“Hard Work Beats Talent Until Talent Decides to Work Hard”: Coaches’ Perspectives Regarding Differentiating Elite and Non-Elite Swimmers

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ABSTRACT
Research addressing elite athletes tends to either identify differences between high-level and low-level performers or the developmental histories of elite athletes. The current study culls input from six individuals who simultaneously coach both elite (e.g., World Record holders) and non-elite (e.g., regional-level) swimmers, and have done so for an extended period of time, thereby filling a void in the literature by providing their opinions and perceptions regarding how athletic performance differences develop. Responses by participants to the open-ended question, “What do you feel contributes to a swimmer achieving top performances (e.g., World Records) vs. excellent performances (e.g., a Top-8 finish at NCAAs)?” were analyzed. Emergent categories (i.e., intrapersonal, interpersonal, lifestyle, training, environment, and a systemic interaction among these) are presented and an interpretation is offered. Additionally, a critique of the methods implemented herein is offered and future research directions are proposed.

Key words: Motivation, Swimming Coaches, Talent Development

INTRODUCTION
Interest in high-level human athletic performance has existed since the inception of sport. The current study attempts to expand the understanding of what is involved in achieving elite athletic performance by culling the opinions and perceptions of coaches who simultaneously work with elite and non-elite swimmers via personal, one-on-one interviews.

Previous research has identified a number of discrete constructs relevant to elite athletic performers. For example, elite athletes have been shown to possess high levels of

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commitment [1-3], determination [4], and competitiveness [5, 6]. They tend to create self-determined goals [4, 7], and sport is central to their lives [4]. Additionally, research provides evidence that a relationship between several personality traits and performance exists [8-11] (e.g., high levels of achievement motivation and feeling little need to avoid failure [12]). Nevertheless, studies that have attempted to uncover a direct link between the global construct of personality and performance have been largely inconsistent or unsuccessful [13]. However, opinions regarding the influence and role of idiosyncratic predispositions exist. As just one example, NCAA Division I athletes shared their beliefs that performers with greater inherited potential benefit more from training, experience, and domain specific talent than others [14].

The role of social resources in athletic performance also has consistent support in the sport psychology literature [5, 15]. For example, Wolfenden and Holt [16] uncovered the positive outcomes that athletes experience when receiving emotional and tangible support, while also noting that negative influences (e.g., pressure) can be encountered when others (e.g., parents) become over-involved and overstep appropriate interpersonal boundaries. Furthermore, Mallett [17] identified the positive influence that coaches can have on their athletes’ performances when they are sensitive to the underlying motives of their elite athletes (i.e., they design an autonomy-supportive climate). Dick Fosbury’s development into a world class high jumper, and his relationship with his coach, provide an ecologically valid example of this [18].

In addition to identifying the constructs related to elite athletic performance, research in this domain has tended to approach the phenomenon from one of two perspectives. The first has focused on the developmental experiences of elite athletes [1, 7, 19-21]. This literature has identified elite athletes as being very focused, spending copious hours of domain-specific time-on-task, and having supportive environments (e.g., knowledgeable coaches and encouraging parents). In the second, cross-sectional comparisons have been performed in an effort to unearth those factors that differentiate elite and non-elite athletes [22-28]. These researchers have identified differences between achievement groups in response time, cognitions, and attention. However, neither of these two approaches is able to inform science using a combination of longitudinal and cross-sectional procedures. That is, “Are there individuals who have similar developmental experiences, yet some reach elite performance levels and others do not?” and “If an elite athlete was a non-elite athlete at some point in time and had poor skills in the areas identified by extant cross-sectional research, how did she or he ever become an elite athlete?”

These two questions have begun to be answered by conceptualizing and operationalizing a more integrated approach [29, 30]. That is, there exists the possibility that an athlete’s developmental experiences interact with his or her dispositional tendencies in very complex ways [31], resulting in idiosyncratic achievement levels. The current study furthers this line of research via an analysis of swimming coaches’ opinions and perceptions of the factors that are involved in athletes’ differing achievement levels, while environmental inputs (e.g., coaching, developmental experiences, and training) are held somewhat constant (i.e., one coach and athletes of multiple achievement levels). Considerable and novel insight may result from these coaches due to their extensive first-hand experience with (a) the real-world complexities of their sport; (b) the holistic human experiences of elite and non-elite athletes; and (c) how the whole is possibly greater than, and differs from, the sum of the parts. Additionally, these coaches will likely provide lines of evidence supporting or refuting previous research into those factors that differentiate elite and non-elite athletes.

When considered with previous research from Hyllegard et al. [14], Morgan and Giacobbi
current and future research that gathers coaches’ opinions and perspectives regarding what is involved in differentiating elite and non-elite athletes will likely permit a fuller understanding of this phenomenon. For example, Thomas and Thomas [33] interviewed two elementary school physical education teachers about two of their former students who, as adults, were elite athletes. Practice, hard work, kinesthetic and environmental awareness, fitness, ability, and skill were reported as the primary reasons for their eventual elite achievement. However, when Hyllegard et al. [32] sought collegiate swimming, tennis, and volleyball coaches’ opinions by having them rank order 15 a priori selected attributes they uncovered opinions that (a) talent (i.e., a predisposition to high levels of athletic performance); (b) athlete’s intrinsic motivation; and (c) effort, are the top three causal factors of eventual performance level. The coaches in this latter study also reported that both the accumulated amount and type of practice were important, but less so as these factors ranked 11th and 14th out of the 15 options available, respectively. Non-athletic domains have also provided arguments in favor of a systemic approach when considering human behavior [34, 35].

Based on this literature there is likely great utility in conceptualizing the development of high-level athletic performers from the perspective of Minuchin et al.’s [36] general systems theory, which espouses that an observed outcome cannot be construed as the result of the level of a single input. Bertalanffy [37] augments this with his assertion that potential change perceived as too great, too sudden, or too far beyond a subjective threshold of tolerance is likely to produce behavior moving the system back to its pre-existing homeostatic state. Elite athletic performance can be considered within such a systemic framework. Athletes experience a unique set of challenges as they mature and the world around them evolves. Moreover, one’s idiosyncratic responses to these challenges result in elite or non-elite athletic performance. In addition to previous research that identifies discrete factors involved in athletic performance, and other literature proffering a systems view, other models exist that may validly fit with athletes’ experiences. One model that emphasizes such a systemic interaction among factors over time, while also calling attention to the importance of how an individual manages the challenges he or she encounters, utilizing his or her available resources, is Hendry and Kloep’s [38] lifespan model of developmental challenges (LMDC).

The overarching goal of this study is not to explain a domain, but to improve our understanding of it. When coupled with previous research that (a) uncovered specific factors; (b) suggested a systemic interaction among factors; and (c) identified the role of idiosyncratic responses to challenging life experiences, the understanding of elite athletic attainment will potentially benefit from a viewpoint external to the athlete [32, 33]. Based on this research, the present study hypothesized that the coach-participants herein would differentiate elite athletes from non-elites via their idiosyncratic interactions with, and a systemic interplay among, their (a) self-beliefs, (b) social resources, (c) structural resources, (d) existing skill set, and (e) biological dispositions (i.e., the LMDC framework [39]). An inductive qualitative interview approach was chosen as the method of inquiry to gather the opinions and perceptions of those who have perhaps the most extensive and ecologically valid insight into the area of interest in the current study. Interview data herein are analyzed inductively via verbatim transcriptions of semi-structured interviews that focused on the participant coaches’ phenomenological insights of that which they feel differentiate athletes who achieve at the highest level in sport from those who do not. As such, no a priori categories were declared during data gathering or analysis, as is the nature of inductive inquiry.
METHOD
The current study obtained data from interviews with coaches who have a history of producing elite-level swimmers. This data was processed inductively to develop categories and themes rather than grouping the data based on *a priori* factors. Although it was anticipated that the emergent themes would align closely with the LMDC, only the lead author, who was responsible for the study’s conceptualization and operationalization, was privy to this hypothesis.

PARTICIPANTS
Six swimming coaches from throughout the United States (i.e., Florida [n = 2], Illinois, Michigan, Texas, and Virginia) agreed to participate in the current study. All six were Level 5 certified coaches by the American Swimming Coaches Association at the time of their interview, recognizing them as being in the top 2-5% of the profession [40]. Additionally, each coach had worked with at least one elite swimmer from between 2 and 14 years. Each coach was a White male, and their ages ranged from 48 to 57 years at the time of data collection. Athletes under the direction of these coaches were ethnically and culturally congruent with the general competitive swimming population in the United States [41]. Purposeful sampling [42] was utilized to recruit coaches who had over 20 years of experience simultaneously training elite and non-elite swimmers. Institutional Review Board approval was obtained prior to participant contact and informed consent was provided by each participant. Each coach was randomly assigned a number from 1 through 6 and is referred to by this number throughout this article.

Each of the coaches who participated in the present study trained elite swimmers who (a) won a Gold Medal in at least one Olympic Games, (b) were the number-one ranked swimmer in the world at the end of a calendar year in at least one event, or (c) held one or more swimming world records at some time in the preceding decade. Additionally, each coach was simultaneously training other swimmers (i.e., non-elites) who were U.S. National Championships competitors, U.S. Regional Championships qualifiers, and/or local (e.g., Washington DC area) championships participants. This professional experience puts these coaches in the unique position of being able to provide their insights, opinions, and perspectives regarding the factors that differentiate elite and non-elite athletic performers.

PROCEDURE
This study follows the qualitative research recommendations of Morrow [43]. It attempts to improve the understanding of the challenges to, and facilitators of, the development of elite athletes from the opinions and perspectives of multiple individuals who have long, documented histories of developing and training some of the best swimmers in the world.

The following open-ended structured question was used to initiate each interview, “What do you feel contributes to a swimmer achieving top performances (e.g., World Records….) vs. excellent performances (e.g., finaling at NCAAs…?)?” Côté et al. [44] provide support for the utility of structured personal interviews to elicit recalled experiences. The current study implemented this concept and then built on it by using a semi-structured interview format. Each coach responded to the initial stimulus question and then was asked to clarify or elaborate on his comments with probe questions. For example, during Coach 1’s initial response he alluded to a challenging situation during his elite athlete’s career. Therefore, the interviewer asked, “When [she] came back from her shoulder surgeries you stated she initially had a hard time getting back into competition with great confidence. Would you please describe an example illustrating that (i.e., please describe what you did or said, and...
how she responded).” Coach 1 replied:

“I started yelling at her. She was behind the blocks and I said ‘You either get up on those blocks right this second or quit and go home!’ She got up and raced. I don’t think she liked me doing that, but I think she appreciated it. It helped her get where she wanted to go.”

Coaches’ elaborations such as this provided more richness, depth, and breadth to their initial responses. Coaches’ initial responses and their elaborations constitute the interview data used in the current study.

DATA COLLECTION AND ANALYSIS
The primary investigator conducted all six interviews. Five of the interviews were performed via telephone, while one coach was interviewed in person. Telephone interviews were employed due to financial and time constraints, while acknowledging some interpersonal communication (e.g., non-verbal body language) was not accessible during a phone interview. Each interview lasted between 20 and 40 minutes. Additionally, all six interviews were audio-recorded with participant consent and then transcribed verbatim. Each transcript was e-mailed to the respective participant who was asked to provide any feedback he felt was appropriate and make any corrections that would provide a more accurate representation of his opinions and perceptions. All six participants responded that no changes were needed.

Once each transcribed interview was approved by a participant, data analysis of that interview commenced. The lead researcher and two other individuals (i.e., second and third authors), all of whom have doctoral degrees in relevant fields (i.e., sport psychology, counseling psychology, and counseling) and firsthand experience with qualitative research, independently utilized an open coding procedure [45] to identify each interview’s meaning units (i.e., sentences identified as having discrete implications). Following this, group meetings were held at which each meaning unit was classified as belonging to a distinct category. In order to illustrate this, we return to our example from Coach 1 introduced earlier. His statement independently was determined by all three researchers as best belonging to the interpersonal (i.e., coach-athlete relations) category.

This inductive process began with the first interview. Following this, the second interview was coded with the goal of building onto or augmenting the categories that emerged from the first interview. The third through sixth interviews were coded in order, using this same procedure. This allowed categories to emerge and saturation to be reached via a constant comparative approach.

The original research plan called for additional interviews if saturation of categories was not achieved with this initial participant pool. However, while interviews from the third through sixth participant did provide additional depth, these data did not generate additional categories. That is, saturation was reached, which also was supported by the fact that the existing research into elite athletes, as well as the LMDC do not contain any categories omitted by the results of the inductive process employed in the present study.

During group meetings, discussions were also held regarding any (a) discrepancies in meaning units’ assignments to categories; or (b) differences of opinion regarding the identification of a meaning unit. These steps were taken in order to combat conditions such as confirmatory bias and overly simplistic data interpretation. Additionally, the three reviewers specifically discussed any potential biases that may have impacted interpretation of the results. If bias entered these discussions, then the researchers shared their perceptions.
and a discussion ensued. Bias, and other limitations of the present study are elaborated upon within this article’s conclusion.

Trustworthiness. In order to strengthen qualitative research, attention must be given to the study’s trustworthiness. The current study employed a number of steps with this in mind. First, it is understood that the study’s primary investigator is also considered a participant in the qualitative research process [46]. This researcher is a White male who was a competitive swimmer from the age of 9 through his undergraduate collegiate years. He was also trained for two years by coach 6 and had no personal relationship with the remaining five coaches. This researcher’s personal training and competitive experiences, and reflections on his 13-year career, played a role in conceptualizing this study. His reflections on the relationship between training and performance (i.e., the seemingly imperfect relationship between training volume/intensity and performance) provided some guidance with this study’s literature review, method, and likely the results and subsequent discussion. Additionally, the third author is also a former NCAA Division I athlete.

In addition to the benefits that can be associated with including firsthand experiences in qualitative research, there are potential biases. Procedures were implemented to minimize this. For example, six researchers contributed to various aspects of this study, creating a collaborative team designed specifically to improve the trustworthiness of the process. Additionally, the first three researchers’ doctoral studies included dissertations that employed both quantitative and qualitative methods. Adding to this, these individuals all had coursework in qualitative research and have published qualitative journal articles. Furthermore, the first and third authors’ academic coursework, professional training, and practice as licensed psychologists, provide them with extensive experience in interviewing and interview interpretation.

RESULTS

Figure 1 presents the six categories that emerged from participant interviews and includes the following categories: (a) intrapersonal, (b) interpersonal, (c) lifestyle, (d) training, (e) environment, and (f) a systemic interaction among the first four categories within the context of the fifth. This latter concept is emphasized within Figure 1 as the first four categories are represented by boxes with dashed lines, calling attention to each category’s permeability to the environment and its relationship with other categories. The following analysis provides a presentation of the data, including specific statements made by the coaches in support of that category’s existence, organized within the framework presented in Figure 1.

INTRAPERSONAL

Factors that emerged within the intrapersonal category include comments from the coaches identifying their opinions and perceptions that elite athletes have some intrinsic qualities differentiating them from non-elites. These factors were further categorized as either volitional or dispositional.

Volitional. Constructs generated within this sub-factor include (a) an ability to understand the long-term process that is involved in elite athlete development, (b) an internal locus of control, (c) a commitment to hard work, and (d) a high level of competitiveness.

These coach-participants opined that it is often difficult for young people to understand the concept of the relationship between long-term consequences and eventual behavior (i.e., athletic performance) and effectively manage environmental influences in a manner that facilitates optimal performance at a later date. Coach 4 commented,
“... in our sport it’s so hard and there’s so much sacrifice to get to that level that I think very very few kids will do that... it’s very difficult to be that long-term minded. It’s very difficult to think that far down the road. It’s very difficult at 12 or 13 years old to not worry about how fast you are...”

Possessing an internal locus of control was also a construct shared by Coach 4 during his interview, “... they’ve [his elite swimmers] decided they’re going to work...” Coach 1 provided an additional line of evidence when he reported about the intrinsic motivation his elite swimmer experienced in the sport. He stated,

“I try to give her the opportunity to do the things that she wants to do that’s fun, and let her do those things... I think that’s the fun that she gets out of it. I’m not a big
coach into games and trying to entertain the kids in the pool…And she’ll never wish
that we do those things…”

According to these six coaches, the commitment and willingness to work hard of their
own volition differed between elite and non-elite athletes. Coach 1 alluded to his elite
athlete’s willingness to push herself very hard when he stated, “When you think that she can’t
do another thing she’ll step up and try it again, do it again.” He also provided the following,
“Push herself, by herself. The instinct is to have the coach push her and help her along, but
it’s really when she decides to really push herself that she can do that.”

These six participants also identified that their elite swimmers have very elevated levels
of competitiveness relative to their non-elites. For example, Coach 6 reported that the World
Record holder who swam for him possessed an attitude of, “… it doesn’t matter if I’m racing
you in the pool or playing you in pinochle… there’s no place but first place. And who’s
coming in second is the first loser.” Additionally, the elite swimmers were identified as
individuals who consistently experience extreme disappointment if they didn’t reach their
self-selected expectations. Coach 1 stated, “And if she doesn’t achieve what she tried she’ll
be very disappointed, and she’ll try something different the next day just to prove that she
can do it.”

Coach 3 provided an additional perspective of his elite and non-elite athletes’
competitiveness. Some of his non-elite athletes’ perceptions of effort involved “trying” rather
than committing to “doing.” He stated, “Some kids will say ‘I’m trying.’ And I’ll say, ‘Well
yeah, I’m trying to be an astronaut, it’s just not working out for me.’ But on the other hand I
haven’t done one thing required to become an astronaut.” This coach also provided an
account of one of his elite swimmers who underwent surgery to correct a heart problem she
was experiencing. His statement follows,

“So they had to go in and do an ablation where they run all the wires up through
your arteries. She had the ablation done on a Friday and was out of the water for
a few days… I would say 10 days after the surgery she swam in [a Grand Prix meet]
and won [her primary event]. They’re not sticking these little needles in you…the
arthroscopic stuff up through the femoral artery and down through the jugular…
she had all these bruises right at the top of her leg. The interesting thing about that
is there have been three or four girls in this area that have had the same procedure
done. One [a non-elite athlete]… [was] out of the water for six months. [My elite
swimmer] did a best time 10 days later.”

Dispositional. Dispositional traits emerged when the participants identified that talent,
luck, God, a gift, traits, or personality all play a role in the eventual appearance of elite
athletes’ performances. In fact, talent was addressed by every participant in response to the
stimulus question, even though the question posed did not mention or allude to the term or
concept of talent. Moreover, three of the six coaches began their responses specifically
referencing this.

Coach 4 provided the following as his initial comment to this study’s stimulus question,
“Well… a lot of times it’s talent.” Most of the participants specifically used the word talent,
while others used the terms luck (e.g., Coach 2 who stated, “People’s luck”) or God. Coach
3 shared, “God. God’s sense of humor.” Additionally, Coach 6 reported, “I have to say that
there has to be God given…” Another term used to describe this sub-factor was gift. Coach
3 said, “Physically she’s got all the gifts. I think emotionally and psychologically she’s got
all the gifts,” and Coach 4’s statement, “but when somebody has the gift… He obviously has the gift…” These coaches spoke as though there is some factor outside the direct control of any human being that contributes to eventual athletic performance. Furthermore, Coach 3 reported that, in his opinion, his elite swimmer’s personality (i.e., an intrapersonal trait) interacts with her environment in a way that facilitated her being one of the top performers in the world in her specialty for multiple years. He reported, “She’s got a wacky personality, which I think serves her really well.”

INTERPERSONAL

Factors within the interpersonal category that emerged from this study’s interview data include (a) the athlete’s relationship with her or his coach; (b) the nature of the athlete’s attachments with significant others in her or his life (e.g., coach, teammates, non-teammate peers, family, and teachers); and (c) how those relationships are managed (e.g., actively or passively, and how discrete are each person’s roles).

Support for the premise of the importance of the coach-athlete relationship in the opinion of the coaches who participated in the present study is found, for example, in statements from Coach 1 who succinctly reported, “... that partnership between a good coach and a good athlete is real important.” Moreover, the example provided earlier regarding an interaction between Coach 1 and his athlete provides a specific example of how this athlete-coach relationship is of great importance. Additionally, one coach identified that his elite athletes infrequently complain about the assignment of hard work, and they have a willingness to do what their coach asks of them. Coach 5 said, “…and when you ask him to do it he’ll try it... and he never really complains.”

The need for efficacious interpersonal relationships with significant others in the athletes’ lives also was emphasized. These may not exist for non-elites at the same level as they do for elite athletes. Coach 1 identified a problematic relationship affecting the performance of one of his non-elite athletes as follows,

“I think she became very attached to a boyfriend within high school and I think that was a bad influence... I think that was a big distraction for her. I think it gave her an opportunity not to be focused.”

These coaches also reported that discrete interpersonal boundaries and roles in the lives of their elite swimmers are needed. The coaches reported that it is their job to coach, the parents are responsible for child rearing, and the swimmer performs the role of athlete. For example, Coach 1 said, “Having great parental support is real important... me being the coach and the person who coaches her, and the job of coaching her...” Though an explanation for how these interpersonal boundaries emerged was not sought, it was clear that in the opinion of this coach distinct interpersonal responsibilities were considered advantageous.

LIFESTYLE

Comments by the coaches that addressed the lifestyle category were as simple and direct as the message being conveyed by those comments. These participants shared their perspective that elite athletes in the sport of swimming lead very simple lives. For example, Coach 5 shared, “His lifestyle is a pretty simple lifestyle. It’s not one that requires a lot of other things...”
TRAINING
Factors that emerged relative to the training category included, (a) the athlete must have a knowledgeable coach who is not only aware of the science of the sport, but also the athlete’s career stage or daily state; (b) attention to requisite skills; (c) hard physical work; and (d) combining these in an efficacious and systemic manner.

These coaches reported being individuals who call on their expertise and experience to provide their swimmers with the necessary and idiosyncratically appropriate environmental stimuli to achieve the highest performance level possible. For example, these participants made statements emphasizing their flexibility with their athletes’ training over time. Coach 1 provided a representative comment as follows, “… their development is like a four year cycle. Every time there’s four years they go through, the coach has to learn to change his thinking and the athlete naturally changes as they’re developing and growing up…”

Remarks from Coach 6 provided evidence for skill as a factor within this category. Additionally, he clarified his opinion that there is an interactive nature among skills and factors within the intrapersonal category that are involved in differentiating elite and non-elite athletes. He shared, “skills that can be developed with a great approach to training, and that has to be in combination with determination… on the part of the athlete to be the best.”

Coach 3 also provided evidence of this with his statement, “… not just working hard, but working hard on technical things, and things like that…”

ENVIRONMENT
Specific factors identified by these coach-participants germane to this category were training facilities and community. In addition, there also emerged the schema that intrapersonal, interpersonal, lifestyle, and training operate within an environmental context, which can influence an individual’s eventual achievement level. Coach 1 stated, “… having the right pool situation,” and Coach 4 opined,

“… the community you live in, the area of the country you live in – some areas of the country it’s easier to do than others. With country club swimming or high school swimming, or other outside forces that pull you away from that…”

SYSTEMIC INTERACTION
The final category that materialized from the data elicited in the current study involved the concept that there is a systemic interplay among a number of factors that, in order for elite athletic performance to be achieved, must exist, and is idiosyncratic. Coach 4 provided a representative comment when he succinctly reported, “And so many factors are involved; parents, coaches, the kids themselves…”

Coach 4 summed up this study’s participants’ opinions and perceptions that a systemic interplay among factors exists when he stated, “Hard work beats talent until talent decides to work hard.” This statement was used in the title of this article because it provides a representative account of the coaches’ opinions and perceptions that there are some factors within the athlete’s control, while others are not. Talent was explicitly identified by all six coaches who participated in the present study as playing a salient role; it is necessary but not sufficient.

DISCUSSION
Findings such as those in the present study support the possibility that: (a) a specific training regimen that facilitates one athlete’s achievement of elite performances may not be
efficacious for another; and (b) two elite athletes can have very dissimilar developmental histories. These and other examples are harmonious with the categories that emerged herein as conceptualized in Figure 1. The current study identified emergent categories from interviews with coaches regarding their opinions and perceptions of what differentiates elite and non-elite athletes. Each coach who participated in the current study has a proven record of developing elite swimmers, while simultaneously working with non-elite swimmers. This augments previous research that: (a) only looked at the developmental histories of elite athletes, or (b) only compared elites’ and novices’ current states. That is, comments from the individuals who participated in the current study provide novel insight that there is likely a systemic interplay among factors that result in eventual athletic performance levels.

Statements by this study’s coach-participants generated six categories that, in their opinions and perceptions, they feel are involved in differentiating elite and non-elite athletes (i.e., intrapersonal, interpersonal, lifestyle, training, environment, and a systemic interaction). Additionally, Figure 1’s presentation of the categories generated from the data is congruent with Hendry and Kloep’s [38] LMDC, not only in the categories themselves, but also in the systemic nature of those categories. They state, “None of the variables within these different categories can be seen in isolation from the others” (p. 23). Moreover, this systemic conceptualization is congruent with other research (e.g., Hyllegard et al. [14], Magnusson and Stattin [34], and Valsiner [35]).

LIMITATIONS
The present study gathered comments from coaches that solely provides their opinions and perceptions of that which differentiates elite and non-elite swimmers. These individuals each bring decades of experience of simultaneously working with many athletes performing at multiple levels, but their position, gender, culture (e.g., their ethnicity or the sport’s culture), and idiosyncratic life experiences may bring bias to their offerings relative to the current study’s findings. However, of note is the fact that all six participants were extremely consistent in their assertions and did not contradict one another once.

A second area of potential concern regarding this study is that true triangulation was not performed. The current study did not seek out the opinions and perceptions of the athletes themselves or those of these athletes’ parents, teachers, or other significant individuals in their lives. The present study focused on the opinions and perceptions of coaches who work simultaneously with males and females of a variety of ages and performance levels. This resulted in a study that involved a highly homogeneous group of participants from a single sport. Future inquiries involving other sports and a more heterogeneous participant sample will likely provide even greater insight into, and improve our understanding of, the factors involved in elite athletic development and performance, and the systemic interaction among factors.

IMPLICATIONS FOR FUTURE RESEARCH
Similar to ipsative scoring systems used in some assessment instruments (e.g., MMPI-2), a systemic evaluation of elite athlete development is warranted. The data herein provide insight into the factors involved in elite athlete development and emphasize the importance of the interaction among factors (i.e., a system). Future research is encouraged to continue this focus, while recognizing the complex challenges associated with such research. Previous empiricism alludes to this. For example, Hall et al. [47] found that extraversion and behavioral activation were significantly related to ratings of perceived exertion (RPE) at lower, but not at higher intensities. Additionally, these researchers found that neuroticism
was unrelated to RPE, while behavioral inhibition had a positive relationship with RPE across multiple levels of intensity. The answer to “What contributes to an athlete achieving the top performance in the world?” is “…a tough question…,” as quoted from Coach 6. Interactions in an ecologically valid research domain may be difficult to unearth using current research methods because the impact of one factor is often attempted to be understood while keeping all other factors constant; a situation that is virtually non-existent in the real world. Johnson [48] eloquently addresses this very issue when she addressed the complex relationship among factors and outcomes using structural equation modeling. Additional statistical tools that can facilitate furthering the understanding of complex and systemic interactions, such as the topic of interest in the current study, include hierarchical linear modeling techniques. Future studies that incorporate multi-method research approaches are needed to advance the understanding of the etiology of elite athletic performance.

CONCLUSION
The current study provides another line of evidence that the path to elite athletic performance is non-linear. The swimming coaches who participated in the present study provided their insights into the factors that contribute to and result in elite athletic performance. Their systemic and hierarchical perspective appears to be influenced by many years of simultaneously working with athletes who ranged from those who achieved the pinnacle in their sport (i.e., an Olympic gold medal and/or a World Record) to those who qualified for regional championships. According to these coaches, there exists the possibility that an athlete’s desires and inherent traits, the efficaciousness of his or her interpersonal relationships, the physical workload experienced, and the level of distractions, interact in a coordinated manner within the context of the athlete’s social, structural, and cultural milieu. Current and future practice and research may benefit from an understanding that there are factors within one’s control and others that are beyond that control.

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