Determining Personal Talents and Behavioral Styles of Applicants to Surgical Training: A New Look at an Old Problem, Part I

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BACKGROUND: The selection of residents for any program and their evaluation for success is an inexact science. Errors can prove costly, disruptive, and potentially damaging to training programs, and personal and professional setbacks can occur for resident applicants. A method was sought to determine the intangible characteristics of applicants to a general surgery residency program, particularly an assessment of behavior and motivation. The hypothesis was that such information could contribute to a more objective analysis of how well an applicant might fit into a program and its culture, and therefore improve the residents' chance for success and reduce the attrition rate.

METHODS: Applications were screened by the Program Director and selection committee according to departmental standards. Those applicants who were offered the opportunity for interview were asked to complete an on-line survey that assessed behavioral style, intrinsic motivators, and dimensional balance. The assessment is known as the TriMetrix Personal Talent Report (TriMetrix; Target Training International, Ltd; TTI, Phoenix, AZ). An initial job benchmark was constructed from data based on surveys of current residents and faculty, and from interviews held with Subject Matter Experts (SMEs) familiar with the demands of the position and the qualities necessary for success. Resident selection was carried out as has been done historically within the program. An independent contractor, who was blinded to the ranking by the program, presented an applicant list based on the candidate's Personal Talent Reports against the job benchmark. The ranking lists were then compared.

RESULTS: Of the 535 applications received, interviews were offered to 112, and 77 interviews were conducted. Seventy-five on-line TriMetrix (TTI) assessments were completed by the applicants. Rank lists developed independently by the program and by the consultant were compared, with obvious discrepancies. Overall there was little concordance between the two lists, suggesting that the TriMetrix (TTI) assessment measures something different. The job benchmark identified different behavioral styles among the most successful of the current residents, suggesting that a diversity of natural behavior does not preclude success in the program.

CONCLUSIONS: Objective data regarding an individual's personal style can be used to identify applicants who match with a training program's job benchmark. Factors predictive of success specific to our program include an independent desire for knowledge, a commitment to the service of others, and a view of the world with a sense of direction and purpose. The diversity of our current residents' styles as identified by this analysis indicates that many different individuals can be successful. While the instrument can provide important information regarding elements that contribute to successful performance, it is weighted as one essential component utilized in conjunction with other tools. (J Surg 68: 534-541. © 2011 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: resident selection, behavioral profile, motivational profile, DISC analysis, personnel selection, personal assessment, personal talent report, applicant interviews, TriMetrix

COMPETENCIES: Interpersonal and Communication Skills, Professionalism, Systems Based Practice

INTRODUCTION

The process of selecting residents for surgical training in any program is an imprecise exercise. Programs have an abundance of data (grades, United States Medical Licensing Examination [USMLE] scores, clerkship performance evaluations, class rank, letters of recommendation, and direct conversations with faculty from other institutions as well as applicant interviews with faculty and current residents), yet critical elements are missed. The inability to identify these elements can result in the acquisition of trainees who may not be the best fit for the program. To this end we sought to identify a process that would predict that those chosen to join our department would have the personal behaviors, proper attitudes, and

focus that would contribute to the success of both the individual and the program.

MATERIALS AND METHODS

The surgical residency consists of training in a university-affiliated community hospital and a Veterans Administration Hospital. The program is 6 years in length, 3 clinical years followed by a nontraditional year during which the resident may complete a fellowship or work in a research laboratory before returning for the final 2 years of clinical training. There are 3 categorical residents at each level and 2 designated preliminary residents. The program is fully accredited.

The Department of Surgery enlisted the services of an outside contractor who utilized the TriMetrix Personal Talent Report (TriMetrix) developed by Target Training International, Ltd

(TTI) to analyze the talents an applicant brings to a specific job. The assessment is divided into 3 components. The first, natural and adaptive behavioral analysis, defines how the individual responds to problems and challenges, how the individual attempts to influence others, how the individual responds to the pace of the environment, and how the person responds to rules and procedures established by others. This is done by utilizing the DISC evaluation from TTI, a 4-dimensional analysis based on the 1928 work of William Marston,[1] a concept that has been validated continuously over the years. The second component, the assessment of workplace motivators from the work of Eduard Spranger,[2] describes "why" the individual does what he/she does, or what the intrinsic rewards of the job may be. The personal skills inventory, the third component, measures the individual's capacity to make judgments concerning the world and one's self. This is based on the work of Robert Hartman.[3] The workplace motivators and per-
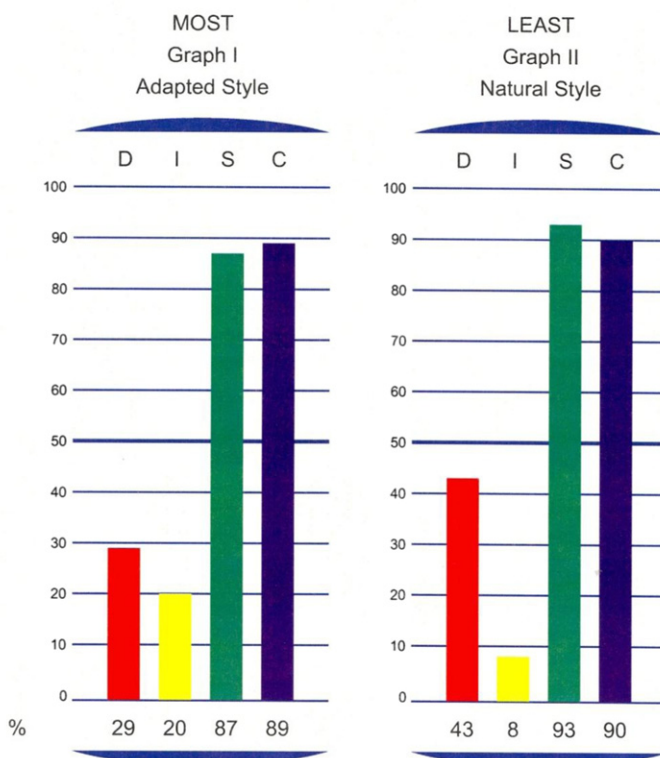
FIGURE 1. Applicant A's natural and adapted DISC style. The natural style reflects natural behavior (ie, at home) while the adapted style reflects the behavior whenever the individual is required to change their behavior to be successful. Only the natural style was used in comparison with the job benchmark (see details in the text).

sonal skills inventory components are discussed in "Determining the Personal Talents and Behavioral Styles of Applicants to Surgical Training: A New Look at an Old Problem, Part II.[4] J Surg Edu, in Press." The utility of DISC for our surgical residency program is the focus of this report. Expedited approval from the Institutional Review Board was obtained.

The Program Director and selection committee reviewed the applications based on performance in both undergraduate and medical school. Personal communication with faculty members from other institutions was utilized as well. Qualifications for an interview offer have traditionally required that the applicant be in the upper one third of their class, scored at least at the national mean on Step I and Step II of the USMLE, and obtained a grade of at least a "B" in their core surgery rotation. Further graduates of US allopathic medical schools and those candidates with strong letters of recommendation from faculty, especially faculty known personally by the Program Director or other faculty members, are carefully considered. Direct communication with faculty from the applicant's medical school was also helpful.

Before the interview date, applicants were requested to complete a Web-based questionnaire administered and analyzed by the independent contractor. Seventy-five applicants did so. Concurrently, the assessment was completed by all current residents and most of the academic faculty. Each received a confidential 60-page Personal Talent Report based on the analysis of the questionnaire compared with national norms. Residents and faculty responded to a survey designed to estimate the time spent by residents in certain elements of their jobs; ie, interacting with patients or family, time in the operating room, interaction with ancillary personnel, and time analyzing and organizing information. The survey also included the perception of the need for flexibility, urgency, and the necessity to "win." The outside consultant selected Subject Matter Experts (SMEs) from faculty, successful senior residents, and ancillary health care personnel for interview from a list of current residents and others provided by the Department. These SMEs were defined as those persons who know the resident's responsibilities well, interact with the residents on a daily basis, and understand what is required for superior performance. The consultant interviewed these individuals to determine the key characteristics that define superior performance as a resident using TTI's patented job benchmarking process. The faculty also developed a list ranking residents who were performing extremely well in the program. All of this information was utilized by the consultant to develop a job benchmark specific for this program. The total expenditure for the assessments was approximately $20,000.

The consultant developed a rank list of all 75 applicants through analysis of the TriMetrix (TTI) data as compared with the job benchmark for our program. The Department's match list was compiled from consensus with input from faculty and residents involved in the selection process. Faculty and residents were blinded to the list developed by the consultant, and the consultant was blinded to the list developed by the program.

Subsequently, the lists were compared, and a final rank order list was constructed. The Personal Talent Report was utilized in conjunction with traditional assessment tools in the selection process and the determination of an applicant's rank position.

RESULTS

The program received 535 applications for academic year 2010-2011, an increase of 22% from the previous year. Forty-two percent of the applications were students from 98 different American allopathic medical schools, and 58% were students of osteopathic, off-shore, or foreign medical schools. Interviews were offered to 112 (21%) of the applicants, and 77 interviews were conducted.

Figure 1 is an example of an individual's DISC profile. Based on the analysis by the TriMetrix (TTI) system, Graph 1 reveals certain natural behavioral characteristics that can be ascribed to this appli-
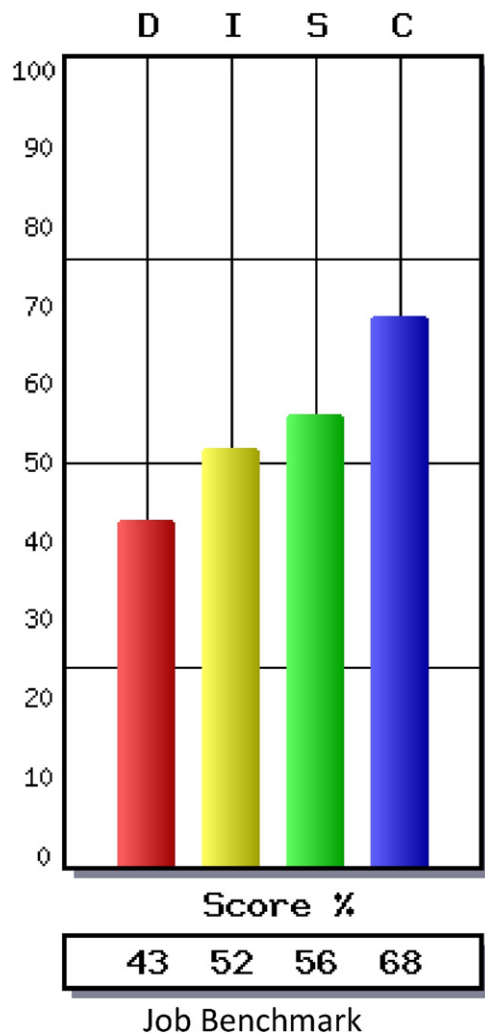
FIGURE 2. Graphic representation of the job benchmark based on the DISC behavioral analysis developed by consensus of the Subject Matter Experts (SMEs) regarding success in our program and the surveys which analyzed the demands of the job as a resident.

cant. The high "C" and "S" combination indicates the individual is an introvert. The high "S" also suggests the preference to focus on a single project or to see a task through completion before embarking on another. Self-criticism of performance may be a natural tendency of this individual, yet constructive criticism from others may be taken personally as noted by the high "C" on the graph. The low "I" reflects a more skeptical, pessimistic person who tends to rely on data, letting the facts speak for themselves. Many of these behaviors will be very helpful during residency training and these characteristics are usually not discovered in an application or from a brief personal interview.

Graph 2 in Figure 1 is a representation of the applicant's adaptive style or how the behavior is modified to succeed in any environment. In this particular case the applicant does not modify behavior to a great degree. Significant discrepancy in the adaptive and natural styles can be an indicator of potential stress for an individual when a situation requires a response that is less natural for him.

The DISC analysis for the job benchmark in our program is shown in Figure 2. This represents a composite of behaviors associated with success in our program developed by consensus from the SMEs and the survey data previously described. Applicants were ranked by the outside consultant based on how closely their DISC profiles matched the job benchmark. In matching applicants to the job benchmark only the natural style was considered. The rationale for this is that one's natural be-

havior is more desirable than behaviors requiring constant adaptation. Figure 3 graphically compares 2 applicants to the job benchmark. This suggests that applicant B appears to be a better fit than applicant A based on behavioral style alone. Another view of the applicants against the job benchmark is shown on the Success Insights Wheel in Figure 4. When all the residents and faculty were plotted on the same wheel, a snapshot of the behavioral diversity of the program can be seen in Figure 5.

A comparison of concordance between the list generated by the TriMetrix (TTI) analysis and the Department's rank list showed no statistical correlation. The concordance based on the rankings of the Department's top twenty candidates is shown in the following Table.

| Rank	Concordance	Percent
Top 5	1 candidate	20
Top 10	2 candidates	20
Top 15	3 candidates	20
Top 20	5 candidates	25

One applicant ranked in the top 10 by the Department was ranked near the bottom by the consultant and the position of this candidate was adjusted. One applicant ranked only in the top 20 by the Department was listed in the top five by the consultant and subsequently moved up the final rank list.

D	I	S	C	D	I	S	C	D	I	S	C
43	8	93	90	43	52	56	68	28	62	56	68

Applicant A   Job Benchmark   Applicant B
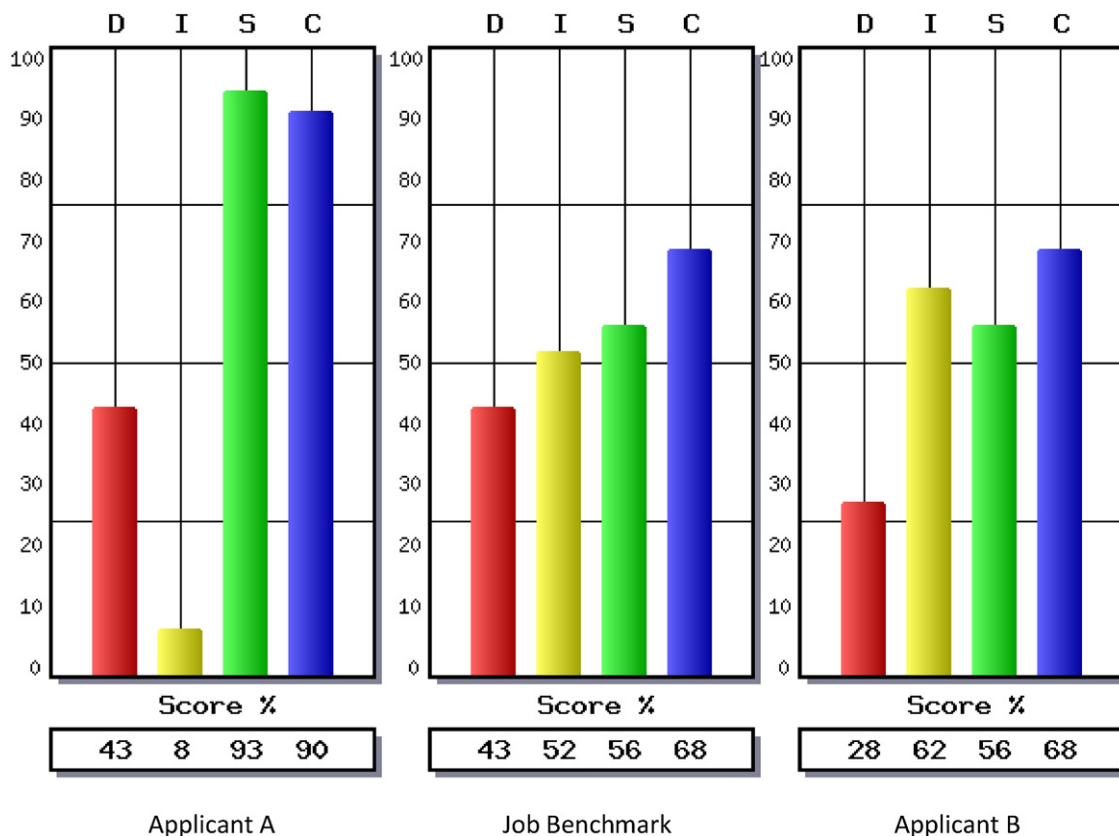
FIGURE 3. Two applicants' natural DISC style graphically compared to the job benchmark established for our program. Applicant B appears to be a slightly better fit.
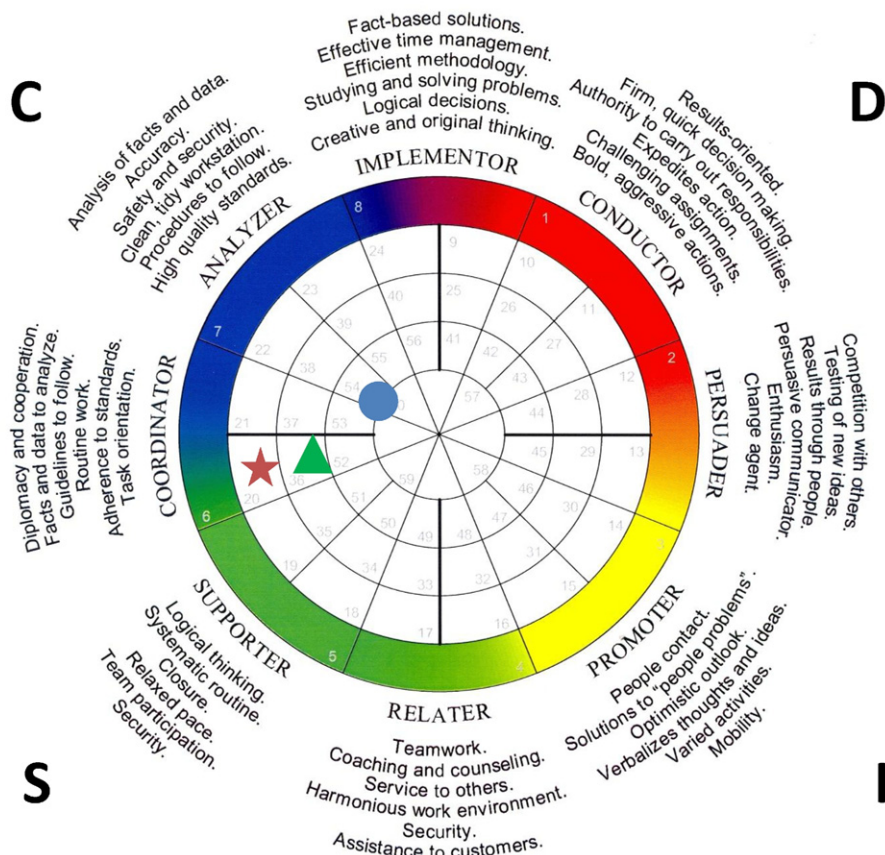
FIGURE 4. The Success Insights Wheel graphically compares applicant A (red star) and applicant B (green triangle) with the job benchmark (blue circle).

Ultimately the residents who were matched to our program compared more favorably to the job benchmark. This is not surprising since the TriMetrix (TTI) data was utilized in determining the final rank order.

DISCUSSION

The job description of surgical trainees is complex. As residents they are expected to acquire the knowledge base necessary to practice competently. Much of this learning results from on-the-job training, didactics, simulation exercises, and focused courses (ie, Advanced Trauma Life Support, Fundamental Critical Care Support, Fundamentals of Laparoscopic Surgery). However, a larger part of the acquisition of core knowledge comes from independent and self-directed learning. Surgical residents must also develop technical prowess to complete operative procedures proficiently. As with trainees in other medi-

cal programs, surgical trainees are expected to learn to communicate effectively with patients, families, peers, superiors, and subordinates, to practice effectively and efficiently in disparate health care systems, to review their own outcomes in a manner that allows continuous practice improvement, and to develop the qualities implicit in a professional.

The personality of a training program significantly influences how these things are accomplished. The faculty, the faculty style of facilitating the development of future surgeons (or doctors in general), the institutional culture and mission, and the resources are a few factors that determine a program's identity. A large academic health organization focused on research may not be the best choice as a training venue for the surgeon wanting to do missionary work or desiring a surgical practice in a rural environment. Likewise, a community training program may not be ideal for a surgeon who desires a surgical specialty practice or a career in
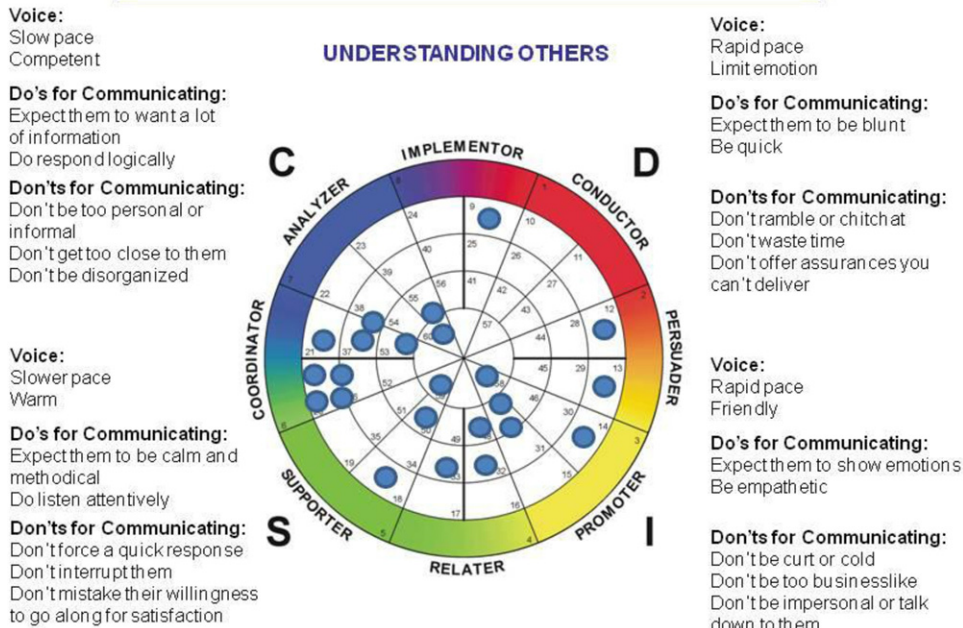
FIGURE 5. Diversity of residents' and faculty behavioral styles in the program based on their DISC analysis as well as some tips for communicating with the four behavioral styles.

academic medicine. Many combinations and variations of these two extremes exist, giving each program a distinct personality and culture. The key is to find compatibility between residents and a program's specific identity.

Grades, scores, letters and other traditional assessment tools have fallen short in predicting success with any degree of certainty. Even the interview process is problematic, as is evident in viewing the graph of applicant A (Fig. 2). This candidate would more likely present adapted, extroverted behavior to an interviewing committee rather than his natural introverted style. Schmitt[5] in 1976 noted that managers depending on their intuition from interviews were seldom successful in predicting high performance when hiring applicants. What you see initially is not always what you get in the long run, and this is true for the applicant's impression of the program as well. Our experience is not unique, and other programs share similar experiences, both positive and negative.[6-14]

The missing elements appear to include an assessment of personal talents, behaviors, and abilities to function comfortably within a program that has its own defined style and personality. From the composite DISC analysis of current residents and faculty as well as the interviews with our SMEs, a job profile or benchmark was constructed that graphically represented a successful resident in our program. This benchmark allows the "job to talk," in effect. A comparison of each applicant's behavioral style to this benchmark can help to identify residents that are a good fit for the program and its culture.

The DISC behavioral model is an accurate measure of how a person will behave with respect to 4 dimensions: dominance (D), influence (I), steadiness (S), and compliance (C).

Dominance "D" or how a person deals with problems or challenges: slow to anger, introverted, patient, and hesitant versus quick to anger, extroverted, impatient, and direct. Influence "I" or how a person attempts to influence others: introverted, pessimistic, distrusting, uses facts and data, "tells" versus verbal, extroverted, optimistic, trusting, "sells." Steadiness "S" or how a person responds to the pace of change in the environment: extroverted, emotional, likes change, the "7 ball juggler," impatient versus introverted, nonemotional, does not like change, the "1 ball juggler." Compliance "C" or how a person responds to rules and procedures set by others: independent, high-risk, rule-breaker, asks for forgiveness versus dependent, low-risk, rule-follower, asks for permission.

DISC is an assessment of behavior, not personality. Only the applicants' "natural style" was used to compare with the job benchmark. The less a person is required to modify their natural behavior to adapt to the demands of the work place, the more rewarding the job becomes. Many of the individual characteristics that contribute to the success of a resident are not easily determined from the application of the interview.

It is unlikely that the characteristics of applicants A and B (Fig. 3) would have been discovered in our program's interview process. Desirable characteristics exhibited by applicant A include the ability to prioritize and interpret data in a logical and convincing manner. However, other situations may require optimism or a sense of

urgency when a decision must be made with an incomplete database. Applicant A will find such challenges stressful as these situations call for a response that is not his natural behavioral style. The high or low extremes identified in the DISC analysis represent potential "blind spots" that might be problematic when a situation calls for an approach that is the opposite of an individual's natural style, as the example with applicant A.

However, when the applicant's "natural" style matches the benchmark for success, and even high performance in that position, an individual can function naturally, free of role play. The gap between the job benchmark and the Personal Talent Report can become the template for the individual's personal and professional development.

When all residents and faculty were plotted on The Success Insight Wheel, the behavioral diversity of the program could be easily seen (Fig. 5). Individual characteristics were determined by the DISC profiles and characteristics from the Target Training International database. The composite wheel is reflective of the many different personal talents and styles operative in our program and dismisses the criticism that the process results in a cookie cutter model of resident selection. Further, based on the extensive database from TTI, some general tips for effective communication with each dominant behavioral style can be identified.

SUMMARY

Resident selection is a difficult process. Traditional methodologies for identifying compatibility between residents and programs are fraught with errors that can prove to be disruptive, costly, and can result in personal and professional setbacks for applicant residents. Our hypothesis was that the TriMetrix (TTI) System in conjunction with other criteria would be helpful in selecting residents who could be easily integrated into our program and its culture.

We employed the assistance of an outside consultant to provide an analysis of personal behavioral and motivational traits of individual applicants and then compared them with a job benchmark that was developed specifically for our program. The DISC evaluation characterized individuals by their natural and adaptive behavioral style, how they communicate with others, and how they like to be treated.

The instrument does not identify "right versus wrong" or "good versus bad," nor does it establish a personality profile. It did provide a snapshot of the applicants' way of dealing with people, challenges, pace, and compliance. We found this tool to be particularly helpful in the identification of candidates who appear to be a good match for our surgical training program. In addition, it has provided guidelines for providing effective individual feedback and motivation for the many talented and diverse residents in our program.

The process was most valuable in (1) reassuring that the selections we made in the ranking list did not have traits that were incompatible with our program, (2) identifying candidates that were a good fit, (3) providing some assurance that there were no personal characteristics that would conflict with our expectations, and (4) identifying individuals who would need additional coaching and direction compared with those who could be counted on to be individual and self-directed learners. Additionally, information was gleaned that offers insight into how to improve communication, motivation, and the provision of constructive criticism.

As our experience with the instrument improves, it is projected that it will enhance our ability to communicate with one another, construct criticism of performance to maximize improvement, and perhaps, even develop specific curriculum and learning programs that are tailored to individual residents. Such outcomes are well worth the investment of time, effort, and resources in a methodology with the potential to enhance the resident selection process. The stakes are too high and the potential losses too great to ignore.

ACKNOWLEDGMENTS

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