluent and less efficient. This process is termed the constrained action hypothesis.¹¹ However, focussing on the remote effects of the movement allows the motor systems to self organise more naturally, unconstrained by conscious control.⁹ When the focus is external, the body is free to organise movements and will naturally do this in the most efficient manner, helping movements become fluid, effective and ultimately automatic.¹⁰ Here, unconscious fast and reflexive processes control the movement with the outcome achieved almost as a by product.⁹

Why is this important in S&C?

The majority of studies into the optimal focus of attention have been on novel or sports skills, but the results have important implications for strength and conditioning. Within these studies, skilled performers have been found to make higher frequency movements, lower amplitude movement adjustments than non skilled performers.⁹ These skills are equally pertinent in strength and conditioning settings, especially where elements such as agility or the application of force in a sports specific environment are looked at. External focus promotes the utilisation of a greater number of feedback loops, which by working at an unconscious level, are faster than those used by the conscious, (and therefore slower), feedback loops utilised by internal feedback. In this way, external focus can result in faster movements than an internal focus,⁷ and fosters these lower amplitude postural

adjustments.⁹ It also needs to be noted that maximum force is also modulated by inter and intra muscular co-ordination,³ and an external focus has been shown to increase functional force application.^{5,10,12} Another interesting fact was that in a number of studies, while force outputs increased, EMG levels were shown to decrease, reflecting an increased efficiency of movement.^{5,7,12} Thus, internal and external feedback results in different control processes, and can directly effect the speed, force and efficiency of actions. An external focus can result in more effective movement outcomes, greater frequency of movement adjustments, reduced attentional demands and greater movement efficiency.⁹

At what level should the focus be?

External focussed instruction and feedback appear to have significant advantages over internal focussed feedback and instruction. The coach then needs to evaluate at what level of focus to pitch their feedback and instruction. Actions should always be controlled at the highest possible level, thus allowing an athlete to take advantage of all available motor programmes that automatically control movement. The optimal attentional focus will depend upon the athlete's expertise. At expert level, this should focus on the ultimate effects of the movement, whereas for novices, this may require focus on a lower level focus. For example, during direction change drills at a novice level, an appropriate external focus could be on encouraging the athlete to push away at the floor. However, at an advanced level, attention should be more on the resultant motion, such as the lateral distance achieved. It is important to note that this attentional focus will not always happen intuitively, and a coach will need appropriate levels of feedback to optimise this condition. At the elite level, focussing on too low a level of effect can ultimately hinder performance development.⁹

Providing an external focus

Effectively worded instructions and feedback can themselves induce an external focus of attention, by directing attention to the movement effect rather than on the movement itself.⁹ In this way instruction and feedback is not only informational but also can be used to develop an effective external attentional focus. Wording instruction and feedback so that it promotes an external focus should lead to more effective learning and performance than instruction and feedback that directs attention to the co-ordination of the individual's body movements.⁹ With subtle changes in language, coaches can develop effective instructions and feedback that provide an external focus. These should focus on the movement outcome rather than the performer's movement co-ordination. For example, in the Olympic lifts, focus during the first pull could be on the movement of the bar, rather than on the internal actions that produce this movement.

Where an external focus is more difficult, analogies and metaphors can provide athletes with pictures of the skill, which can in turn draw their attention from an internal focus to an external focus.⁹ In this way a coach can develop a number of coaching analogies to use in different coaching environments, all of which encourage an external focus. For example, the opening of the hip during the hip turn starting action can be likened to shining a torch or light sabre from the belly button towards the direction of movement.

In summary

While little research has been carried out directly in strength and conditioning settings, the research from sports based situations suggests that providing instructions and feedback that promote an external attentional focus can result in better learning and higher levels of performance than an internal focus. Could it be that in our attempts to correct techniques by promoting an internal focus, we have actually been hindering an athlete's progress?

Coaches are therefore encouraged to explore the potential for encouraging externally focussed instructions and feedback, and to develop means by which to promote external attention. It could be that in its simplest form, all that is necessary to allow co-ordination processes to operate in an automatic mode would be to prevent learners from attending to their own body movements.⁴

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