

Elements of Talent Development Across Domains

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Abstract

The purpose of this review was to analyze models of talent development and case summaries of elite performers for common talent development elements across domains. The Wheel of Excellence (Orlick, 2000) and the Pyramid of Success (Wooden & Jamison, 1997) are two well-known models that were selected for analysis. Across the two models and the 25 case summaries, eight common talent development elements were found: (a) commitment, (b) confidence, (c) desire, (d) focused connection, (e) genetics, (f) ongoing learning, (g) opportunity, and (h) support systems. Each element is best viewed as a composite of several related concepts that are often described in the literature. A description of each element, its related concepts, and a supporting example from one of the case summaries, is provided. Based on the present review, no single model of talent development appears to capture the complete range of internal and external elements required to fully develop talent.

Elements of Talent Development Across Domains

Talent development has been an active and challenging field of study in recent years. Many practitioners and researchers believe that identifying talent can lead to future success, and therefore it is an important area of inquiry. There exists an on-going debate over the contribution of genetic attributes (nature) versus environmental factors (nurture) in the development of talent (Ceci & Williams, 1999). The nature versus nurture conundrum poses several important implications for developing talent. If talent is mostly natural or genetically pre-determined, then parents, teachers, and coaches can do little to influence talent development, as important talent elements such as personality and intelligence may already be preset at birth (Cohen, 1999). On the other hand, if talent is largely developed by nurturing abilities, acquiring expertise, and pursuing excellence, then parents, teachers, and coaches are critical to the development of talent (Bloom, 1985; Ericsson, 1996). Important decisions in the home, at school, and in training programs are made every day on the basis of which account is accepted.

Howe, Davidson, and Sloboda (1998) reviewed current research on the concept of innate talent and acknowledged evidence of early skill emergence, special capacities to acquire specific abilities, and biological involvement in exceptional skills. They suggested, however, that childhood experiences, interests, opportunities, parental support, extensive training and deliberate practice were the real determinants of excellence, and rejected the innate talent account in favor of equal opportunity to nurture excellence. Rowe (1998) in direct response to Howe et al., suggested that genetic differences determine talent because regardless of the amount of practice accrued, most people

will never “hit a tennis ball like Pete Sampras, sing like the Three Tenors, solve a differential equation like the late physicist Richard Feynman, or program a computer like Microsoft’s founder, Bill Gates” (p. 421).

Although the debate continues without the likelihood of a short-term, scientifically based, definitive answer, the most commonly held view is that talent is a special combination of nature and nurture (Singer & Janelle, 1999). There is a strong belief that talented individuals, regardless of their domain, have a genetic advantage, and also must work hard under optimal practice conditions to excel. Therefore, both nature and nurture affect talent development, and parents, teachers, and coaches can all play important roles in facilitating the acquisition of expertise and the pursuit of excellence (Csikszentmihalyi, 1998).

Talent, Success, and Excellence

The goal of talent development is to achieve success or excellence in a chosen domain. Success or excellence can be personally defined and will vary across individuals and domains. However, the approach used to achieve success or excellence may be similar for all domains. Two individuals who are internationally renowned for their contributions to developing talent are performance enhancement consultant Terry Orlick and basketball coach John Wooden. Terry Orlick (Orlick, 2000) and John Wooden (Wooden & Jamison, 1997) have each created models that can be used to guide the development of talent. Orlick focuses on excellence while Wooden uses success as the ultimate goal of talent development. For Orlick (2000), excellence is “using what one has to the fullest capacity” (p. 40). Wooden’s definition of success “is peace of mind which is a direct

result of self-satisfaction in knowing you did your best to become the best that you are capable of becoming” (Wooden & Jamison, 1997, p. 174).

Although the models are different in structure, they both provide a framework for developing talent. The purpose of this discussion is to compare the Wheel of Excellence (Orlick, 2000) and the Pyramid of Success (Wooden & Jamison, 1997) for common elements, and then compare these elements to the talent development process across domains.

Two Models for Developing Talent

Terry Orlick and ‘The Wheel of Excellence’

Dr. Terry Orlick is the author of over 200 articles and 24 books, and he has been recognized for excellence in consulting and teaching. Additionally, he is the President of the International Society for Mental Training and Excellence. Dr. Orlick has 28 years of experience as a mental training consultant with elite performers. Much of his expertise was developed through hours of individual interviews, careful observation, and extensive two-way interactions with athletes, coaches, and performers in a variety of domains. Dr. Orlick has worked with many diverse groups, including astronauts, performing artists, children, athletes, military leaders, surgeons, teachers, and parents. Dr. Orlick developed his Wheel of Excellence to provide a working framework for the pursuit of excellence.

The Wheel of Excellence comprises seven critical elements: commitment, confidence, focused connection, positive images, distraction control, ongoing learning, and mental readiness. Orlick (2000) claims that these seven elements are crucial to guiding

people to success, and must be used in concert for the wheel to function properly.

Commitment, confidence, and focused connection form the hub and foundation of the wheel. They create perspective and desire, and give a person an internal mental connection with his or her goals. The first of the core elements, commitment, is attempting to be the best one can be and doing everything required to excel both mentally and physically. The second core element is focused connection, which involves getting in touch with one’s pursuit. It is the ability to connect with a task through total concentration. The third core element is confidence, or having belief in one’s own potential, and the courage to overcome obstacles.

The outer four elements are positive imagery, distraction control, ongoing learning, and mental readiness. They help to relate the person to the tasks, goals, and performances involved in the pursuit of excellence. Positive imagery allows a person to create and re-create good feelings, sensations, skills, and actions that are important to the successful achievement of a task. Distraction control is what enables one to maintain focus when confronted with distractions or setbacks. Ongoing learning is the process of self-evaluation and acting upon lessons learned from evaluation. Mental readiness is being able to prepare oneself for learning and performance by creating positive feelings.

The Wheel of Excellence is a versatile explanation of the elements required to achieve excellence. It can be used in many areas of life, from sports and relationships to the workplace. Any person committed to the pursuit of excellence can use this model as a guide. The Wheel of Excellence may be beneficial to teams as well as individuals; as each individual on a team becomes more

successful, the team may become more successful. An important application of the Wheel of Excellence is the impact it could have on children's talent development. According to Orlick (2000), anyone in a position to teach children can give their students a head start on achieving balance, joy, and excellence by introducing them to the Wheel of Excellence.

John Wooden and 'The Pyramid of Success'

John Wooden was an All-American basketball player at Purdue University. After college, he coached basketball at Indiana State and at the University of California, Los Angeles (UCLA). At UCLA he established one of the greatest coaching careers in college basketball. During his 27 years at UCLA, Wooden created a dynasty, winning seven consecutive National Championships between 1967 and 1973, and ten championships overall. Coach Wooden has become known as the "Wizard of Westwood," and is one of only two individuals inducted into the Basketball Hall of Fame as both a player and a coach.

Wooden's Pyramid of Success is based on individual blocks, which he believes are personal qualities necessary for achieving success (Wooden & Jamison, 1997). According to Wooden, both the positioning and the order of blocks are very important. He constructed his pyramid by initially using two cornerstones and worked his way up to the pinnacle that leads to success.

Wooden begins his pyramid with what he considers to be the two most fundamental personal qualities: industriousness and enthusiasm. He believes success is not possible without these two cornerstones. According to Wooden, industriousness is working hard without cutting corners. Success requires hard work and without hard

work you have nothing to build on. Enthusiasm is enjoying what you're doing and having the soul to do it.

Between these two cornerstones lie the foundational blocks of friendship, loyalty, and cooperation. Friendship is devotion, respect and doing things for one another. Producing one's individual best in a group effort is a powerful force that Wooden refers to as loyalty. Cooperation involves idea sharing, listening, and it seeks to find the best path to success for the group.

The next level of the pyramid includes self-control, alertness, initiative, and intentness. Self-control is needed for discipline. Loss of self-control may negatively impact performance. Alertness is being able to observe and learn from what is going on around you. Initiative provides courage to make decisions and take actions. Intentness is the ability to concentrate on your objective, resist temptation, and be determined to reach your goal.

The center of the pyramid involves the elements of condition, skill, and team spirit. Condition is a combination of physical, mental, and moral conditioning. Skill is the very core of the pyramid. One must be able to perform the entire job quickly and properly. Team spirit requires personal sacrifice for the welfare of others.

The next level of the pyramid is comprised of poise and confidence. Poise is being yourself and satisfying your own expectations. Confidence is a belief in yourself to become the best you are capable of being. Poise and confidence develop from proper preparation. Before achieving success one must acquire competitive greatness. Poise and confidence allow individuals to bring out the best in themselves in the most difficult circumstances. Reaching this competi-

tive greatness allows individuals as well as teams to perform at their finest.

The pyramid is held together by faith and patience. One must have faith or the belief that things will work out. Patience is required to achieve competitive greatness, excellence, and success. Success is the pinnacle of the pyramid. It represents the culmination of all the elements coming together to achieve excellence. Success does not mean perfection; it is the end result of accomplishing one's goal.

Each individual has the building blocks and the potential within themselves to achieve personal success, but it is up to that individual to realize his or her own success. It is the role of a teacher, coach, or consultant to assist or direct the individual to bring out personal excellence. The challenge is to create an environment that allows individuals to work together as a team in order to be the best they can be.

Common Elements of the Two Models

Upon first glance the two models are more different than similar. They are vastly different in appearance and structure (wheel vs. pyramid) and the number of constituent elements (7 vs. 17). Furthermore, the Wheel of Excellence appears to take a more individual orientation whereas the Pyramid of Success is described more from a team perspective. For example, The Pyramid of Success includes friendship, team spirit, cooperation, and loyalty. None of these team or group oriented elements are evident in the Wheel of Excellence.

However, there are also many similarities between the two models. For Orlick (2000) and Wooden (Wooden & Jamison, 1997), success and excellence are very similar. In both models the objective is self-fulfillment and the talent development process is more

important than the end result. Success and excellence are moving targets that differ for each individual or team. The development of talent, therefore, is viewed as the process of realizing one's full potential as a performer and human being.

In addition, both models attempt to differentiate at least some of the elements based on importance to achieving success or excellence. The Wheel of Excellence is comprised of two layers. The inner wheel, or hub, includes commitment, confidence, and focused connection, while the remaining four elements are relegated to the outer layer of the wheel. The Pyramid of Success clearly identifies industriousness and enthusiasm as the cornerstones of success upon which the rest of the blocks rest. Furthermore, faith and patience are referred to as the "two essential qualities that are like mortar keeping the individual blocks firmly in place" (Wooden & Jamison, 1997, p. 191).

The Pyramid of Success is also presented as a hierarchical process to achieving the ultimate level of total success. As Wooden himself has stated, "the position of each block and the specific order of the tiers of blocks in the Pyramid have great importance" (Wooden & Jamison, 1997, p. 174). Similar to Wooden's view of his Pyramid blocks, Orlick (2000) considers all of his elements critical to achieving excellence. Weakness in any of the seven elements will result in a 'shaky wheel'. However, unlike Wooden, Orlick presents the pursuit of excellence as a more dynamic and fluid process that is dependent on interaction between all of the elements. The elements, or mental keys, cannot be easily separated into distinct blocks as in the Pyramid. For Orlick, "the seven links to excellence are closely connected, and each plays a significant role in nurturing ongoing commitment" (p. 16).

Based on a review of the literature, it appears that the two models have not been integrated or compared for common elements. Although each model provides insight into the elements of talent development, their differences raise questions about their transferability across domains. To gain a broader perspective on the elements of talent development, and to test the Orlick and Wooden models, case summaries of talented individuals were prepared (see Table 1). As much of the literature on talent development, including the models prepared by Orlick and Wooden, includes cases of talented sport performers, only two sport cases were reviewed.

Each student in the graduate course selected a talented individual, from among the predetermined talent domains, and prepared a case summary. The sources of evidence used to prepare the case summaries included autobiographies, biographies, video documentaries, newspapers, journals, magazines, and Internet articles. Case summaries were written using a theory-building case summary structure (Yin, 1994). Each student was also asked to prepare a concept map illustrating the performer's talent development process. The case summaries were reviewed by the course professor and discussed during in-class review sessions.

Table 1 Case Summaries by Domain

Domain	Case Summaries
Art	Ansel Adams, LeRoy Neiman, Michelangelo (di Lodovico Buonarrotri Simoni), Pablo Picasso, Steven Spielberg
Business	Bill Gates, Michael Eisner, Steve Jobs, Leigh Steinberg, Sandy Weill, Oprah Winfrey
Music	Ludwig van Beethoven, Charlotte Church, Harry Connick Jr., Elton John, Wolfgang Amadeus Mozart, Antonio Stradivarius
Science	Leo Hendrik Baekland, Alexander Graham Bell, Thomas Edison, Benjamin Franklin, Jean Paul Sartre, Nikola Tesla
Sport	Bobby Orr, Jackie Stiles

The case summaries were analyzed for common elements of talent development. These elements were then compared to the talent elements cited in the Orlick (2000)

and Wooden (Wooden & Jamison, 1997) models. As an additional method of data triangulation, the elements were also compared to talent development research

literature (e.g., Bloom, 1985; Cohen, 1999; Ericsson, 1996; Gardner, 1983; 1998). The talent elements were reorganized into eight common elements (see Table 2). Each element is best viewed as a composite of several related concepts that are often described in the literature. For example, the element of desire is sometimes referred to as drive, passion, unusual motivation, or

enthusiasm. All of the elements appear to be essential for developing talent, and therefore no attempt was made to rank them according to significance or importance. A description of each element, its related concepts, and a supporting example from one of the case summaries, is provided in the remainder of this paper.

Table 2 Elements of Talent Development

Element	Related Concepts
Commitment	Dedication, Industriousness, Work Ethic
Confidence	Attitude, Belief, Faith, Optimism, Positive Images
Desire	Drive, Enthusiasm, Passion, Unusual Motivation
Focused Connection	Concentration, Distraction Control, Intentness
Genetics	Multiple Intelligences, Personality, Quick Learner
Ongoing Learning	Deliberate Practice, Education (formal / informal)
Opportunity	Creativity, Curiosity, Environment, Initiative, Risk Taking
Support Systems	Coaches, Cooperation, Family, Friendship, Teachers

Eight Elements of Talent Development

Commitment

Commitment is an integral element in the talent development process. Orlick (2000) defines commitment as deciding to be the best one can be and doing everything required to excel both mentally and physically. Commitment is a quality that was referred to in most of the case studies. The term commitment encompasses related concepts as well. Qualities such as dedication, work ethic, and industriousness are directly related to commitment, and may be seen as evidence of it. In every talent domain, a

person must be committed to achieving high levels of performance in order to reach his or her goal, and to maintain that level or surpass it.

An abundance of literature supports the element of commitment with regard to talent development. For example, Orlick (2000) put commitment in the heart of his Wheel of Excellence, and Wooden (Wooden & Jamison, 1997) refers to the quality of industriousness in reference to commitment. Wooden explained that there is no substitute for hard work, and that worthwhile results

are achieved only through hard work and careful planning. The ability to engage in ongoing learning, another one of the key talent development elements (see Table 1), depends upon an individual's commitment. Ericsson (1996) found that only the most committed performers were willing to complete the 10,000 hours of deliberate practice associated with expertise. Deliberate practice requires a high level of commitment because it is often considered the most difficult and unenjoyable type of practice that differentiates the expert from the average performer (Ericsson).

Basketball player Jackie Stiles is an excellent example of a performer who has taken commitment, specifically deliberate practice, to high levels in order to excel in her sport. She is the most prolific scorer in the history of college basketball (men's and women's) with 3,339 points. She exemplifies commitment by spending countless hours practicing in the gymnasium. One particular daily practice routine consists of 200 shots from four different places on the court. She continues her practice session until she makes 1,000 shots. Jackie Stiles demonstrates hard work, the desire to improve, and dedication that truly exemplify her commitment to developing her basketball talent.

(www.webkrafts.com/stiles/articles.htm).

Confidence

Confidence is one's internal resource to utilize his or her strengths to accomplish any task, whether mental or physical. It is one's uncanny ability to thrive in the face of adversity and eagerly accept new challenges. Essentially, confidence is the unrelenting knowledge that one will succeed regardless of circumstances.

Confidence is an essential element of both Orlick's (2000) and Wooden's (Wooden &

Jamison, 1997) models. Orlick uses the word belief synonymously with self-confidence. Furthermore, Orlick states the steps to personal belief include, but are not limited to, (a) someone believing in you, (b) thinking maybe you can, (c) acting as if you can, (d) believing you can, (e) knowing you can, and (f) trusting you will. Wooden defines confidence as respect without fear. Confidence develops from being prepared and keeping all things in proper perspective.

Confidence was identified as a major component in the talent development process in the case summaries. Specifically, Michelangelo, known as the 'father and master of all the arts', displayed his confidence as fearless arrogance (Stone, 1976). He did not allow any criticism of his work or the objections of his father to hinder the development of his artistic career. When he became bored in one facet of the arts, such as Fresco, he had the confidence to study and master other artistic endeavors such as sculpting, poetry and architecture.

Michelangelo's supreme confidence allowed him to engage in the deliberate practice required to develop his extreme talent. Michelangelo displayed all the qualities that Ericsson (1996) claimed must be present for an individual to succeed and fully develop their talent. For example, Michelangelo's practice routines displayed the following characteristics of deliberate practice: (a) maximal concentration, (b) a set of structured rules, (c) specially designed to improve the current level of performance, and (d) involved delayed gratification.

Desire

Desire encompasses a person's intrinsic motivation and passion. It relates to the consistent yearning to reach one's own personal satisfaction. Supporting components of desire include, but are not limited to drive,

passion, enthusiasm, and unusual motivation. These components are subjective and unique to each individual.

Desire was an element identified by Wooden in his Pyramid of Success; however, he identified it as enthusiasm (Wooden & Jamison, 1997). Orlick (2000) identified desire, along with joy, passion or love for the pursuit, as a source of commitment. He suggests that in order to achieve excellence one would have to possess desire. Desire and its common components were very clearly identified in case studies of Oprah Winfrey, LeRoy Neiman, Sam Weill, Charlotte Church, and Elton John.

An example of desire is evident in the life story of Oprah Winfrey. Oprah was raised in a poverty-stricken, drug ridden, and abusive environment (Mair, 1994). After numerous years of misfortune she relied on her strong intrinsic motivation to improve her life. She endured a broken family, rape, and a lack of family support to become the most successful businesswoman in America. As a result, she has been described as remarkably determined, talented, and ambitious. Her incredible desire is evident even now after she has reached the pinnacle of the corporate world, as she continues to show enthusiasm and passion toward bettering herself and others.

Focused Connection

Although Orlick (2000) listed focused connection as the second element of excellence, he also stated “focus is everything...focus is the most important mental skill associated with ongoing learning and consistent high-level performance” (p. 7). For talented individuals to perform at optimal levels, they must focus solely on the task at hand. Often times, when a performer is fully focused, it is referred to as being in the zone (Orlick). Additional concepts of talent were identified

that support the focused connection element. Those additional (supportive) concepts are distraction control, intentness and concentration.

Often, when a performer experiences focused connection, they also experience the optimal level of distraction control. Distraction control is the ability to maintain or regain a positive, effective focus when faced with potential distractions, negative input, or setbacks (Orlick, 2000). Intentness was another concept related to focused connection. In Wooden’s Pyramid of Success, focused concentration and distraction control are identified as intentness (Wooden & Jamison, 1997). Wooden defines intentness as the “ability to resist temptations and stay the course, to concentrate on your objective with determination and resolve” (p. 185).

A case study in which the performer exemplified focused connection was Thomas Edison. Edison was a hard worker who remained focused on his goal of becoming a full-time inventor. Edison overcame many obstacles such as economic and physical hardships, and a lack of formal education. For example, he was expelled from school after only three months and relied on his mother’s home schooling for his early education. He later taught himself to read and write, he sold candy for money and even after several failed inventions he persevered until he finally invented the light bulb. This tenacity for meeting any technical challenge, combined with his relentless desire for learning and exhaustive research, are the reasons Edison was able to fully realize his talent and become known as one of the greatest inventors in modern history.

(www.biography.com;
www.infoplease.com/ce6/people/A0816770.html)

Genetics

Genetic traits that are transmitted at birth can play a major role in determining the direction and course of one's life (Cohen, 1999). Genetic traits that can be transmitted from generation to generation include, but are not limited to, components of personality such as aggressions and altruism, normal and maladjusted behavior, and physical components such as body weight, body composition, and muscle fiber types (Andersen, Schjerling, & Saltin, 2000; Cohen, 1999). Related genetic components that were evident from the case studies included the ability to learn quickly, personality traits, and multiple intelligences. Each of these related elements could significantly affect one's ability to achieve success in a given domain.

Although there is a tremendous body of literature, both research- and opinion-based, on the genetic influence on talent development, neither Orlick (2000) nor Wooden (Wooden & Jamison, 1997) addressed this important element. As a result, they have avoided the contentious nature-nurture debate that dominates the talent development literature today (e.g., Ceci & Williams, 1999). When asked about this, Orlick stated that he, and likely Wooden, avoided the genetic issue because it is not something that an athlete, coach or consultant can change. He went on to say that "what we can control is making the best of whatever we have".

The concept of multiple intelligences is used as example of a genetic element that will influence the talent development process. Gardner's (1993) groundbreaking work suggests that human beings exhibit more than the two commonly accepted academic intelligences of logical-mathematical and verbal-linguistic. Gardner (1993; 1998) theorized at least six other human intelligences: spatial intelligence, musical intelligence, bodily-

kinesthetic intelligence, interpersonal intelligence, intrapersonal intelligence, and naturalistic intelligence. Gardner's theory of multiple intelligences implies a belief that people vary significantly in their genetic make-up and would lead one to believe that genetic predispositions toward specific intelligences significantly affects one's ability to develop talent in one intelligence area or another.

Wolfgang Amadeus Mozart is a prime example of genetic influence on talent development (Deutsch, 1965). Mozart was born into a musical family and demonstrated genius-level musical talent at a very young age. His father, Leopold, was a prominent musical instructor in Salzburg, Austria and served as a court composer for most of his adult life. Mozart's older sister began music lessons on the clavier at the age of eight, toured and played music with Wolfgang for the better part of his childhood, and became a well-known piano teacher, in her own right. Wolfgang, at the age of three, picked up his sister's clavier and instantly played a few bars of music after watching her practice the instrument for a short time. Leopold recognized the ease with which young Wolfgang seemed to pick up the simple instrument and encouraged his son to continue. Leopold quickly introduced Wolfgang to other instruments and musical compositions and was delighted with his son's progress. Wolfgang mastered his first musical work a few days before he turned five. He wrote his first composition at the age of six. He performed before royal courts in Salzburg, Munich, Versailles, Paris, and London, along with his sister, before the age of seven. He wrote his first full orchestra composition before he turned nine. He was a quick learner, experienced musical success at a very young age, and became the most accomplished musical composer of his time. While acknowledging

significant opportunities and support systems, much of Mozart's success can likely be attributed to his innate inherited musical talent (intelligence).

www.mozartproject.org/biography/mozart_a.html

Ongoing Learning

Orlick (2000) expresses the importance of developing an effective evaluation procedure to pull out lessons, and to act upon those lessons on a consistent basis. He argues that one's rate of learning, and the performance levels one may attain, are directly affected by the extent to which one engages in a thorough, ongoing, and constructive personal evaluation – also referred to as ongoing learning.

Ongoing learning encompasses everything from formal education to self-education to deliberate practice. The characteristic of ongoing learning that separates it from general learning is that the individual plays an active role in choosing the process by which his or her talent is to be improved. The individual makes conscious and calculated efforts to pursue knowledge in his or her talent through self-evaluation, reflection, experimentation, refinement and repetition. By evaluating and reflecting on past performances, the individual can discover what it was that he or she did well and what he or she did that failed. These reflections provide the foundation upon which lessons are learned and talent is ultimately refined. In this sense, ongoing learning is congruent with theories of reflection and self-directed learning (Jarvis, Holford, & Griffin, 1998).

The importance of ongoing learning is an essential component to developing talent. Howe, et al (1998) stated that studies of long-term practice and training suggest that individual differences in learning-related experiences are a major source of the

variance in achievement. Furthermore, Howe and colleagues suggested that high levels of accomplishment invariably require lengthy and intensive training, and even people who are not believed to have any special talent can, largely as a result of training, reach levels of achievement previously thought to be attainable only by innately gifted individuals.

Antonio Stradivarius is an excellent example of a lifelong learner (Hill, Henry, & Alfred, 1963; Jalovec, 1970). Stradivarius created what many experts consider perfect instruments. He studied under a world-renowned violinmaker for 10 years. Even after his tutelage ended, he continued to learn and experiment in the field of violin making. He created and destroyed many violins in his pursuit of creating the perfect instrument. He constantly experimented with new designs and was not afraid to use innovative techniques or to push the creative envelope. Stradivarius would reach out to other violinmakers to find new ideas to improve his understanding and expertise. As further evidence of his ongoing learning, he continued to create and innovate until his death.

Opportunity

Opportunity is an element that can be either acquired or created. Individuals may have an environmental advantage based on geography, financial means, social connections or formal training. Individuals who lack the environmental opportunities may have superior initiative, curiosity or a risk taking attitude that allows them to create their own opportunities.

Opportunity is not found in either Wooden's (Wooden & Jamison, 1997) or Orlick's (2000) models, and it is only seldom mentioned in the talent development literature (e.g., Bloom, 1985). However, it is evident from the analysis of the case sum-

maries that opportunity is a critical element in developing talent.

Two case study examples of experts in their domains that represent the continuum of opportunities are Bill Gates and Steven Spielberg. Bill Gates was born into a family of means (Wallace & Erickson, 1993). His parents provided him with enough financial support to receive the best education money could buy. He was also afforded the opportunity to develop his computer skills during a time when computer costs were prohibitive for many. This exposure to both his trade and an elite social climate provided the foundation with which Bill Gates created his empire.

Steven Spielberg is an individual who largely created his own opportunities. As a young college student, Spielberg was on a tour at Universal Studios when he saw a small, vacated custodial office. He jumped off the tour bus and investigated the office. He made this office his own and in order to avoid getting caught, Spielberg dressed professionally and acted like a studio executive. This office is where he started his empire that eventually revolutionized the film industry. If Spielberg had not taken the initiative and taken the risk to create his own opportunity, his talents may never have been discovered.

(www.mrboy.com/spielberg/life.html;
www.scruffles.net/spielberg/biography).

Support Systems

An essential ingredient that talented individuals often possess is a well-established support system. Whether it is family, friends or mentors, successful individuals are encouraged to reach their full potential through the cooperation of others around them. Support, however, is not restricted to families, friends, and mentors. Often teachers, coaches, coworkers or teammates pro-

vide critical information that creates a well-defined support system. The support system allows an opportunity for the individual to build his or her self-esteem and lessen the impact of any self-doubt.

Although it is believed that support is necessary to guide an individual in their pursuit of success, neither Orlick (2000) nor Wooden (Wooden & Jamison, 1997) explicitly addressed this critical element. Terry Orlick's Wheel of Excellence allows for the individual to be in control of his or her own outcomes. He believes there is a process of ongoing learning, however, he doesn't acknowledge that the learning needs to include external support to help motivate the individual. Wooden on the other hand does acknowledge support with the cooperation and friendship blocks in his Pyramid of Success. However, cooperation focuses more on providing support rather than receiving support. Cooperation centers upon establishing good communication between others and yourself to find the best way to reach the team's goal.

The critical role of support systems has been validated in other talent development literature, most notably the study by Bloom (1985). Bloom conducted case studies of 120 highly talented (i.e., expert) performers from across three talent areas (athletic, aesthetic, and cognitive). It was found that talented performers proceeded through three distinct talent development stages: (a) home and early years, (b) middle years, and (c) later years. The role of support systems was considered the most critical element of the talent development process, "unless there is a long and intensive process of encouragement, nurturance, education, and training, individuals will not attain extreme levels of capability" (p. 3). The results of Bloom's study show that developing skills and abilities early in life are often contingent

upon effective encouragement and support from one or more sources.

A case study conducted on Pablo Picasso's life further illustrated how encouragement and support provides an opportunity for the individual to succeed later in life (Penrose, 1980). Picasso's father was a painter, drawing instructor, and museum curator. His father's extensive knowledge of art, and willingness to share it, helped Pablo by providing a natural artistic environment through the talent development stages. Early in his childhood, Pablo's father pressed him to consistently improve. If his father did not feel that the painting was sufficient he would not allow him to proceed about his business until the painting reached a satisfactory level in the mind of his father. Some may say that his father pushed him too much, but without this encouragement Pablo may have failed to realize what he was capable of creating or achieving. By the age of 10, Picasso could draw as well as any art teacher. Picasso's early childhood encouragement was mostly from his father. However, in his adolescence, Picasso's friends provided most of the support. For example, Pablo and his friends made numerous art trips to Paris. This helped Pablo broaden his outlook on the possibilities within art. Through the supportive efforts of Picasso's

father and friends at an early stage in his life, Pablo was exposed to the experiences that helped him develop his talent.

Summary

In comparing Terry Orlick's (2000) Wheel of Excellence with John Wooden's (Wooden & Jamison, 1997) Pyramid of Success, we find that both models share some common critical elements. However based on the 25 case summaries, the two models do not paint a complete portrait of the full range of elements required for talent development across domains. For example, neither Orlick's nor Wooden's model explicitly discusses the importance of genetics, opportunity (whether provided or self-engineered), and the effect of a robust support system. Based on our review, eight composite elements appear to be prerequisite for developing talent. The degree to which these elements are predominantly innate or environmental is beyond the scope of the present discussion. These elements, when used in conjunction with popular models of talent development, provide an important overview of the talent development process. Coaches, parents, teachers, and consultants across domains can refer to these elements in their quest to identify and develop talent.

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