

Getting Into The Optimal Performance State

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In recent years there has been a great deal written about optimal performance states. Optimal performance, as it is being defined here, refers to those relatively infrequent times when individuals feel totally immersed in the performance. When that happens, performers describe the experience as something outside of the ordinary. They are “in the moment” performing at an automatic level, without need for conscious thought and direction. They feel totally in control, totally focused on the task, extremely confident, with a total loss of self-consciousness, and their perception of the passage of time is altered, either losing all awareness of time, or feeling as if things are happening in slow motion (Williams & Krane, 2000).

The optimal performance state has been referred to in a couple of ways. Athletes often talk about “being in the zone,” and some psychologists have talked about “the zone of optimal functioning.” The reference here, is to some optimal level of arousal that leads to better integration of mental and physical processes and superior performance (Prapavesis & Grove, 1991; Hanin, 2000). Csikszentmihalyi (1990), has referred to the experience described above as the “flow state.” One of the differences between flow as described by Csikszentmihalyi and “the zone” has to do with the level of performance. When athlete’s “enter the zone,” they tend to have their very best performances (Ravizza, 1977; Garfield & Bennett, 1984). When an individual is in a flow state, he or she is totally absorbed in the experience, and it is effortless and pleasurable, but may or may not reflect a level of performance that is at the upper limits of the individual’s capacity. Often, that’s because the flow state is used to describe situations requiring mental performance (e.g., problem solving, writing, strategizing, creative thinking), rather than physical performance (e.g., playing basketball, diving, downhill skiing). It is more difficult to objectively evaluate the level or quality of the mental performance, than it is the physical performance where athletes score points or compete against a clock.

It has been suggested by Jackson and Roberts (1992), that the flow state is a precursor to entering the “zone of optimal performance,” and it’s that hypothesis that has prompted me to write this paper. Is flow a precursor to the zone, are we simply using two different words to describe the same state, or, are we talking about two very different types of concentration.

I am convinced that it makes sense to talk about two distinctly different states, and the terms flow and zone, seem to me to be useful ways of describing these different ways of concentrating. In this paper, I will be arguing that unless we can operationally define flow and zone states in ways which identify their differences researchers will continue to confuse the two states and draw inappropriate conclusions relative to the conditions that lead to the development of the two different states.

In the next few pages, I will discuss the fact that both the zone and flow states require automatic processing as opposed to controlled or conscious attention. I'll describe how practice and attention to detail play a critical role in determining an individual's ability to develop automatic processing of information. I'll describe the focus of attention, physiological arousal, performance interface, showing how confidence, or a lack of it, impacts the individual's ability to stay in the zone or flow state. I will show that entering the zone is dependent upon an individual's ability to maintain an external focus of attention, eliminating conscious, internal thought processes. In contrast, entering the flow state is dependent upon the individual's ability to maintain a task relevant internal focus of concentration, eliminating both external distractions and internal physiological feedback. I'll discuss how individual differences with respect to attentional styles, and certain interpersonal characteristics make it easier for some individuals to enter the zone, than the flow state, and vice versa. Finally, I'll discuss the implications that differences between the flow state and zone have for the development of performance enhancement programs.

Automatic vs. Controlled or Conscious Attentional Processes

Shiffrin and Schneider (1977) and Wegner (1994) described two types of attention. Controlled processing, which I have referred to as conscious processing (Nideffer, 1999). This type of concentration is effortful, serial in nature, slow, and as indicated consciously controlled by the individual. It's the type of concentration an athlete uses when he or she systematically, mentally rehearses performance. Controlled processing can be contrasted with automatic processing (also called involuntary, unconscious). This type of attention occurs without conscious effort in that other things can be going on and not be interfered with, it is parallel in nature, and is much faster than controlled processing. Most of us rely on our ability to involuntarily process information when we drive a car. Even the average driver's skills are so highly developed that he or she is capable of carrying on a conversation, looking at the scenery, etc., while driving. There is no need to consciously remind oneself of the need to turn, brake, shift, etc.

Involuntary, or unconscious processing of information is what occurs when athletes are in the zone (Cohen, 1991), and when individuals get into the flow state (Csikszentmihalyi, 1990). Associated with this type of processing is a feeling of being in control of things, without making any conscious effort to do so. Since involuntary processing seems to be the key to optimal performance, we need to be able to define the conditions necessary for an individual to be able to develop and maintain that type of processing.

Coaches, and teachers of the performing arts, have long recognized the need for performers to practice their performance skills long past the point of simple acquisition of the skill. It is "over learning" that helps to reduce the likelihood that performance will be interfered with by anxiety and/or emotional arousal. Huey (1968) suggested that it is hard work and practice that turns conscious attentional processing into automatic or unconscious processing. Put simply, there is no shortcut to getting into the zone or flow states. The more time you have put into the development and refinement of the skill, the more likely you are to be able to getting into one of these altered states of consciousness.

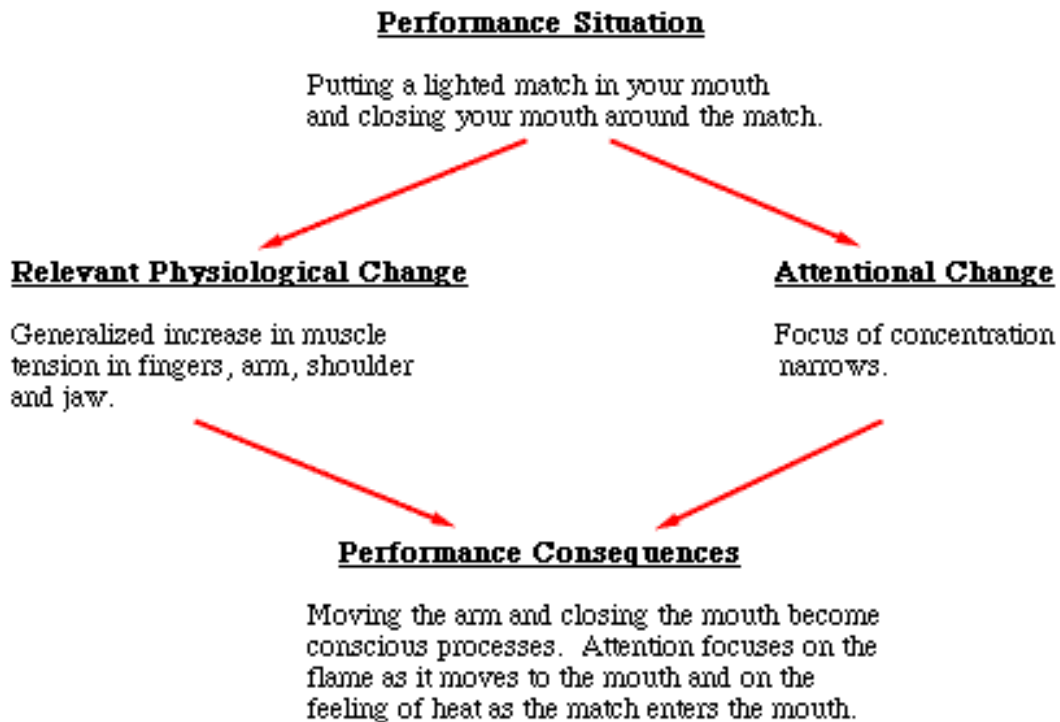
The Interface Between Focus of Attention, Emotional Arousal, and Performance

Practicing something to the point that you can perform without having to consciously think about it, is no guarantee that you will engage in automatic processing, and/or that you will enter and remain in the zone or flow state. As you will soon see, it is very easy to create conditions that disrupt automatic processing. This is true even when the skill being disrupted is an extremely simple one. I use a simple demonstration to illustrate this point.

Holding a piece of food between your thumb and forefinger and then bringing your hand toward your face and placing the food in your mouth is a highly practiced response. You don't have to think about it. Without any conscious effort on your part, you are able to grasp the food, move your arm, open your mouth, insert the food, and close your mouth. There is no fear of missing your mouth, no thought of being unsuccessful. You can eat and carry on a conversation, pay attention to the TV, read a book and process the information from the book, etc. Your conscious attention is on something besides the mechanical aspects of eating. Eating is an automatic processes, your mind is free to consciously attend to other things.

As practiced and as automatic as the eating process is, it can be disrupted. Take a match and hold it between you thumb and forefinger. Light the match, and then bring the match up like a piece of food and put it in your mouth. Close your mouth tightly over the match (as you would over a bit of food). If you close your mouth tightly over the match, it will reduce the amount of oxygen available to the match and reduce the flame so that you will not get burned. If you fail to close your mouth tightly over the match, however, you will get burned. If you are like most people, when you try this little demonstration you will lose confidence in your ability to perform a very simple act. What was an automatic process will become a very conscious one. Let me use Figure 1 to show you how mind and body interact to affect even this very simple performance.

FIGURE 1



Confidence In Your Ability to Be Successful

If you are like most of the people that I've used this demonstration with, you probably don't have a lot of confidence in your ability to put the match in your mouth without getting burned. Nor, are you likely to have a lot of trust in my telling you that all you have to do is close your mouth tightly around the match to keep from getting burned. This lack of confidence and/or trust, combined with a fear of getting burned, creates a high enough level of arousal to increase generalized muscle tension which in turn interferes with fine muscle coordination and timing. Your automatic response becomes very conscious. You may even notice some shaking which increases your concern about getting the match in your mouth without burning your lip or your nose. You may also find that tension in your jaw muscles make it difficult for you to close your mouth over the match. You have tension in muscles that are antagonistic to closing the mouth (part of your brain is saying don't close you'll get closer to the flame and get burned). If this tension slows down closure of your mouth, you'll feel the heat.

From a concentration standpoint, increasing arousal causes concentration to narrow. Your focus attention on the perceived threat, the flame as long as the match is in sight, and then the feeling of heat once the match gets close to your mouth. If you lack confidence, when you feel heat that will create more doubt and more muscle tension, making it harder for you to close your mouth. Not closing your mouth will result in getting burned. Once burned, your fear will be reinforced and the likelihood of your being successful the next time decreases unless something happens to increase your confidence.

A confident performer, will know that he or she can be successful. That knowledge takes away the fear of being burned, which keeps arousal from reaching the point where it interferes with muscle tension, and/or with the automatic nature of putting something into your mouth and closing it. Small wonder that a very high level of confidence is associated with those athletes who are able to enter the zone, and with individuals who are able to get into the flow state (Williams & Krane, 2000).

Getting Into The Zone

To get into the zone, an athlete has to have practiced to the point that performance can occur at an automatic level. Given that level of development has been reached, the athlete must then reduce the amount of conscious internal processing of information as much as possible. Researchers talk about the importance of becoming immersed in the performance, caught up in the “here and now.” In effect, the athlete is so busy reading and reacting (automatically or instinctively) to the events going on around him or her, that analyzing and planning cease. The athlete stops thinking about the past, or worrying about the future. Instead, attention is focused almost exclusively on the external environment. When this happens, the athlete's perception of the passage of time is altered.

I've described the relationship between the passage of time and one's focus of concentration elsewhere (Nideffer, 1999; Nideffer & Sagal, 2001). Briefly, attention is constantly shifting from an external or environmental focus to an internal one (e.g., to your thoughts and feelings). As the frequency of shifting decreases, one's perception of the passage of time is altered. When attention is focused almost exclusively on the environment time appears to slow down. Athletes in the zone will tell you that things happen in slow motion and as a result feel as if they have more control and more time to react.

Staying In The Zone

To stay in the zone, the athlete must continue to be immersed in the performance itself. Anything, that forces concentration to become controlled will pull the athlete out of the zone. It pulls the athlete out of the zone, because the conscious control of concentration requires an internal shift. For purposes of our discussion here, it will be useful to classify stimuli that require conscious or controlled attention as either task relevant, or task irrelevant.

Task Relevant Stimuli

Most performance in sport is demanding, requiring athletes to string together very complex motor sequences (e.g., to run, dribble, and shoot a basketball while reacting to the movements of other players). To learn such complex sequences, athletes break them into their component parts. Those parts are practiced in isolation, and as the individual pieces are developed the athlete begins to put them together until he or she is able to execute the entire sequence.

With practice, the athlete learns to combine perceptual information (e.g., information about the location of the basket, other players, etc.) with internal information (e.g., feedback from the body about its position in space), to create patterns that the brain can recognize at a preconscious level (Norman 1968).

One of the ways I help athletes understand this particular concept is to talk about their center of mass, that spot in their body where a vertical line that splits the body into right and left halves, would intersect with a horizontal line that splits the body into a top and bottom half. I point out that in sport, power, coordination, and timing are dependent upon the body's movement around that center of mass. A baseball hitter, to get maximum power out of his swing, has to time the transfer of his weight from his back foot to his front foot so that maximum bat speed and body weight come together as the bat makes contact with the ball. If the weight transfer is either too early, or too late, the hitter will lose power.

Each time an athlete changes the direction of movement around his bodies center of mass, the brain receives a pattern of stimulation. These patterns are task relevant, and only occur at the transition points. With practice, the athlete learns to match the pattern of kinesthetic cues he is receiving to the perceptual information that is coming in (e.g., position of the ball as it approaches the plate). As Norman points out, with a great deal of practice, these patterns can be recognized without having to consciously process the information. It's as if the picture the athlete receives from the brain says "yes" or "no". If it says yes, the athlete stays immersed in the performance because no conscious adjustments are required. If it says "no" the athlete will begin to consciously process the information to determine what adjustments need to be made to get back on track. If the athlete is highly practiced, and has seen this particular problem (e.g., getting out in front of a pitch) enough times, even the adjustment can be made automatically.

On an average day, athletes find themselves having to make adjustments in their performance. These adjustments require just enough conscious attention to keep them from becoming totally immersed in their performance. On a good day, however, the potential for getting into the zone is definitely there.

Task Irrelevant Stimuli (Distractions)

Task irrelevant stimuli are commonly referred to as distractions. These may external distractions, like the flash from a camera as a golfer is about to putt, or internal distractions like negative thoughts or feelings. It is confidence or trust in one's ability to perform that acts to reduce distractions and to allow the athlete to quickly recover from a distraction once it has interfered with concentration. Distractions capture the athletes attention, and disrupt automatic processing. The athlete has to consciously assess the distraction, to determine what, if any, course of action needs to be taken.

When the athlete is confident, the negative impact of the distraction is short lived and the athlete quickly refocuses attention on task relevant external cues, becoming once again immersed in the situation. An athlete who lacks confidence, however, feels as if she has to rely on luck and on perfect performance to have a chance to win. To this athlete, any distraction represents a threat.

That threat acts as a signal, causing the athlete to focus on outcome cues, cues which she hopes will tell her whether or not she needs to worry. Unfortunately, when the athlete lacks confidence, outcome cues, whether they are positive (e.g., suggesting the athlete is in the lead), or negative, don't provide the support the athlete is looking for.

When the outcome cues (e.g., game score) indicate she is in trouble, internal distractions increase in the form of negative thinking and self doubt. There may also be increases in muscle tension, or heart rate, that the athlete interprets negatively. Even when the athlete sees she is in the lead, if she lacks confidence she will still have problems breaking away from the distractions and refocusing on external task relevant cues. Instead of getting back to the competition, she'll tell herself that she's lucky to be ahead. The more time the athlete remains internally focused, trapped by irrelevant thoughts and feelings, the more her perception of the passage of time changes. Instead of seeing things in slow motion, she begins to feel rushed, as if things are happening faster than they usually do.

As you can see, both practice, and self-confidence are critical determinants of an athlete's ability to recover and refocus attention when distracted. To remain in the zone, distractions whether they are task relevant, or irrelevant, need to be kept to a minimum, and recovery from those that do occur needs to be almost instantaneous. Indeed, it is the ability to recover quickly which is probably the single most important factor separating successful athletes from unsuccessful ones (Orlick, 1990).

Getting Into The Flow State

Csikszentmihalyi (1985) has described the flow state as an intrinsically motivated experience or self-rewarding activity. A state in which the individual is so involved in an activity that nothing else seems to matter. When an individual is in a flow state, there is a loss of awareness of time. It's the experience that a writer has when he sits begins writing at seven o'clock at night and becomes so involved in what he's writing that he's shocked when he looks up to and sees that it's one o'clock in the morning. The six hours seemed like minutes and in spite of the fact that his shirt may be filled with perspiration from the effort put forth, there was no perception of work, thoughts and ideas just flowed effortlessly onto the page.

As mentioned earlier, individuals who have flow experiences will tell you that they were completely immersed in the subject, that they lost track of time, felt totally at ease, were extremely confident, and that concentration was total and effortless or automatic. All of those descriptions, with the exception of the loss of awareness of time, as opposed to the experience of time slowing down, are in common with getting into the zone.

Loss of awareness of the passage of time is a reflection of the fact that the normal shifting of attention from an external to an internal focus has been dramatically reduced. When an individual is in the flow state, attention is focused almost exclusively on internal thought processes. As with the zone, when an individual is in the flow state there is no need to consciously control concentration. Thoughts and ideas just flow together in a way that makes

problem solving and/or the organization of information effortless. The individual is in control without controlling.

Just as preparation and practice are critical to developing physical skills to the point that they can be performed automatically, so to is preparation and practice of the mental skills that go into automating problem solving, the flow of ideas, and the identification of new ways to think about and/or do things (Steptoe, 1998). The development of a creative idea or solution to a problem isn't something that magically develops. As with motor performance, you have already learned and become comfortable with the individual components (e.g., ideas, pieces of information) that ultimately come together to create a product. You have also developed for yourself a way of organizing and structuring information, a template that allows you to communicate thoughts and ideas in a clear and compelling way (to tell the story). When you have a structural template and you have access to the pieces of a puzzle that is of great interest to you, you have everything you need to get into the flow state.

Staying in The Flow State

To stay in the flow state, thoughts, ideas, images, internal musical sounds, must move smoothly into an individual's structural framework, the answers to any questions must already exist and be available for retrieval, the need to search outside of one's self (e.g., to look up an answer in a book) must be eliminated. If the mode of expression is written or oral, the words must be there ready to be used, without any need to "search for the right one, or right way of expressing one's self. This again speaks to the need for thorough preparation.

As with the zone, there may be task relevant and task irrelevant distractions. Task relevant distractions would include the questions a scientist might ask himself as he begins to solve a particular problem and/or express a theory. A statement leads the scientist to generate a hypothesis which if answered in a positive way would provide support for the theory. Depending upon preparation, those questions may have been already answered and if so would not disrupt the flow state at all, but simply lead to the next logical thought or expression. If the answer required some conscious processing, a mechanical searching of memory for an answer, it would begin to interfere with flow.

Task irrelevant distractions can be either external or internal. Many writers for example will tell you that they cannot write when they have a messy desk, or that they have to get away from possible interruptions from family, friends, the telephone, etc. All of these are external distractions.

Most of the internal distractions are either task relevant ones (e.g., questions they aren't prepared to answer), or they are related to performance anxiety, to being to "ego involved" in the process. This is why self-confidence is important, and so too is the need to be intrinsically motivated, rewarded by the act itself as opposed to being rewarded for the act by others. When you are more concerned about how others will perceive your creative efforts, than you are about the product you are producing, you pull yourself out of the flow state to try and anticipate others responses. You second guess and that creates confusion. In addition, the anxiety that gets generated when

you think that someone may be critical causes a narrowing of your focus of attention. As attention is narrowed and as it becomes more conscious and deliberate, you lose some of your task relevant information processing capacity (Easterbrook, 1959). In addition, you use up some of the available space by filling it with your worries and concerns. Your ability to organize information and to present it in a clear and compelling way can be dramatically interfered with.

In summary, as with getting into and staying in the zone, practice, preparation, self-confidence, and being intrinsically motivated are all critical variables. In the flow state, attention is directed internally, and the transition points, rather than being related to the physical movement of the body in relationship to the environment, are related to the self generated questions and/or impressions that challenge the direction the individual is moving in as he/she expresses him/herself.

Self-Confidence, Immersion, Ego-Loss, and Love

Anxiety, is a major stumbling block that prevents many individuals from getting into the zone or flow states. If you try and get to the root cause of anxiety you can usually narrow it down to one of three areas. 1) A lack of confidence in your ability to perform up to your own expectations and/or desires; 2) A lack of confidence in your ability to perform up to the expectations of significant others (coach, parents, etc.), and 3) A fear of physical injury and/or death.

When a performer becomes immersed in a performance, whether the performance is physical (Zone), or mental (Flow), all three of the fears just mentioned cease to exist. The question we have to ask ourselves is which comes first. Does getting into the zone eliminate fear, or does the elimination of fear allow you to get into the zone?

Clearly, practice and training that lead to increases in skill level and confidence, can contribute to an athletes ability to get into the zone. Likewise, being involved in a performance or problem where the challenges presented are far more interesting to you than any particular outcome, and/or than the reactions that others have to the performance, can help you get into the zone. Having said those things, however, we have to realize that there are times when a lack of experience, and/or the challenges presented by the immediate situation appear to be insurmountable. Yet in the face of insurmountable odds, some individuals still manage to overcome all of the doubts and anxiety and get into the zone or flow state. That's where love comes into play.

At one level intrinsic motivation is an expression of love. When you are motivated to perform (e.g., to play tennis, to write about something, or to paint) out of the joy you get from the performance itself, rather than the applause or approval you get from others for their perception of the quality of the performance, you are performing out of love. It's your love of the activity that quiets the voices of doubt and anxiety. It's that love that brings the inner peace necessary to perform up to your full potential in the face of seemingly over-whelming odds. The importance of that kind of love has been recognized and taught by masters of the martial arts for hundreds of years (Nideffer, 1997).

Love of an activity can get you into the zone or flow state, and so can love of someone else, and/or love of an idea, or philosophy. It is genuine concern for others that allows a hero to sacrifice his or her life for someone else. That kind of love leads to “ego loss” or the loss of a sense of self. When you cease to exist as a person anxiety and doubt disappear and you become one with the situation. It is love of self, or self-concern, that destroys performance. Many great half time speeches by coaches have succeeded because they got the athletes to forget about the concerns they had about their performance and created in them a desire to do something for someone else. It’s the relationship between love of something other than yourself that is reflected in statements like, “It’s not whether you win or lose, but how you play the game.”

Practice and the development of self-confidence that comes from practice and success can help you get into the zone or flow state. A genuine love of the game or the challenge, or the act of expressing yourself, is another critical component. A final critical factor is the environment, and the presence of cues (whether those are provided by the situation itself, by team mates, coaches, teachers, etc.) which help to pull you out of yourself and into the performance.

Very few individuals are performing exclusively for themselves, and/or out of love for the game. Extrinsic factors or rewards play a role to some degree for almost everyone. The balance between extrinsic and intrinsic motivation plays a critical role in determining just how important external environmental cues and the encouragement and support of others will be in determining whether or not you get into the zone or flow state. The more important outcome is, and the more important the reactions of others are to you, the more impact the environment will have on your ability to get into one of these states.

Learning vs. Biogenetic Predisposition’s

How much of the ability to get into the zone, and/or to enter the flow state is a function of learning, and how much of it is a function of bio-genetic factors? Are some people “hard wired” in ways that makes it easier for them to get into the zone than others? If biogenetic factors do exist, should we be concerned about them, or would we be better off to ignore them?

There can be little doubt that “hard wiring” or biogenetic differences between individuals play a role in their ability to get into and enter the zone and/or flow state. Nearly all psychological traits or tendencies that can be reliably measured turn out to have heritabilities ranging from about 25 to 75 percent. This includes some of the critical characteristics we have already identified such as the ability to focus concentration for sustained periods of time, level of self-confidence, commitment, anxiety, artistic ability, the ability to compose music, analytical skills, optimism, locus of control, and extroversion and introversion (Lykken, 1998).

The hypotheses that biogenetic factors play a role, and that as a result there are individual differences in terms of the ability to get into the zone as opposed to flow states is supported by some of the between group differences found using The Attentional and Interpersonal Style (TAIS) inventory (Nideffer, Sagal, Lowry, & Bond, 2001). TAIS measures several different types of concentration including the ability to narrow one’s focus of attention. High scores on this scale provide an indication of an individual’s willingness to pay attention to details, and to

practice the same things over and over until they are perfect. It is this particular type of concentration that contributes to the willingness of athletes to practice until they can perform at an automatic or unconscious level. TAIS also measures an individual's ability to analyze and plan, to develop a broad-internal focus of concentration. This is the type of concentration that lends itself to developing the skill sets required to get into the flow state. High scorers enjoy problem solving, asking the "what if?" questions. TAIS measures intellectual expressiveness, which provides an indication of an individual's enjoyment of intellectually challenging themselves and others. High scorers, tend to be critical thinkers, looking for problems as well as solutions. This type of thinking helps individual gather the data and prepare for getting into a flow state. TAIS also measures self-confidence, and introversion and extroversion.

When we examine the attentional abilities of elite level athletes, we see that it is the ability to narrow their focus of concentration that is most highly developed and/or used most often. Not only that, but we see that as the level of performance increases so does the ability to narrow one's focus of concentration. This is true even when we are looking at the most extreme end of the performance continuum. Thus, multiple world record holders score higher than single world record holders on the TAIS scale measuring a narrow focus of concentration (Nideffer, et. al., 2001). This relationship is consistent independent of the age, sex, and/or ethnic background of the athlete.

When we look at CEO's of corporations throughout North America, we find that their dominant concentration style consists of their ability to analyze and strategize (broad-internal). Their lowest score is on the scale measuring a narrow focus. Elite level athletes and CEO's share a high level of self confidence, and a high level of competitiveness, but the CEO's compete at an intellectual level and the athletes compete at a physical level. Elite athletes score much lower than CEO's on the TAIS scale measuring intellectual expressiveness. Interestingly, multiple world record holders score lower on the intellectual expressiveness scale than single world record holders.

Another finding that is of interest has to do with extroversion and introversion. Studies of geniuses indicate that, as a rule, they tend to be more introverted than extroverted (Stephens, 1998). This would make sense if we assume that extroversion and/or the need to be involved with others could serve as a distraction, making it difficult for an individual to enter the flow state. It also makes sense if we assume that introverts tend to be less concerned about the thoughts and feelings of others.

Interestingly, as elite level athletes get older, and as the level of their performance increases, scores on extroversion tend to decrease and scores on introversion tend to increase. Again, that would be consistent with the notion that introversion may to increase the resistance of athletes to external distractions (e.g., the need to socialize and/or to worry about others).

It seems to be fairly clear that individuals can be "hard wired" in ways which will make it easier for them to get into flow states (e.g., the CEO), than the zone, and vice versa. Characteristics that can contribute to flow, will actually interfere with getting into the zone. We want to keep athletes out of their head. Analysis for an athlete leads to performance paralysis.

Realistically, how important are biogenetic differences. For most of us, there is considerable amount of the variance that can be affected by learning. We can learn to focus concentration. We can learn to set limits on our need for involvement with others, a keep that from interfering with our dedication and commitment. We can develop our analytical and problem solving skills, and we can learn techniques to help us reduce anxiety and self-doubt. Clearly, for the vast majority of individuals it would be a mistake to pre-judge an individual's ability to get into the zone, and/or flow states based solely on test scores and/or apparent biogenetic pre-dispositions. That is not to say, however, that we should ignore the role that biogenetic factors can play.

Csikszentmihalyi (1990) has emphasized that peak performances are most likely to occur when an individual's skill level matches the demands or challenges of a situation. Perhaps we should not be so narrow in terms of defining a situation. Getting into the zone of flow state is as much a function of preparation as it is performance. Biogenetic differences can go a long way in determining just how difficult that preparation will be for an individual. If I have been biogenetically gifted with the ability to focus concentration and with a need to attend to details and perfect skills, if I am more introverted than extroverted, and have been given a healthy dose of confidence, it will be much easier for me to make the sacrifices necessary to become the best in my sport, than it will if I have been gifted with an analytical mind, a desire to be involved with others, the need for external support, and the need for change and new challenges.

Although I have the capacity for developing the skills that I need for either type of performance, the challenges will vary according to my gifts. Not only that, but the challenges will become increasingly difficult as the level of performance that I aspire to increases. This is especially true in sport where competition is often head to head. A question most of us ask ourselves at one time or another, is; "Is it worth it?" The more you play to your natural strengths, the less frequently you will find yourself asking that question.

Developing The Ability to Get Into The Zone

As has been pointed out, the challenge is to automate performance, and to control excessive emotional arousal by increasing self-confidence, and love for the game and the process of performing, thereby reducing concerns about the outcome. It would be very easy here to start talking about all of the external factors that can destroy an individual's desire and/or love of the game. We could worry for example, about parents forcing children to play a sport and/or making winning all that matters. We could focus on the athlete who is so concerned about being loved and/or accepted by others that he or she can't let go and enjoy the game. Although those are important issues, they represent deeper problems that aren't the focus of this paper. Here, the focus is on helping highly motivated, emotionally healthy individuals, get more enjoyment out of their sport.

Automating Performance

Obviously, the more practice a serious athlete can get, the better. Clearly, however, there are physical and time limitations that restrict actual practice. Here is where mental rehearsal comes

in. As others have shown, better athletes make more use of mental rehearsal, and, most importantly, they rehearse performance from an internal perspective (Mahoney & Avner, 1977; Mahoney, Gabriel, and Perkins, 1987; Gould, Weiss, & Weinberg, 1981; Orlick & Partington, 1988).

The fact that better athletes make better use of rehearsal procedures is not surprising given the importance that kinesthetic feedback plays in pattern recognition and the automating of performance. This would seem to suggest that rehearsal will be most beneficial when the athlete can: 1) Rehearse from an internal perspective creating the kinesthetic feelings that are actually associated with the performance; 2) Rehearse the performance as a complete act (e.g., an entire dive, or ski run) so that biomechanical segments are linked; 3) Rehearse the performance in real time. In other words the rehearsal of a run in the down hill should take the same amount of time as the actual run. These are the factors that will help the athlete develop pattern recognition skills.

Manage those distractions that have the potential for interfering with your willingness to put in the time necessary to automate performance. If you are an extremely extroverted individual, it will probably help for you to find others to work out with and train with, who share your desire to improve and who will help you stay focused on the performance. Conversely, you'll need to avoid those people who are more concerned about socializing than they are about performing. People who don't share your goals and objectives.

Increasing Confidence

Unfortunately, the best way to build confidence is to practice and to have success. There are a lot of techniques people use to counter negative thoughts, feelings and/or self-doubts. Unfortunately, most of these techniques, when practiced within the actual performance situation, pull you farther away from the zone because they require you to direct attention internally. You may gain some control over thinking but in the process lose awareness of some critical performance relevant cues. In addition, there is not a lot of evidence to support the notion that reductions in arousal through the use of techniques like progressive relaxation, autogenic training, and biofeedback, actually transfer to the performance situation. A key variable here would involve your ability to put your faith into those techniques. Most people are unable to accept "on faith" that something will help. When that's the case, the little bit of doubt they have causes them to look for signals that suggest the technique isn't working. If you are one of the fortunate few who seems to have the ability to accept on faith that something will work, then one or more of these techniques may help.

If you aren't one of the fortunate few, then you will be better off spending your time developing strategies for recognizing and letting go of distractions (whether those are thoughts, feelings, or irrelevant external events) during the competition. As you say good-bye to the distraction(s), you refocus on performance relevant cues or process cues as opposed to outcome cues.

Remember, the challenge is to get out of your head and back into the performance. Anything you can do to speed up this process will be to your advantage. Coaches and team mates can act as powerful external resources, pulling you out of your head and helping you refocus on those task relevant cues. Take advantage of those resources, find ways to let them help you, with, or without their knowledge. On an individual level you can use very simple procedures like thought stopping, and centering, to break away from negative cues and to help you get back into the game.

Maintaining Your Love of the Game

It can be awfully easy to get caught up in the hype and in the importance that others place on winning and losing. How many times have you seen extremely talented young athletes begin to have problems because what was a game and a labor of love, became a job. Parents, coaches, and fans redirected the athletes attention away from playing for the sake of playing to winning at all costs.

As mentioned earlier, there is a balance between being intrinsically and extrinsically motivated. If an athlete were only intrinsically motivated, then the acts of fans, press, family, would have very little impact. When there is an impact, it's because others have reminded us of the importance of extrinsic factors. We've now gotten so focused on those extrinsic factors that we've forgotten or lost sight of the intrinsic motivators. Unfortunately, especially in highly competitive sports, the vast majority of the things we read and see remind us of the importance of outcome. As a result, you may have to work to shut out some of those extrinsic reminders and instead find ways to refocus on your love of the game. For most athletes, that means going back to the basics, re-sensitizing themselves to the joy associated with the successful execution of a skill, independent of whether or not you win or lose. Focus on improving self-control and stop worrying about controlling others.

Hang On To Special Moments and/or People

A good actor is able to find an experience from the past that matches the emotional demands of the role they are playing. They are then able to call on that experience to recreate within themselves, the feelings that need to be displayed. You need to find your own special moments, those people or events that had the power to make you forget about yourself and focus on someone or something else. Often, the emotion associated with those experiences is love and a desire to help or protect. Learn to draw on those feelings, to use them to become immersed in your performance.

Developing the Ability to Get Into the Flow State

Whether you are painting, composing of music, writing, or problem solving, your ability to get into a flow state as you engage in these activities will depend upon your ability to become internally immersed in the process of creating or performing. The free flow of ideas and the development of creative new ideas or compositions can only happen if you have laid the groundwork by doing your homework and building up the basic skills and knowledge base

required to see things and/or integrate things in a new way. As Lykken (1998) indicates, nearly every agreed upon creative genius has been endowed with an incredible capacity for hard work and prolonged concentration. He cites a quotation from Issac Newton, who when asked how he was able to make his remarkable discoveries, replied: “I keep the subject constantly before me and wait until the first dawning’s open little by little into the full light (p. 31).”

I’ve already mentioned the importance of having direct mental access to the data you need to solve a problem or express yourself. I’ve also mentioned the importance of having a template that you use to help you make use of, and/or express to others, the data that you have at your disposal. Let me expand on that a bit.

Somehow our brains are organized to make that information that is of the greatest interest to us, the easiest to recall. That’s probably because we spend more time with the information we are interested in, thereby expanding the number of ways we can gain access to it. Good physicians have a remarkable memory for minor details about patient histories, sports fans may be able to recall an incredible array of statistical information about their favorite team, or even about every professional team in the league. A world class marathon runner may be able to tell you the top ten finishers and their times in the Boston marathon since it’s inception. A scientist will have filed away seemingly inconsequential facts and figures if they seem remotely related to a problem that he or she is interested in.

Those individuals who are able to use the information they have accumulated to provide others with a new understanding of an old problem, and/or to anticipate future issues and implications from the data they have acquired, religiously follow a systematic process for extrapolating that kind of information. Implicitly, or explicitly they are continually engaging in the kind of critical thinking and assessment that is associated with the development of scientific theories. They have practiced that type of thinking until it becomes automatic. Individuals who find new ways to express the data (e.g., artists, composers, authors) have developed patterns that they use over and over again. That pattern may be a formula for writing novels, or a method of painting. What ever it is, it’s been practiced to the point that it becomes second nature.

It should be obvious, that you will have a difficult time “faking it.” If you haven’t found a subject that you are really interested in, it will be very difficult for you to get into the zone. Writing and/or developing things for other people can be extremely frustrating when you aren’t really interested in the product. Chances are if the motivation for involvement is to pay the rent, or overcome a hurdle that is in the way of what you are really interested in, it will be almost impossible for you to get into the flow state.

Once you have a template for organization and expression, and once you have the data the biggest hurdles you have to overcome are associated with evaluation anxiety, and external distractions. As mentioned high self-confidence helps, especially when we are talking about overcoming evaluation anxiety. It is the egotistical nature of many geniuses (and great athletes) that helps to make them immune to the criticisms of others. That level of self-confidence, however, is usually a product of both some biogenetic factors, and a long history of emotional support and encouragement and success (again for both athletes, and others).

When you are lacking a long history of support and/or success, it will probably be easier to get into the flow state by isolating yourself from critics, than it will by trying to bolster your level of confidence. Athletes, have to perform in front of critical audiences, authors, scientists, composers, and artists do not. True, if you want public recognition you will have to subject your product to critical review, but that's after the performance has already taken place.

The double bind for most scientists, artists, etc., is that in most instances they do have to expose their work to others. Professors have to do it to get grants and promotions. Artists, unless independently wealthy and/or supported by someone else, have to eat. When that's the case, the fear of evaluation is something you carry around with you, even when you are alone and not actually performing in front of others. Here is where intrinsic motivation, and/or the love of what you are doing becomes critical. To get into flow, you will have to create an atmosphere that reminds you of the joy you get from your artistic and/or intellectual expression.

An artists studio, a professors lab or office, a composers study or music room, when properly arranged and decorated becomes a vehicle for providing the comfort you need to become immersed in your work. External distractions (e.g., phones, noise) should be minimized or eliminated, but background images and sounds that provide comfort and reassurance should be discovered and cultivated.

Summary

In this paper I have defined the zone, as a special state of consciousness that occurs when the normal amount of shifting that goes on between focusing attention on external cues and focusing on internal cues breaks down. The athlete who enters the zone is focused almost exclusively on the environment with little if any conscious internal processing going on. In contrast, I have suggested that the flow state occurs when the breakdown in shifting is in the opposite direction. This occurs when the performance is primarily cognitive in nature, rather than physical. Flow is an experience that authors, scientists, composers, and artists have. An experience where one loses all sense of time, as opposed to the experience of things happening in slow motion.

I would argue that the type of distinction I have made between these two optimal performance states, has important implications for researchers. We should be very careful about drawing any conclusions about the generalizability of findings from studies that examine automatic mental performance to automatic physical performance and vice versa.

Having said that, although the zone, and flow state differ with respect to the type of concentration required, they share in common those factors which contribute to an individual's ability to enter either state. Both require sufficient dedication and practice that the mental aspects of performance (flow state) and physical aspects of performance (zone) can be engaged in automatically, without conscious attentional effort. For both, individuals need to be able to keep internal and external distracters from interfering with concentration. Individuals who have high levels of self-confidence, are intrinsically motivated, and love what they do so much that they are able to forget about themselves, find it much easier to enter both states. That's because these variables act to reduce distractions created by performance related anxiety.

There appears to be some evidence to suggest that the pattern of an individual's attentional skills combined with intra and interpersonal characteristics like level of self-confidence, intellectual expressiveness, extroversion, and introversion, have an influence on the ease with which they enter either of these two states of consciousness. Some of the characteristics which contribute to entering the zone, make it more difficult to enter the flow state and vice versa. Because biogenetic factors, play a role in determining the ease with which an individual enters one or the other of these special states, the assessment of relevant concentration skills and personal and interpersonal characteristics may be useful in establishing performance related goals and in developing performance enhancement programs.

Finally, readers are reminded that there is no substitution for hard work and practice. One of the ways to increase practice time for athletes who wish to improve physical performance, is through the use of mental rehearsal. That rehearsal, however, should be conducted using an internal perspective, emphasizing kinesthetic as well as visual feedback, involving the entire performance sequence, and occurring in real time. For those individuals involved in the expression of thoughts, ideas, and feelings, the rehearsal that goes on involves the expansion and exploration of information (e.g., by asking questions about it). Some suggestions are also offered for overcoming the distractions associated with a lack of confidence and/or performance anxiety.

Bibliography

- Cohen, P.J. (1991). An exploratory study on peak performance in golf. *The Sport Psychologist*, 5, 1-14.
- Csikszentmihalyi, M. (1985). Emergent motivation and the evolution of the self. In D. Kleiber & M. Maehr (Eds.), *Advances in motivation and achievement* (Vol. 4, pp. 93-119). Greenwich, CT: JAI Press.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper & Row.
- Easterbrook, J.A. (1959). The effects of emotion on cue utilization and the organization of behavior. *Psychological Review*, 66, 183-201.
- Garfield, C.A. & Bennett, H.Z. (1984). *Peak performance: Mental training techniques of the world's greatest athletes*. Los Angeles: Tarcher.
- Gould, D., Weiss, M., & Weinberg, R. (1981). Psychological characteristics of successful and unsuccessful Big Ten wrestlers. *Journal of Sport Psychology*, 3, 69-81.
- Hanin, Y.L. (2000). *Emotions in sport*. Champaign, IL: Human Kinetics.
- Huey, E.G. (1968). *The psychology and pedagogy of reading*. Cambridge, MA: MIT Press.
- Jackson, S.A. & Roberts, G.C. (1992). Positive performance states of athletes: Toward a conceptual understanding of peak performance. *The Sport Psychologist*, 6, 156-171.
- Lykken, D.T. (1998). The genetics of genius. In, A. Steptoe (Ed.) *Genius and the mind: Studies of creativity and temperament* (pp. 15-38). New York: Oxford University Press.
- Mahoney, M. J. & Avner, M. (1977). Psychology of the elite athlete: An exploratory study. *Cognitive Therapy and Research*, 1, 135-141.
- Mahoney, M.J., Gabriel, T.J. & Perkins, T.S. (1987). Psychological skills and exceptional athletic performance. *The Sport Psychologist*, 1, 181-199.
- Nideffer, R.M. (1997). Trading an eye for an I. San Diego, CA: Author. Retrieved May 22, 2001, from the World Wide Web: <http://www.enhanced-performance.com/nideffer/articles/article9.html>
- Nideffer, R.M. (1999). Concentration training for peak performance. San Diego, CA: Author. Retrieved June 2001, from the World Wide Web: <http://www.enhanced-performance.com/nideffer/articles/Poland.html>
- Nideffer, R.M., Sagal, M.S. (2001). Assessment in sport psychology. Morgantown, WV: Fitness Information Technology.
- Nideffer, R.M., Sagal, M.S., Lowry, M., & Bond, J. (2001). Identifying and developing world class performers. In, *The practice of sport psychology*, Gershon Tenenbaum (Ed.). Fitness Information Technology: Morgantown, WV. 129-144.
- Norman, D.A. (1968). Toward a theory of memory and attention. *Psychological Review*, 75, 522-536.
- Orlick, T. & Partington, J. (1988). Mental links to excellence. *The Sport Psychologist*, 2, 105-130.
- Prapavesis, H. & Grove, R. (1991). Precompetitive emotions and shooting performance: The mental health and zones of optimal functioning models. *The Sport Psychologist*, 5, 223-234.
- Ravizza, K. (1977). Peak experiences in sport. *Journal of Humanistic Psychology*, 17, 35-40.

- Shiffrin, R.M. & Schneider, W. (1977). Controlled and automatic human information processing, II: Perceptual learning, automatic attending and a general theory. *Psychological Review*, 84, 127-190.
- Stephoe, A. (Ed.) (1998). *Genius and the mind*. New York: Oxford University Press.
- Wegner, D.M. (1994). Ironic processes of mental control. *Psychological Review*, 101, 34-52.
- Williams, J.M., & Krane, V. (1998). Psychological characteristics of peak performance. In, J.M. Williams (Ed.) *Applied sport psychology personal growth to peak performance* (pp. 158-170). Mountain View, CA: Mayfield Publishing Company.