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PREFACE

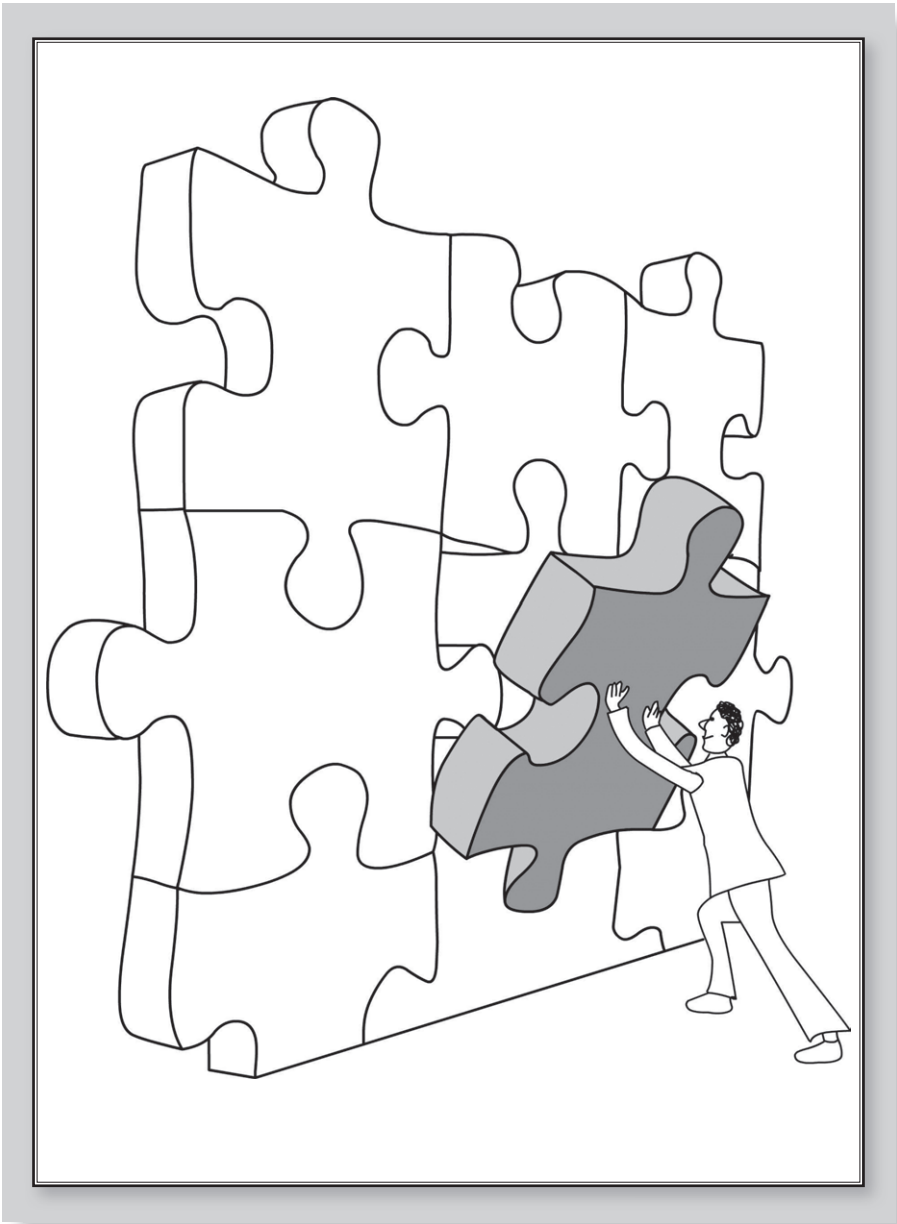
In a world with many demands, expectations and variety it is a challenge for people to find balance and harmony between being successful, happy and comfortable with the world and the people around them. When people successfully integrate these realities they experience a level of fulfilment and self value that contributes to the development of a stable society of harmony, success and respect. When people lose their sense of self value, fulfilment and harmony with the world and the people around them, they tend to become destructive and stressed with the inevitable result of becoming a source of negative energy to themselves as well as the space they share with others.

In order to find meaning, it is imperative to maximise the level of harmony and balance between the individual and the place where they have to work and live. This is a challenge as life doesn't necessarily bring people to places where they can find balance and harmony with their environment. The absence of this harmony between people and their environment creates all kinds of failure, unhappiness, conflict and stress. People find it very difficult to succeed when they can't live freely in harmony with their environment.

The fact that the majority of people have to work in order to make a living leads to a situation whereby many are extremely unhappy with the work they do, those they work with as well as the place where the work is done. This holds negative implications for the individual, the workplace as well as the success of others working with the unhappy person in the workplace.

Shadowmatch has been built to prevent this by matching individuals to the best place where they can work with relative high levels of harmony and balance. It can also be used to find those individuals best fit to work successfully in a specific environment doing a specific job. Shadowmatch also provides development programmes for those who need to learn specific habits in order to enhance their success. This is done by comparing the habits of the individual to the shared habits of the successful people working at a specific address engaged in a specific task or fulfilling a specific role. The purpose of this publication is to provide the

reader with a theoretical framework as well as some practical application detail on the history and development of Shadowmatch.



INTRODUCTION

One of the most interesting questions about humans is the fact that we still know so little about ourselves. It can be argued that scholars and academics do know a lot. Fact is that they are the ones knowing how little we know. On the other hand, despite this humble note from the majority of well learned academics, we do know a lot. The science of studying human behaviour has grown enormously. Human behaviour has become one of the most interesting subjects to research. There are so many fields of specialisation that the young scholar may find it very difficult to choose between all the areas of behavioural research. Human behaviour is both interesting and very complex. Despite all these challenges, people are also very similar, easy to understand and predictable. We live with each other every day, we understand one another and we – sometimes – get along very well. Everything is like this, very simple on the one hand, very complex on the other.

One of the challenges in modern psychology and other sciences studying human behaviour resides in the fact that there are multiple definitions defining single human behaviours and conditions. A very simple example is our efforts to define the so called 'Normal Person'.

A more intriguing question is whether it is possible to know exactly how people think and what they think. What is their awareness content when they work, or when they play, read, laugh, etc? The world of knowledge with regards to these questions is so vast that even highly trained people sometimes find it difficult to find their way through all the knowledge faculties, information theories and hypothesis'. The question is very immanent: Can we simplify this mountain of information? In a way we can and we can't. To get a full understanding of the functional working of the human mind will remain an extremely complex field of scientific work, research and comprehension. The research team who worked on the development on Shadowmatch (was)/is obsessed with simplifying the way we look at people, how they behave and whether their successes can be enhanced and predicted in a positive and credible way. With this we do not intend to reduce the complexity of the human mind but to create a frame work that provides a meaningful content about an individual.

Shadowmatch was built as a result of the following question: Why do some top students from school fail at university and why do some succeed? All the students left school with equal results, they proceeded to the same university studying in certain clusters the same degrees. Some of these top students were very successful, some failed miserably and some eventually completed their degrees with sweat and tears. The research was done and case study research was conducted in other areas where success in the working environment could be monitored. The research delivered some staggering results. The same principles that were identified amongst successful and less successful students were applicable across almost all situations where people need to perform a task successfully.

It is critical, not only for the individual but also for the institution or employer to determine whether someone will succeed in performing a task or not. It is important for the individual as failure can have long lasting negative effects on the person and it has serious implications for the employer and/or the university where the individual failed. In order to prevent this negative spiral, it is imperative to pre-determine if someone will succeed in doing a specific job in a specific environment. It must also be noted that once an individual is successful, he/she experiences a level of fulfilment and happiness that creates positive energy influencing the entire working environment around that individual. In addition to this, the value of a successful workforce cannot be calculated.

Predicting the Success of People and Pre-identifying Successful People

Top performing people can provide as much as ten times more value to a company compared to poor performing people and as much as seven times more than average performing people. These top performers are the key drivers towards successful business. On a strategic business development level, a highly talented individual can determine the destiny of an entire company. Successful business depends on top performing people on all levels of its operational functions. The problem being that this challenge is not always fully understood and the way in which employers approach the imperative of finding successful people normally doesn't provide against the need of most companies.

We first need to define a successful person. This is someone who performs a task in such a way that the outcome matches the expectation and regularly exceeds the expectation. A top performer is someone who continuously and even radically exceeds the expectation that is normally met by successful people.

It seems evident that the majority of people can be successful and a higher than expected percentage of people can be top performers. The challenge is not so much finding them. The challenge is the fact that success is not determined by the person only. Success is somewhat more complex. Success in the workplace only materialises when the task at hand, the capabilities and preferences of the individual as well as the working environment match in such a way that the persons' talents, skills and potential can flourish. There are three realities that must be in alignment in order for an individual to be successful and to possibly become a top performer. Firstly, the task or work that needs to be done, secondly, the context where the work is being done and thirdly, the make-up, skills, qualifications and behavioural preferences of the individual. If these realities are not in harmony, even the most talented, skilled and capable person will not succeed. It is all a matter of matching the right people to the environment and the task. Although this might sound very simple to understand, it is very difficult to do. The following example will explain.

A specific sales person outperformed all sales staff nationally on car sales. At a point in her career, she was head-hunted by the opposition. She was offered a very lucrative package and accepted it. She failed to the extent that she voluntarily resigned to prevent a scenario of being dismissed for not making targets. Her previous employer heard about this and phoned her. She went back to her previous dealer and sold the most vehicles nationally as a single sales person for nine consecutive months from the date of re-employment. During extensive interviews, she could never tell what the problem was. Fact is, it didn't work for her. This was the problem, for some reason the context was not conducive to her way of working. She didn't like the set-up at the other dealer. During an interview she said that the ways of work was uncomfortable for her.

It must be understood that finding top performing people is fully reliant on matching people, expectations, tasks and the working environment towards a positive performance outcome.

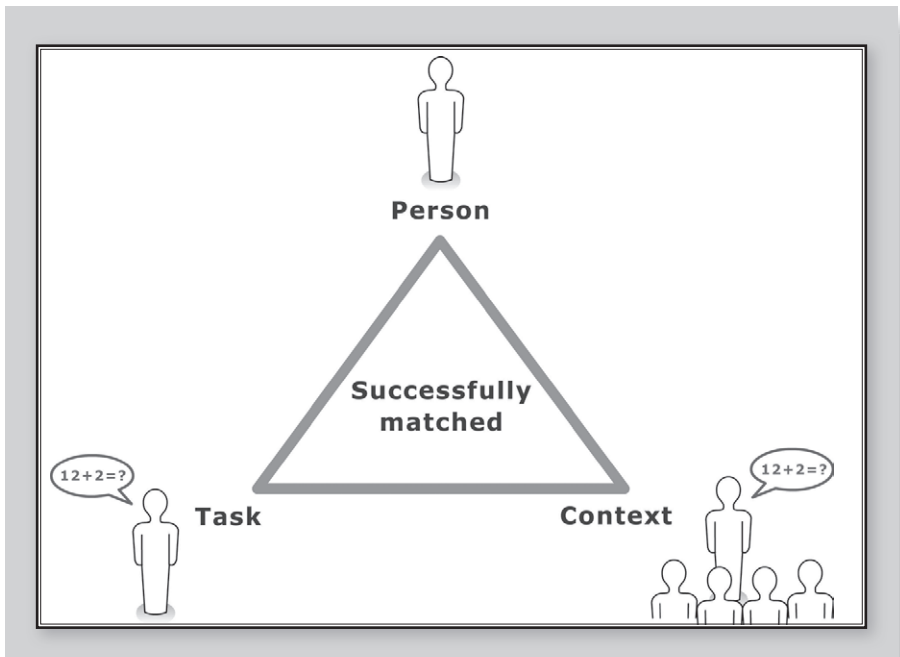
A closer look at this challenge is necessary. A specific job / task can only be done by somebody properly qualified to do it. Qualifications can be defined as experience and / or official academic qualifications enabling an individual to be successful in doing a specific job. Top performing people must be qualified to do the job. When an employee is recruited for a job, the necessary qualifications must be very clearly defined. The question to be answered is: What qualifications must the employee have that will theoretically ensure success in doing the job? A company might for example recruit a psychologist to counsel employees traumatised as a result of the work they do. Theoretically, any qualified psychologist will easily be able to do this.

But, let's say there are further realities applicable to this position. The company provides security services to business executives in Iraq. Their security agents are being shot at every day, they are constantly under attack, many die and many get seriously injured. The workplace is in the open where the psychologist will be rushed either to the scene of the incident or the hospital. This unique workplace redefines the situation. Not every psychologist will find it easy to do the job. We need to look at additional capabilities. The only reliable way to determine what these additional capabilities are is to find a few psychologists that enjoy doing this in Iraq. They must also be successful in doing this work for at least a year and, they still want to do it. Their behavioural skills, habits and attitudes should have some level of congruency. They might for instance all be very altruistic, show an attitude of non aggressive involvement in the world around them, display extreme resilience and are predominantly team players with low levels of fear. (This is just an example). If we want to recruit somebody for this job, it will be wise to recruit someone with the same behavioural strengths. The reason is obvious. The working conditions, task and expectations are all included in the behavioural habits and strengths of those who are already successful in that environment doing that specific job. In doing this properly, the propensity to be successful in placing/deploying people have shown to be much higher than any other method known to us.

Conclusion

Successful people are those who function with a high level of harmony between their qualifications, behavioural preferences, the job to be done and the working environment or working conditions. People can, according to our research only become top performers if the following are in harmony:

- Person (qualifications and behavioural habits).
- The task (work/job to be done) and
- The context (working conditions).



Shadowmatch: An Overview

Background

The development team working on Shadowmatch was extremely frustrated with the fact that attempts to understand the way people think didn't provide any stable results. Although validity and reliability of questionnaire results were acceptable, it was acceptable because the anticipated outcomes from the test groups were interpreted against static 'this-means-that' type of insights in how the research team thought people were thinking. This was unacceptable as the question could still not be answered: Why do some top students from school fail at university and why do some succeed? This question is equally valid in any working environment. Why do some very competent people fail in performing a certain task they are qualified to successfully do?

As indicated above, the context where the task / job will to be done is critical. The question is what are the building blocks that constitute the context? The following aspects were identified as those creating the context / working environment:

- **Physical Environment:** This refers to all tangible building blocks that define the place where the job needs to be done. It includes all physical realities such as getting to the work place (workplace location), light, indoor and outdoor realities, physical danger, health impact, technology, colour, temperature, sound, the tempo of activities, the need to travel, etc.
- **Social Environment:** Who are the people in the environment? Not only those with whom the individual will interact, but all people that are present in the immediate and broader environment. Every aspect of their behaviour, identity, competencies, lifestyle, qualifications, background, religion and belief system contribute to the social context. Sometimes this gets referred to as the culture of a business. This might lead to misunderstanding as culture is not easily defined. The social environment on the other is simply the network of people in and around a specific workplace.

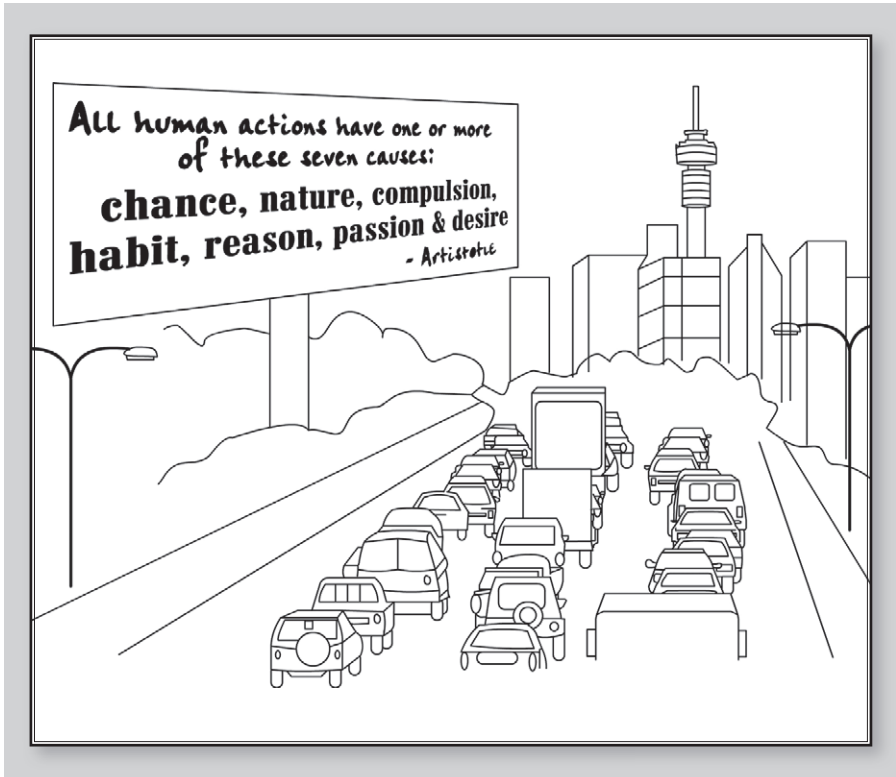
- **Emotional Environment:** Some workplaces are emotionally very intense, others are not. Working in the trauma unit of a hospital might be emotionally very challenging for some people but for others not. The question is what the emotional content of the environment entails for every individual. There is no generic content. It might be that a specific workplace creates high levels of fear to the one individual whilst the same workplace energizes the next person to experience adventure. Fact is that some workplaces are being experienced as emotionally sensitive to some people.
- **Operational Environment:** What is the task and what are the methods and support structures available to successfully execute this task? Working on a mine with all the latest technology and operational infrastructure can be totally different to working on the same type of mine with old outdated machinery and operational infrastructure. Some individuals will cope with the latter, some won't.

These factors are all active in constituting a working environment where some people will thrive, some will survive and some will find it extremely counterproductive to their ways of working. For people to be successful, their behavioural preferences (habits) should be such that they can work with a high level of freedom, spending minimum energy on issues not directly related to the success of the job they have to do. This will leave them with the freedom to act within their comfortable ways and thus succeed in what they do.

What Motivates Behaviour?

The purpose of this publication is to provide the reader with a short but relatively comprehensive introduction into the working of Shadowmatch and the thinking and reasoning behind the tool. In order to understand the essence of Shadowmatch, an abbreviated introduction is necessary into the motivating factors behind human behaviour.

Before going into this, it is necessary to share a critical insight from the work and research that was done. The work was predominantly done in a multiple culture context. Early during the process it became clear that some people have



very limited insight into their own psychology, their motives and even their own feelings and preferences. Some culture groups are not sensitive to critical self-insight, they were not exposed to this type of critical self-insight during their development and it is not part of their cultural setting. This can also be linked to families and sub groupings within a specific culture group. Extreme caution must be applied when a test is conducted that depends on the individual to answer questions that depends on advanced levels of self knowledge and the typical psychological frames of underlying behavioural motives.

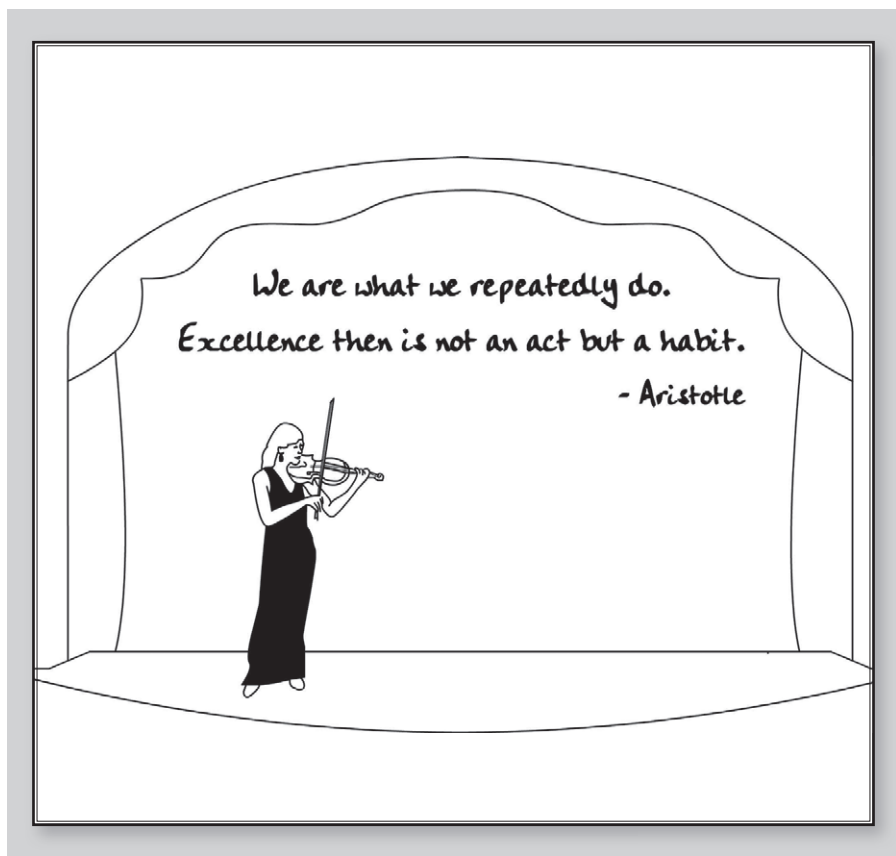
If measuring and mapping the way people think doesn't provide reliable indicators, what does? It is imperative to acknowledge that people act, they do things and they behave in a certain way. These actions form a level of consistency or patterns. The things they do make them succeed or fail. Yes, these actions are the results of specific thinking patterns but the same behaviour can result from different ways

of thinking as well as relatively similar thinking. Different psychological content can result in the same behaviour. The following example will clarify. Two very successful students were thoroughly interviewed. They both indicated that their success was the result of relentless hours with their books and a 100% lecturing attendance with full attention to the lecturing content. In short this was their behaviour towards academic success. The one student said that the energy driving his success was a level of revenge against his father who said that he wants to study for the fun of the experience and that he doesn't have the ability to succeed as a student. The other student was very clear. He comes from a relatively poor family and he was obsessed to break the curse of poverty his family suffered. This describes the essence of the challenge. The psychological content was radically different whilst the behavioural tracks were very much the same. It is therefore imperative to then rather map the behaviour of people in order to identify what they do that makes them successful. The reason why they do what they do is not important to determine whether they were successful or not.

In an effort to answer the question of what motivates people to behave in a specific way, the following motivators can be identified. (This list is not complete as our knowledge is not complete). Without any detail, herewith the list of motivators: Caring, revenge, survival, biological needs, ego, fulfilment, obsessions, greed, fear, enjoyment, discomfort, sense for responsibility, group behaviour, approval, religion, context/situation, upbringing, a decision made by the individual and habits. When we want to understand exactly what motivates a specific action, the challenge to untangle the motivators becomes impossible. The reason for this level of difficulty is the fact that behaviour can be motivated by more than one of these motivators as well as the fact that there are motivators within motivators. The majority of people do not know why they behave in a certain way. It becomes a very complex riddle to resolve the psychological motivation complexities behind our actions. It is a long and complex process that could only be done by highly qualified people.

On the other hand, behaviour is very clear. We can see what people do, we can measure what they do and we can count and quantify the intensity of their behaviour. Let's (for the moment) forget about the motivators and psychological complexities behind our behaviour. Why did the one student succeed and

the other student failed? The one answered the questions correctly and the other one didn't. In a work and performance environment, we need to be very pragmatic. Will the actions of the person lead to success or failure? Will someone be able to consistently and sustainably do the things necessary to succeed at doing a specific job in a specific environment? The only way to determine this is by means of finding a pattern of behaviour (Benchmark Habits) necessary for success (Task and Context Specific) and to compare the habits of an individual to these Benchmark Habits. This is what Shadowmatch has been designed to do. To understand the broad functionality of Shadowmatch it is imperative to understand some background on human behaviour with specific emphasis on habits as an important driver of human behaviour.



Understanding Habits

One of the most reliable ways to predict the behaviour of people is to determine what habits the individual lives by. Habits are very reliable, they have recurrence patterns and these patterns can be predicted with relative high accuracy. What is a habit? A habit is an action that repeats itself with no (or minimal) conscious planning. It repeats itself when the situation is conducive to such behaviour and the person has a goal of fulfilling his/her need in some way by doing what they normally do. This action can then become a habit.

Any behavioural pattern can become a habit. When is behaviour a habit? What else do we need to know about habits?

- Any behaviour that repeats with minimal/no planning can be a habit.
- Habits are learnt behaviour.
- Habits are formed through repetition.
- Habits are very predictable.
- Any behaviour can become a habit. (Getting up early, solving problems, working alone, disengaging when frustrated, etc).
- Habits are extremely difficult to break.
- When an individual cannot freely live by his/her habits, he/she finds it extremely difficult to function properly.
- People living their lives along well established habits show highly predictable behaviour. The opposite is also true.
- All habits are not equally well established.
- Habits can transcend contextual boundaries. (A habit developed in one context can manifest in another context without a clear link to the environment where the habit has been developed).
- Habits are always attached to some kind of meaningful goal/purpose for the individual. This purpose might be something like avoiding discomfort, being successful, being efficient etc.
- Habits can form pairs or tandem habits. This happens when two or more behavioural types that are related to each other are well developed. E.g. People positive behaviour and Altruism. When these two habits are strong, they contribute to each other and the behaviour becomes more prominent.

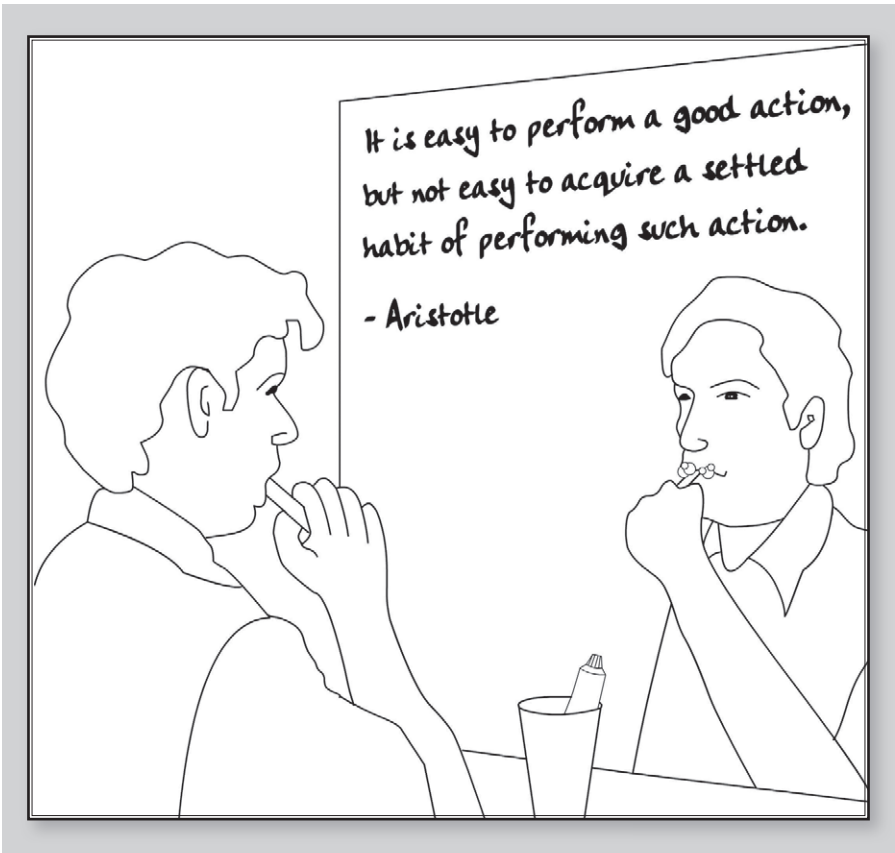
If a process could be found to successfully map the habits of people and how well established they are, will this answer the question? (Why are some well qualified people successful and why do some fail?) It didn't! The reason is obvious: What do you compare it to? And, how do you know what the fit will be between the behavioural habits of the individual and the environment where he/she needs to be successful at performing the expected results in terms of work output? Further to this question is the challenge to determine what habits will be necessary to successfully perform the task towards the desired result. A way must be found that will include a match between the habits of people, the task at hand and the specific workplace. No reliable way could be found to measure these factors in combination. Many hours were wasted by experienced and qualified people in an effort to define those behavioural patterns necessary to succeed in doing a specific job at a specific work place. On the other hand, people rarely know what makes them successful. Any effort to map the critical behaviour that leads to success at performing a specific task either became intelligent guessing or a very complicated task only possible to be done by highly qualified specialists over a relative long period of time. To map the environment and what kind of behaviour will be successful in a specific working context is even more challenging if not totally impossible.

It was then decided to turn the research in a different direction. By indentifying a small group of successful students doing a specific course at a specific institution, it is easy to understand that their behaviour is the right behaviour for the task and it is suitable for the context. It is not the only behaviour that will lead to success but it is successful behaviour for the environment. Once a group of successful students' (workers, sports people, leaders etc) habits could be identified and critical habits could be isolated, the top performing group profile of habits might prove to be the most preferred behaviour towards success in that specific environment performing the specific task. That might just be the only credible benchmark to compare people to in order to determine their propensity to succeed (Task and Context Specific).

Ten top performing students were then indentified. They were doing a specific degree at a specific university. The shared habits between these top students were indentified through a process of congruency mapping of their behaviour.

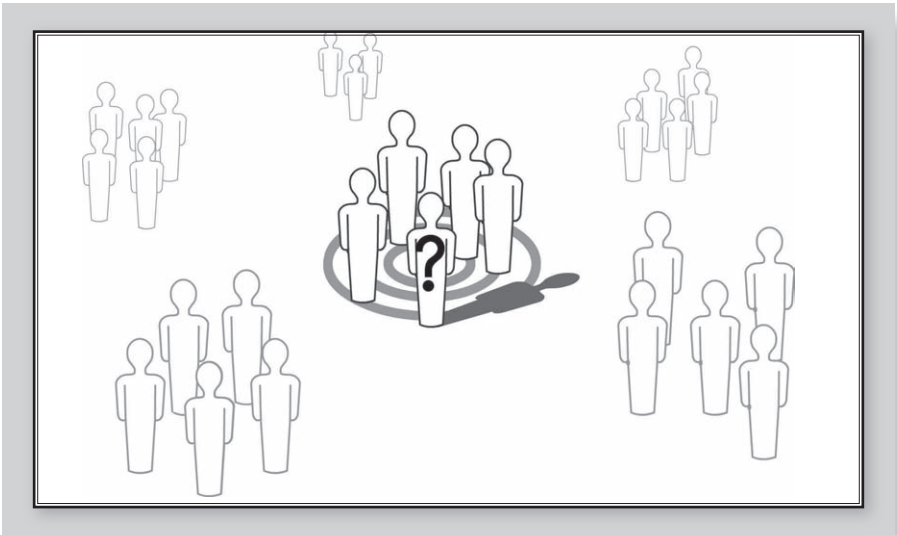
Critical shared patterns of behaviour were identified. The habits of randomly selected individual students were then compared to the shared habits of the successful group. A very high level of congruency emerged from this process. When the habits of students that failed were compared to the shared habits of the successful students doing the same course at the same institution it became clear that the students who failed, lack the habits of the successful group. Successful students shared the strong habits of the benchmark group.

Because this was a breakthrough towards successfully anticipating the propensity of people to succeed in performing a specific task in a specific environment, the research programme was extended to different areas of work. Sales people, administrative staff, customer service agents, engineers etc. The results were consistently the same.



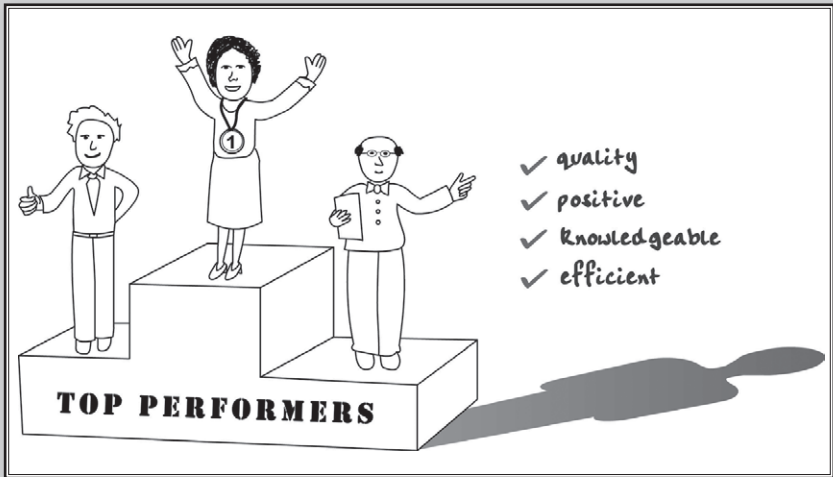
The only critical inflection points were the following:

- The benchmark group must be selected with extreme caution. There is no such thing as a generic benchmark profile. It doesn't work! (See selection criteria below).
- A map of habits must be created. It is what people do that determines their success not why they do it.
- The benchmark profile is not fixed, it changes and therefore it has to be redone at least once a year.



Criteria for Selecting Top Performers

- They must be working in the operation and current position for a period of more than 8 months.
- They must consistently be amongst the top performers in the operation on all levels of the work they do. (Quality of work, quantity delivered, task efficiency in doing the job).
- They must have a positive influence on the team they work with and play a motivating role in the group. (All people they work with must experience them as positive and enthusiastic towards their environment and the work they do).
- They must be the most skilled and knowledgeable workers in the operation.



Shadowmatch has been developed as a computer based system to do the following: Find the best match between the behavioural habits of an individual, the environment where the task will be performed and the task/job to be done.

Shadowmatch draws a map of the following behavioural habits. (See page 24-29). It's done by means of a worksheet that the individual needs to complete by answering a series of questions. The questions place the individual in a normal day to day situation. The individual then selects an answer that best describes the way he/she behaves in such a situation. The answers selected by the individual are then processed by a fuzzy logic calculator that identifies behaviour patterns. The identified behaviour patterns (Habits) are then weighed against recurrence patterns as well as the relative strength of the behavioural indicator. All these calculations are done to identify habits in the behaviour of the individual as well as how well these habits are formed and matured in the way the specific individual lives his/her life. The results are displayed as a graph indicating which habits are well established and which are not. Statistically and through thousands of individual studies, it became clear that when a person has gathered less than 30 points in a specific behavioural type, that type of behaviour cannot be described as a habit. In other words, the individual will not act with minimal or no planning when doing this. A good example will be the habit of problem solving. When this

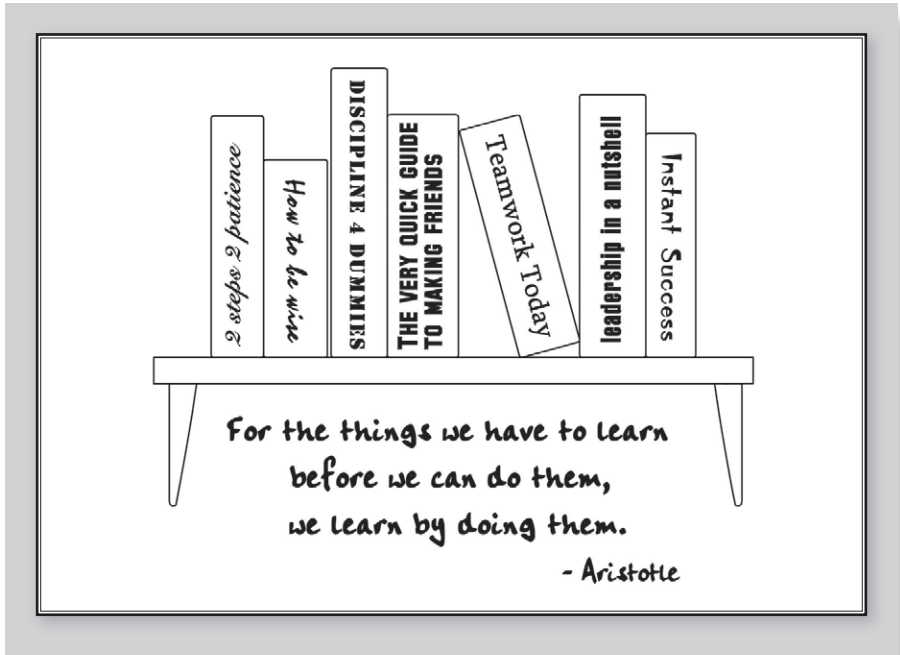
is a well embedded habit, the individual will find it easy to solve problems, he/she will enjoy it, do it with purpose and solve problems when they appear with minimal / no conscious decision-making on whether the problem needs to be solved or not. When this behaviour is not a well embedded habit, the individual will – when there is a problem to be solved – have to consciously decide and plan on what he/she will do. Solve the problem or just leave it. As indicated above, the first cut-off point is around 30 points. When the individual scored between 30 and 50 points, the specific behavioural type is a relatively well formed habit. It functions somewhat selective but it is present as a habit. If the score is between 50 and 70 points the behaviour is well embedded as a habit and the individual will find it easy to act in such a way that this habit becomes an active way of normal life. When the score exceeds 70 points, the specific behavioural type is a strong habit, it will function across different situations, it will be easy for the individual to act accordingly and the specific behaviour will be highly consistent and predictable. The following behaviours are mapped by Shadowmatch:

Habits Identified

Propensity to own versus Propensity to hand-off: These two habits indicate whether the individual takes ownership to solve a problem and handles a challenge him/herself, or whether he/she prefers an outside agent to solve problems, handle difficulties or even execute tasks. It refers to the place where the individual places the control and/or task execution, with him/herself or outside of him/herself. In some jobs a habit of handing-off a task is necessary, in some jobs it's not. The same applies to keeping the task as a self execution responsibility. From the data gathered by Shadowmatch it is clear that for some unique tasks a balance between the two is necessary.

To Simplify: refers to the habit of breaking complex scenarios down to linear challenges that can easily be resolved. It can be seen as the habit of taking the easy route towards solving complex challenges. The purpose of this habit normally ties up with efficiency whereby an individual has developed the ability to easily find the simple way to resolve challenges / problems. The habit of simplification can develop in tandem with the habit of problem solving. When both these habits are well formed the individual might develop extremely strong behaviours towards effectively solving problems by applying extremely simple ways towards a solution.

Resilience: Some people give up easily when faced with a challenge and some apply themselves relentlessly to solve problems and overcome challenges. The Shadowmatch worksheet calculates the habit of the person in overcoming challenges despite the difficulties experienced. It also calculates whether the individual tends to give up or whether he/she completes a task despite difficulties and toughness of the journey. Be aware of the fact that if the individual answers the questions in a specific way, it might indicate a negative level of resilience. When this happens, the indication is that the specific person tends to disembark from a task not because he/she experienced the task to be tough but because he/she anticipates it to be tough without even trying. If this is a habit (giving up without even trying) the individual will also tend to develop a habit of low self confidence.



Propensity to Change: Some people find it very difficult to adapt to change and to get comfortable with new methods, new ways of doing things, a new environment and new technology. On the other hand there are people who advocate change, they always venture towards new frontiers. These people are very comfortable with anything new, be it a new job, new ways of doing things, new technology and so on. Shadowmatch determines how positive (comfortable) the individual behaves towards change and adopts anything new, different and even strange. If this is marked as a habit, (more than 50 points) it indicates the behavioural pattern of pushing for change, early embracing the new and even invites those around them to participate in a process of changing the world where they work and live.

Propensity to Handle Frustration: This Shadowmatch calculator indicates an individual's habit towards applying positive behaviour when dealing with frustrating circumstances. Frustration occurs when the individual is obstructed from reaching his/her goal. It is the experience that stems from a situation when obstacles block one from reaching a goal. A high graph indicates a strong habit

of handling a frustrating situation. The behaviour types that Shadowmatch measures are those acts whereby the individual deals with the obstructing source/interference in such a way that his/her actions towards successful results, stay on track.

Team / Individual Inclination: The system calculates, according to the answers given, whether the individual prefers working as part of a team or whether he/she prefers working as an individual. When these two calculations are very close to each other, it indicates that the individual is equally comfortable working in a team or as an individual.

Self Motivation: Some people have the habit of energising themselves whilst others are dependent on external energisers to stay positive, driven and active. Shadowmatch calculates the individual's habit towards the capacity of the individual to behave with high levels of energy despite the absence of external motivating agents. Self Motivation is the behaviour of continuous positive action towards a desired outcome in the absence of external energisers.

Routine: The routine graph is an indicator of an individual's habit towards structure and repetition, sometimes even mundane activities. It determines whether the individual has a habit of behaving in harmony with an environment of repetition and patterns of the same behaviour. A high graph indicates a high propensity towards a positive blend between the individual and an environment where structure and routine results in a reality whereby every day is pretty much the same as the previous.

Problem Solving: This is the habit of engaging with challenges on a conceptual, social and practical level and successfully managing these difficulties/challenges towards resolving them. People with a strong embedded habit of problem solving easily become intrigued by challenges and riddles to be resolved. In fact, if anybody scores more than 70 points on problem solving, they will find it extremely difficult not to engage with a challenge to be resolved. When an individual scores less than 30 points he / she will find it easy to bypass or even ignore a problem that needs some effort to be resolved.

Responsiveness: This indicates the individual's reaction speed, in other words the habit of acting immediately if and when necessary. A low graph will merely indicate that an individual doesn't have the habit of acting immediately, whilst a high graph indicates the habit of acting immediately. As with all Shadowmatch indicators, there is no good or bad in this calculation. In some jobs people don't need to act quickly, they need to wait and think very thoroughly. In some jobs people must act quick. This indicates the individual's inclination. A high score indicates a strong habit of responsiveness.

Innovation: This is the habit of finding new ways and identifying better processes and methods to improve on current methods of working. It also indicates the habit of working out-of-the-box and creating new realities. Shadowmatch defines innovation as the behaviour of an individual doing things that are new, design new practical functionalities that improve on the way things are done and even create new realities. Someone with great ideas is not regarded as innovative. Shadowmatch regards them as dreamers – something Shadowmatch prefers not to map or pretend to understand.

People Positive Behaviour: This calculates whether the individual has the habit of working with people in a positive way and building positive relationships. It also tracks the way a person influences people towards a positive and meaningful experience of life. The system follows answers that will indicate a natural people oriented person, somebody not easily frustrated by others.

Discipline: The habit of working under extreme levels of discipline, in a highly disciplined working environment where adherence to structure, rules and regulations and time-frames are imperative. People with a high (above 70) score on this habit will even create structures of discipline for others to adhere to. Individuals with an extremely low score do not easily conform to structure, discipline and strict order.

Conceptual Capabilities: The conceptual questions measure an individual's application of his/her abstract ability. In other words: To what level has the individual developed the habit to apply his/her mind in working through an abstract problem towards finding the correct solution? This doesn't indicate

if a person is conceptually strong or weak, it indicates whether the person continuously applies his/her mind towards solving a problem with an expected successful result.

Conflict Handling: Conflict manifests in a situation where people have opposing interests that might unfold with destructive consequences to each other. This reading on the Shadowmatch graph indicates the habit of dealing with conflict in a positive way towards and outcome with no or minimal negative consequences for either party. Avoiding conflict is not regarded by this worksheet as a positive way to deal with it.

Altruism: This reflects a person's willingness to help others without expecting something back. People that have a strong altruistic habit are relatively free from the 'What's in it for me' approach to helping others. These people do well in service driven jobs. Shadowmatch has gathered evidence to the effect that a high score on altruistic behaviour doesn't always implicate a high score on people positive behaviour.

Self Confidence: Shadowmatch calculates behaviour that indicates the person's ability to act with conviction and stay with a decision that he/she has made. In short, self confidence is the habit of acting with a high level of trust in your own abilities, qualities and judgment, knowing who you are and what you can and can't do. A high score indicates that an individual has a habit of acting in a secure and confident manner.

Task Efficiency: When someone completes the Shadowmatch worksheet, it represents an end to end task during which every individual tends to present a level of efficiency. These efficiencies are being presented as recurring patterns or habits. This is a combination of how they manage their time, how efficient they are in doing the job end to end and how successfully they are in getting the job done correctly. The Task Efficiency graph calculates the relative efficiency with which the individual has completed the task of working through the Shadowmatch Worksheet. It combines total time, conceptual results and time used for the conceptual questions into a single percentage of relative efficiency. The full meaning of this calculation is a cold factual calculation of how the individual has

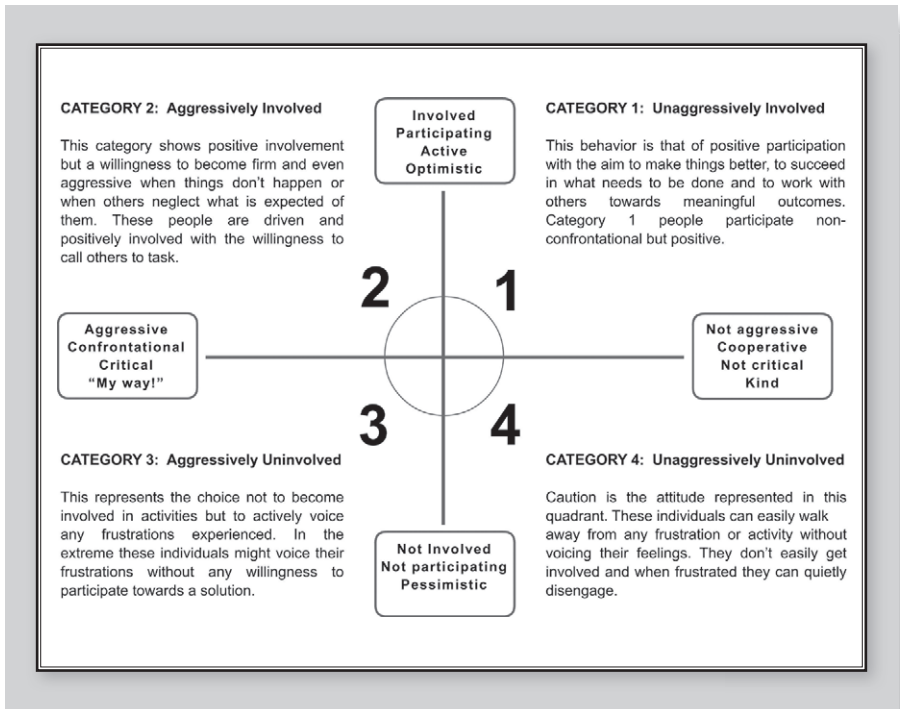
taken ownership of a task successfully and effectively. That task being to complete the Shadowmatch Worksheet.

Leadership: Shadowmatch defines leadership as the ability to integrate resilience, discipline, a team oriented approach, the propensity to act immediately and self confidence with an attitude of positive involvement. All these behavioural strengths are harnessed to lead a group of people towards a successful outcome.

Attitude: This is the way people approach life and work through their actions. It must not be seen as body language. Attitude in the framework of the Shadowmatch worksheet results indicate those actions with which someone approaches the world around them. Shadowmatch distinguishes 4 attitude categories: Category 1 is a positive, non-aggressively involved person. Category 2 is a more aggressive but positively involved person. Category 3 is also aggressive but not always positive and not always involved. Category 4 is a person who is not involved, not aggressive but also not destructive. Nobody is ever seen as a category one, two, three or four only; we are all a combination of the four with dominance in one or more of the categories. A full understanding of the different attitude categories is very important. Shadowmatch displays attitude in a separate graph. A broader description of this is necessary.

Attitude

Attitude Categories 1 and 2 share the habit of involvement. Categories 2 and 3 share the habit of assertiveness, sometimes even aggressive behaviour. Categories 3 and 4 share the habit of less or even lack of involvement in the world around them. Categories 1 and 4 share the habit of unaggressive behaviour.



Attitude Category 1: Unaggressively Involved

These people are positively involved in the world around them. To participate and to get involved is easy for them, they do it without effort and it is embedded in their normal behaviour patterns. Strong Category 1 people have a habit of participation, they engage actively and in an unaggressive way. They are positive towards people and tend to work with the bright side of life. They have strong principles in life and tend to hold on to what they see as the right things to

do. They are motivated by an inner drive to make the world a better place for everybody and a willingness to contribute substantially towards this priority. They are friendly but firm, positive and progressive. They attend to the bigger things in life, and the majority of them lack attention to detail and petty issues. They are unconditional in what they do with a willingness to give up everything to fulfil their dreams. They tend not to be materialistic but they demonstrate a strong emphasis on the value of all life. The majority of Category 1 people tend work and participate without emphasis on serving other people but to drive a principle. An example will elaborate. If a Category 1 person becomes involved in the activities of a school, they will focus on doing it for the community, the children and the future of all. They will not do it to satisfy the headmaster. They tend not to serve people as individuals but the outcome as it fits into their understanding of a principle they want to live by.

As customers and employees they are very easy to work with. They know what they want, they are not aggressive and they honestly seek a solution to challenges. They will never shout, scream and over-react. If they escalate a problem to the next level of authority in order to be resolved, it will always be with the full knowledge and participation with those on the first level of involvement. They don't seek revenge, nor do they want to be seen and experienced as powerful and winning as they don't have the need to gain personal points. They participate more to build than to win.

Attitude Category 2: Aggressively Involved

These people are actively involved in everything around them. They tend to be assertive (sometimes aggressive), willing to stand (fight) for what they want and how they prefer things to happen. They have personal gain as a strong driver of their participation. They do things more with the expectation to gain some form of personal benefit in order to further their own interests. Category 2 people are normally very successful in terms of business, financial independence and position of power. Strong Category 2 people are fighters and they tend to win the fights. Sometimes, when they are convinced that things can collapse (Projects, a business or any important outcome they want to fulfil. They can become very difficult as they are willing to take things further and put others under enormous

pressure to perform. They get things done. They take people to task. They want facts and they will follow up on any threat they make. They want things their way and they are extremely strong in getting what they want. These people can become somewhat obsessed with being in control, they are very demanding, and they don't stand back.

When working with strong Category 2 people, keep in mind that they are somewhat obsessed with winning and they see every situation where a problem emerges as a win-lose scenario. They want facts, answers and solutions. They tend to always put people working with them under pressure to perform. They are hardworking, dedicated and strong towards getting the job done. They participate more to win than to build. For them to build is the result of winning.

Attitude Category 3: Aggressively Uninvolved

Although individuals in this category have an assertive/aggressive approach towards their world, they are very different from the Category 2 group. This difference lies with the fact that Category 3 people are not involved and they don't easily become involved. The result of this attitude is that they are not dangerous and they are not on top of every situation they are faced with. They tend to be quick tempered, easy to become upset and very quick to react. There is a tendency with them to over-react and to pre-react. In other words, they will react aggressively to an incident without hearing the full story or looking at the full picture. Sometimes it might leave the impression that they are more driven by fear than by personal strength. They also tend to threaten, voice their feelings when frustrated but they seldom do anything tangible about the problem. They tend to be permanently frustrated, over critical and irritable. In the extreme, they can become abusive and personal in their attacks. Despite this behaviour, they lack the energy to actively participate towards a solution.

Working with strong Category 3 people can become very challenging as they are not easily satisfied. They can be over critical whilst they prefer not to get involved in order to resolve or repair the cause of their dissatisfaction.

Attitude Category 4: Unaggressively Uninvolved

Category 4 people do not easily get involved in the inner working of the world where they live and work. They keep their knowledge levels with regards to the day to day activities in life down to a working minimum. They tend to only learn the basics necessary to do what needs to be done. A good example can be found in the way they might use modern technology. They will know what to do in order to get the technology to do what they need and for the rest they will prefer to stay uninformed. (E.g. Use their cellular phones to make and to take calls only). They are quiet, not demanding, happy with the basics in life, not willing to fight and very unaware of many things around them. They do not attend to detail and small issues. If something doesn't work for them they will either go without it, get someone to fix it or get rid of it. They might even pack it away and forget about it. They are not driven by personal obsessions. They can't deal with conflict, don't like too much attention and they can easily switch off from something if it doesn't work for them.

These people tend to work with the basics in life. Some of them are highly specialized people in one area of their business or in life in general, but for the rest, they just don't have the interest to get into the detail. (The typical professor myth). In short, they are extremely selectively switched on and unaggressive.

Working with them is very easy if their attitude is suitable for the task and the environment. They don't get frustrated easily nor do they become I-rate. They just want things to work, they don't always want to understand how it works.

Forming, Reforming and Changing Habits.

Forming, Reforming and Changing Habits

When habits are well established over a long period of time (more than one year), the majority of people will find it very difficult to change such habits. In fact, some research has indicated that three in two hundred people are able to totally break a well formed habit by merely making a decision to this effect. All habits are not equally strong and well formed in the behaviour of an individual. Examples tend to explain this best. If somebody has developed the habit of helping people in need and he/she practices this habit every day over a period of say three years, it will be very difficult for this person to walk away from someone in need. How often do we hear someone say: 'I just couldn't do it?' This is exactly how they experience any effort to behave against a well developed habit. They find it impossible to break away from this behaviour. Sometimes there is an opinion amongst people (despite the fact that some of them are well qualified in understanding the psychology and behaviour of people) that behaviour can change as a result of an instruction, a discussion or a decision. This is possible, but extremely rare. Change in the way people behave is (for the majority of people) the result of a process. So, the question now remains, can we reform our habits? Can we change or stop them?

The answer to this question is a bit complex and no single hypothesis seems to fully answer this question as people are such wonderful beings that there will always be a percentage of any population able to do what seems to be impossible. We first need to know how habits are formed. The way habits are formed is the same process in which habits are changed and even stopped.

The Development / Forming of Habits

As indicated above, habits are not always developed as a result of a decision people made, a discussion they had with somebody or even a firm instruction. Habits are formed/changed as a result of a process. A few critical ingredients are necessary for habits to form.

- The behaviour must be associated with a meaningful goal as experienced by the person who develops the habit.

- The behaviour must be experienced by the 'habitor' as successful in some way. The facts are not at all important, as long as the person subjectively and sometimes even irrationally experiences the behaviour as successful.
- There must be a relatively high number of repetitions. There is no consensus on the number of repetitions necessary to form a habit. The number of repetitions necessary to develop a habit depends on so many factors that it is impossible to calculate a responsible average number. Urgency, necessity, fear, peer group habits, rewards and routine are amongst many factors that influence the way habits are developed, especially the number of repetitions necessary to develop a habit.

Changing of Habits

The ways habits change are equally important. Despite the experience that some habits never change, habits do change. In some instances individuals are not at all able to change their habits. Especially those habits that develop in relation to the very basic survival behaviour of people. These would be habits like eating habits, drinking habits, working and sleeping habits. Only a very small percentage of the population can change a habit by means of a decision. It must be emphasised: Changing a habit is a process. The following types of mechanisms and combinations thereof (in which people change their habits) can be identified:

- **Gunpoint:** (Adapt or die!). When the person is faced with a crisis that poses a threat to the very basics of his/her existence, he/she might change/unlearn/stop/start a habit in a very short period of time. (E.g. 'If you don't teach yourself improved eating habits, you will die'. This constitutes a situation whereby someone has very little choice but change. In some instances, a relatively high percentage of people will still find it difficult to change their habits, especially when the habit pairs with substances such as smoking or eating habits).
- **Habit Substitution:** The 'habitor' embarks on a programme of replacing a specific habitual behaviour with replacement behaviour in order not to execute the habitual behaviour. (E.g. 'Instead of travelling to work by bus, start cycling'. This is a real life case study. The individual has been travelling to work by bus for twelve years. She then developed health problems as a result of overweight).

Her surgeon recommended some form of physical exercise. She decided to start cycling to work instead of using the local public transport. She confessed that it was tough to 'change my habit of sitting in the bus' to hard physical exercise on a bicycle. She developed a habit of cycling to work, enjoys it and she lost 30 pounds of weight).

- **Group Habit Transfer:** Habits can change when an individual with a specific habit becomes very involved with a group of people that collectively don't have the specific habit but behave according to a different habit in the same situation. (E.g. 'You are in our boarding school now and in this school we all go to church on Sundays'. A young man started further studies at a strict Christian College. He had no habit of going to church on Sundays. All students in that particular boarding school went to church on a Sunday Mornings – every Sunday. When he finished his degree, this habit was so defined and well established that he consciously decided that he will only marry someone with the same habit).
- **Habit Purpose Removal:** As indicated elsewhere in this book, habits are always associated with a purpose. If the purpose disappears, the habit might fade/disappear over time. It might even disappear immediately. (E.g. 'You don't need to feed the owl anymore as, unfortunately it has died'. This individual took ownership of looking after an owl that lost its leg as well as one wing as a result of hunters shooting the owl but not killing it. She found the owl and made it her task to look after the bird. Over many years she developed the habit of feeding the owl against precise routine, every day. When the owl died, the purpose of her routine was removed. For the first time in 13 years she went on holiday. She experienced difficulties in changing her habits away from feeding the owl.
- **Mentorship Programmes:** The most successful way of changing/ developing/ strengthening a habit is by means of a guided development programme whereby the 'habitor' participates in a well managed, positive and meaningful programme to unlearn unwanted habits and/or develop new habits to replace the behaviour of the unwanted habit(s). (E.g. 'Welcome to our fitness group, you will exercise with us and your personal trainer will guide and teach you what

you need to know in order to succeed. Your trainer will also ensure that you complete all the outcomes of all the programmes’).

Shadowmatch provides the user/participating individual with Guided Mentorship Programmes to help people develop the behaviour (habits) they need in order to master the behavioural habits necessary to succeed in a specific environment doing a specific job. These programmes have been designed to develop a habit towards a specific behaviour.

The Shadowmatch System: An Overview

Shadowmatch as a product provides the following capabilities to business:

- It compiles a behavioural map of the shared habits of successful people doing the same job in the same environment.
- It compares the habits of an individual to the habits of the successful benchmark group in order to determine the individuals' probable propensity to succeed in doing the same job in the same environment.
- IT compiles Personal Development Programmes to develop the correct habits that will increase the success of an individual.
- It provides customized Interview Packs for the interview panel when an individual is interviewed for employment / studies / developmental purposes.
- It generates a Shadowmatch Recruitment Specification against the shared strong habits of the top performers in a specific working environment.

For more detail and visuals of the Shadowmatch profiles please go to www.shadowmatch.co.za/presentation



The Spirit of Shadowmatch

Shadowmatch is a very deliberate effort of working positively with people. The results presented by Shadowmatch show the way it has transformed the answers provided by an individual to a visible behavioural chart that represents no negative information about the individual. When a graph represents low scores on some habits, it indicates that the individual doesn't seem to manage that area of his/her life with behavioural patterns so well defined that we could refer to the behaviour as a habit. A good example is the result on the individual's propensity to own a task versus his/her propensity to hand a task to an outside agent to execute. If the individual – for instance – scored 24 points on his/her propensity to own a task it indicates that it is not a habit of the individual to take ownership of the majority of jobs to be done. If the score is above 50 points we can safely say that this individual has developed a habit to take ownership of a job that needs to be done. The higher the score, the more defined and well developed the habit. It must be emphasised that when a person has developed a habit in doing something, executing the habit is easy. This is why habits indicate the level of ease with which someone acts when doing that which has been developed as a habit. The opposite is not necessarily true. If an individual doesn't have the habit of behaving in a specific way, it doesn't indicate an inability to do it. It means that the person doesn't do this as a habit. Normally (but not always) the individual finds it slightly more challenging to do something that is not defined / developed as a behavioural habit in his / her behavioural patterns.

In conclusion, it happens from time to time that people are not experienced by others on the same lines as indicated by the Shadowmatch results. In other words, we sometimes experience one another different from our habits. This is normal. Shadowmatch draws patterns of behaviours. It creates patterns of actions we take in certain situations. It doesn't indicate if we are nice people or whether we are friendly or unfriendly. It is a statement of actions we take when we engage with our world. These actions might be different from the persona we project in relationships. That is what makes us such wonderful beings. We are neither static nor linear. We are dynamic and lateral.

In Search of Return on Employment: A Case Study

By Guy Krige

EMPLOYER OVERVIEW

As a fairly young organisation (14 years old), operating in the medical imports industry, turning over just short of R50 million, employing 38 people (16 sales, 12 operational and 10 technical) and with a salary bill of over R400,000 per month before performance bonuses, we have had some employment successes and more than our fair share of employment mistakes. Furthermore, we have a customer base of 2,800 medical specialists with an average interaction of more than 20 times a year with the business. Getting it right with our customer is a non-negotiable. Having the right people is also a non-negotiable. We do not have a dedicated in-house Human Resource function and, wherever possible, we contract people against outcomes and tasks that will build the success of the company. We rely strongly on performance incentive agreements to motivate people towards performance and success. Following is an overview of our experience using Shadowmatch as a tool to find successful people. It is important to note that we have not changed the way in which we manage and incentivise people in any way.

Pre Shadowmatch

Recruitment Begins: Pre Shadowmatch days, following a strong growth period in the company, we turned to recruitment houses to source key people to fill the future needs of the company. Following a job specification, many Curriculum Vitae's (CV's) were forwarded and reviewed. For each job, five candidates were selected from at least twenty CV's and subsequently interviewed. The CV's each contained impressive skills and qualifications, the candidates were (or seemed) highly successful at their current jobs, and came well prepared for their interviews. Each candidate had a performance incentive on offer that matched their basic salary. After several interviews, offers of employment were made and final appointments concluded. A fee of 15% of cost to company for the year was negotiated with the recruitment agency. A three month guarantee was in place in that if the candidate left before the end of three months, the recruitment agency would provide new candidates for no fee.

Training Commences: All new employees are put through a formal induction process backed by training. The induction programme introduces the employee to our culture (that is the way we do things), our people, our customers, our products and services, our decision making processes and the operational environment of the business. The business supplies highly technical products and services into a market of specialists. It requires study and attention to detail to be fully on top of all the technical aspects. Furthermore, much of our selling is relationship based selling. Establishing these relationships takes time. Consequently, it usually took between two to four months of training and establishing relationships before candidates reached a **point of competence**. By competence we mean the ability to operate independently into the market without direct support of management or a colleague backed by an ability to deliver against their performance contract. Up to the point of competence, we make a net investment into our people. Thereafter, they are in a position to begin covering their cost to company and generating a positive return. We usually invested around 25% of an employee's annual cost to company in training to develop an employee to a point of competence. These costs represent factory, classroom and on the job training.

We were now three months into the relationship with the employee, much investment under the belt and no productivity from the employee yet (as they have only just reached their point of competence).

Performance Management Begins: At this point, we aggressively begin to manage the employees via performance contracts against outcomes. These are three month rolling agreements with minimum performance requirements (outcomes only) with incentive targets to reward different levels of performers. Systems track and report on employee and business performance on a daily basis. For sales staff it is total value of sales, for technical staff it is percent of technical issues resolved daily and weekly and for operations staff it is percent of originating transactions processed daily and weekly. All staff carry a performance incentive against a customer satisfaction score. Formal performance reviews are held monthly. Poor performers are immediately put onto additional training if the lack of performance is due to knowledge and/or skills. New product lines result in the performance contracts being recontracted.

Disaster Strikes: Despite the fact that a desire existed from both parties (business and employee) to succeed; all our agency recruited individuals voluntarily exited from the company between months five and eight for lack of performance. In short, they didn't like the business environment. It was time to take stock. So we did some quick sums and had these shocking insights:

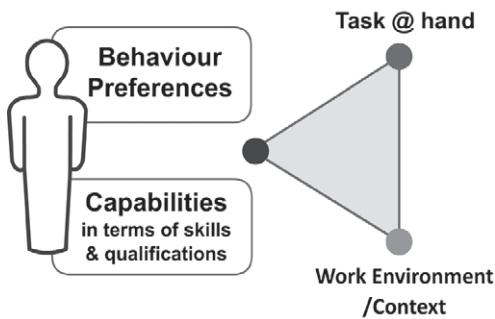
	Description	Measure
1	Recruitment Costs	15% of Cost to Company
2	Training Costs	25% of Cost to Company
3	Average Training Time	3 Months
4	Staff Turnover	30%
5	Staff Turnover Costs	$30\% * (15\% + 25\%) = 12\%$ In words, because we lost roughly 1 in 3 people, we had to go through the whole recruitment and training exercise again. To show the recruitment costs against a single picture, we need to include this as a once-off cost. Strictly speaking we should include the full cost of staff turnover. A simple formula can provide this (thanks Shadowmatch). Full staff turnover costs = $([\text{Staff Turnover \%}] / [1 - \text{Staff Turnover \%}]) * (\text{Recruitment Costs} + \text{Training Costs})$. The real result is 17.1 %.
6	Costs to Point of Competence	52% (1 + 2 + 5)
7	Average Employee Return per Month (that is whole business)	20% greater than monthly Cost to Company
8	Time to Break-Even	34 Months $\text{Cost to Point of Competence (6)} / \text{Average Returns per Month (7) \%} * 12 \text{ months} + \text{Time to Train (3)}$

Interpretation: We needed to keep our agency staff employed for a minimum period of 34 months before the business was in a break-even scenario with regards to return on employment. At the point our agency staff were exiting, our

net return on employment was close to negative 100%. In other words, we had only invested.

We could not continue like this. Our growth was being fuelled by some clever strategies as well as by three top performers in the sales department and two top performers in the customer service division. The returns were being squandered on poor employment decisions. We had to rethink our recruitment process radically. We had to find a way of employing people that were more like our top performers. It was imperative to the continued success and growth of the business.

In Search of Alternatives: We began to search for a better way. It was during this search that we were introduced to Shadowmatch. We learned a few key things about recruiting top performers. Our costly experiences proved to us that “success only materialises when the task at hand, the capabilities and behaviour preferences of an individual and the working environment match so that a person can flourish.”



In search of Top Performers

“Success only materialises when the task at hand, the capabilities and behaviour preferences of an individual and the working environment match so that a person can flourish.”

We knew the capability sets we required, we had invested significant management energy into creating a funky and freedom based work environment and we were disciplined in dedicating people to tasks. We were nowhere when it came to mapping behaviour preferences. We felt recruiting people primarily against their capability set, their past success and their desire to continue being successful was sufficient. We believed these individuals would adapt to and fit into the work environment we had fostered. How wrong we were.

A Strategic Break-Away Session with Surprises: It was time for our annual performance review, budget and target setting process and we had accordingly booked twelve individuals onto a weekend break-away session. We decided to incorporate the Shadowmatch process and map the behaviour of the people in the business to understand if this would give us any insight into their performance in the business. We had two new appointees with us. Everyone completed the Shadowmatch questionnaire and the results were presented in a confidential and sensitive way. Each individual had access to their own results, and the top team had access to everyone's results. We were in for a shock. In short, these are the rank ordered results:

Actual Performance against Sales		Shadowmatch Predictor	
Rank	Sales % of Total Sales	Rank	Overall Match %
1	25%	1	92%
2	20%	3	89%
3	19%	2	90%
4	12%	4	85%
5	7%	5	79%
6	5.5%	7	76%
7	4.5%	6	78%
8	4%	8	70%
9	2%	10	63%
10	1%	9	65%

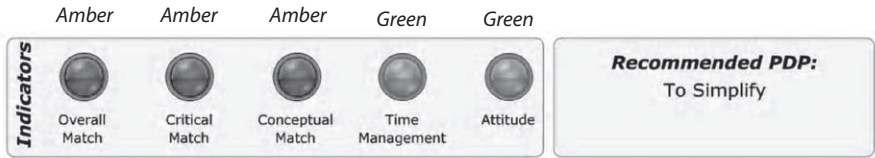
These are the results against the sales shadow in the business. The benchmark group has an internal stability factor of 90%.

What shocked us was that Shadowmatch could so accurately rank order actual performance off a behaviour map. How was this possible? We realised that behaviour (specific to our environment) was a critical success factor for people. Either they had the appropriate behaviours to flourish in a freedom driven environment or they did not. We had to begin recruiting for behaviour fit as well, not just skills and good interviewing technique from the candidate.

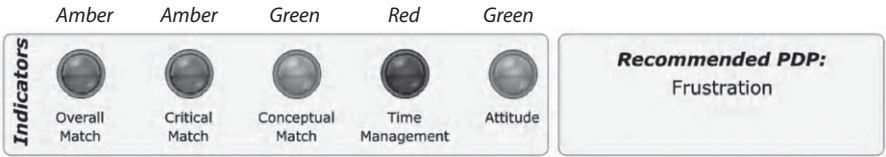
These shocking results convinced us this was a way forward to consider.

Recruitment with a Difference: We immediately commissioned a shadow per job category and ensured that all potential new recruits were Shadowmatched. We also put an incentive structure in place for employee referrals. All candidates were put through Shadowmatch. These are some of the results obtained against candidates:

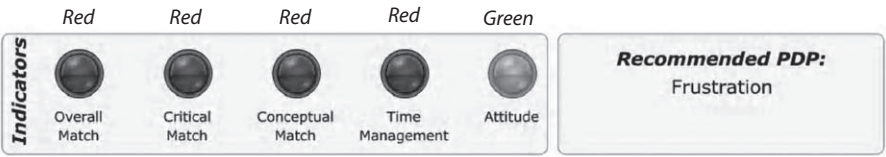
1. We employed this candidate. She performs to on average 50% of top performer status. Her challenge is very much to simplify. If she gets this right, she will match top performer status without a doubt.



2. We employed this candidate. He performs to on average 30% of top performer status. He is very quick minded and was quick in his behaviour map, hence the red score in Time Management. Although a wonderful performer, our challenge is to manage his frustration levels. He loses too many deals as a result of his frustration – he wants things to happen now. The behaviour map of the top individuals indicates clearly that patience and perseverance is required for success.



3. This individual was employed pre Shadowmatch days. He barely covered his cost to company but has a wonderful attitude, so we all like him. We have parted ways in his and the business' best interest. He is far more successful at his current job.



Determining Return on Employment:

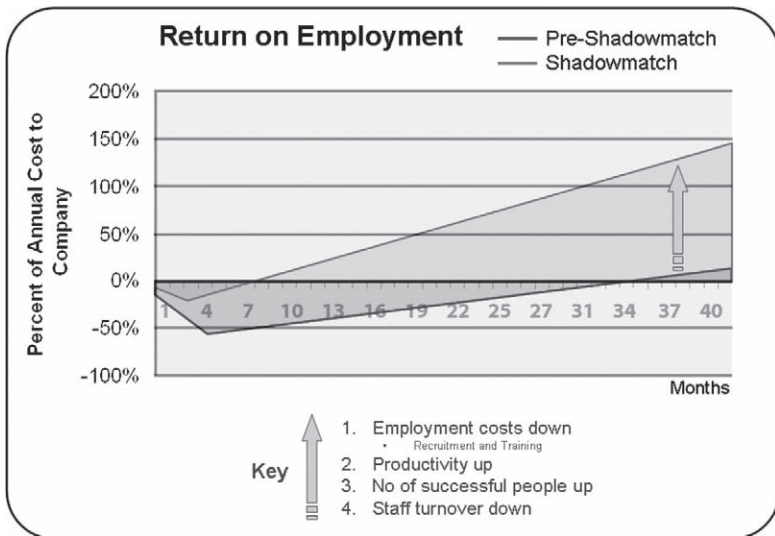
After 12 months on Shadowmatch and continued growth of the business, we decided to re-benchmark the Return on Employment Numbers. We were in for a pleasant result relative to our pre Shadowmatch days.

	Description	Measure
1	Recruitment Costs	7% of Cost to Company
2	Training Costs	13% of Cost to Company
3	Average Training Time	< 3 Months
4	Staff Turnover	10%
5	Staff Turnover Costs	10% * (7% + 13%) = 2% Full staff turnover costs = ([Staff Turnover %] / [1 – Staff Turnover %]) * (Recruitment Costs + Training Costs). The real result is 2.22%.
6	Costs to Point of Competence	22% (1 + 2 + 5)
7	Average Employee Return per Month (that is whole business)	50% greater than monthly Cost to Company on average (up from 20%).
8	Time to Break-Even	6.78 Months Cost to Point of Competence (6) / Average Returns per Month (7) % * 12 months + Time to Train (3)

We have gone from a break-even scenario of 34 months to under 7 months. In other words, we recover our investment into the individual in month 7 on average. We are delighted with the results and the impact it has had on the business. It represents a five fold improvement in our employment practices (34.2 / 6.78).

Conclusion

Our top performing people provide much more value to the company than poor performers and finding successful people for the future is imperative for our continued growth. Shadowmatch has shown that recruiting people for their behaviour preferences as benchmarked against a top performer shadow is far more effective than our traditional recruitment methods. Our average productivity levels are up and our time to break-even on employment is one fifth of what it was previously. Our staff turnover is also a fraction of before. In other words, we avoid costly employment mistakes. We are for the first time in a position to recruit people scientifically against a top performer benchmark that has fully captured the behavioural habits of top performers given our specific work environment and the tasks at hand. *Finally, the impact on our business is shown visually.*



A final comment on Shadowmatch

We have been using Shadowmatch for a significant period now. The staff turnover has dropped to 5%. Our culture (the way we operate) is far more stable than ever in the past. Our people share behaviours to a very high degree and this is helping the business succeed. We have had some strong challenges to deal with in the

market. Our top performers have been offered double their basic salaries in the market – yet they still remain with us citing the work environment as being a benefit that no competitors can match. Shadowmatch has given us a direct handle on being able to manage the behaviour content of our working environment. People work with people with whom they can relate. Shadowmatch continues to make a big difference – to the business as well as the success of our people. Our employment costs are down in both recruitment and training, our productivity levels are up, the number of people successful in the business is up and our staff turnover is down.

**A Call Centre Agent
is not just a
Call Centre Agent –
The Success of Precision
Recruitment in the
Call Centre Industry:**

A Case Study

By Lizette Bester

THE SCENARIO

A call centre is an operation where people communicate with customers by means of telephonic contact with clients. A contact centre is more than a call centre, it is an operation where people communicate with customers by means of multimedia i.e. telephone, internet, e-mail, fax and so on. The purpose of a call centre could be to provide customer service and technical support for products that the customer may have bought, do sales, collect outstanding debt and provide advice. We distinguish between inbound call centres and outbound call centres. An inbound call centre is where the customer makes the phone call – usually for customer service or support. An outbound call centre is where the call centre agent contacts the customer – usually to do a sales pitch or to collect outstanding debt.

Call centres are very demanding on its employees. It is a disciplined environment where precision control can be put in place and perfectionism can easily demand a perfect call from the call centre agent for every client they interact with. Not all people have the behavioural composition to work successfully in a call centre. Staff turnover is a serious challenge in these operations.

A company in the Financial Industry runs a call centre of 1 500 – 2 000 seats. The service provided by call centre agents in this call centre ranges from inbound customer service in telephone banking, inbound service to assist customers that have a problem with the Automatic Teller Machine (ATM) cards, inbound assistance with regards to the Internet, outbound calls to sell different types of loans, banking services and so on. It should be made clear to the reader that this call centre provides a range of services and that the calls either come into the call centre (inbound) or the service agent makes the call to the customer (outbound).

In the call centre industry there is a trend to treat call centre agents as individuals who are capable of working in any type of call centre – one often hears the saying “a call centre agent is a call centre agent is a call centre agent”. In other words, you can use a standard model or standard profile to recruit any call centre agent

for any type of call centre in any industry. Currently call centres use a standard Generic Call Centre Assessment Instrument to recruit call centre staff.

The company mentioned in the first paragraph made use of a staffing agency to provide them with call centre staff. This staffing agency assessed all applicants with the Generic Call Centre Assessment Instrument.

When the Shadowmatch team started dealing with the Call Centre in discussion, they were battling with an annual staff turnover percentage of close to 70%. This was a huge challenge and had a significant impact on the service provided to customers. Why? Because they almost lost all their trained, knowledgeable and competent staff on an annual basis. The high staff turnover meant that they were continuously recruiting and training staff, just to lose them again before they had stayed for 12 months. Keep in mind that the cost of recruiting and training a call centre employee is close to R100 000,00. If an employee leaves within the first 12 – 18 months, it is a loss to the business because he/she hasn't yet started to be productive in excess of his/her cost to the company. In other words, he/she has just been a cost and the company hasn't yet reached a point of break-even on the individual in terms of costs incurred as a result of recruitment cost and salaries paid calculated against productivity.

Shadowmatch was introduced to the top management team of the call centre and they immediately decided to start using it for the recruitment of their staff. They identified the top performers in each specific job area / function and created almost 60 benchmarks (in Shadowmatch also referred to as shadows) – one for each specific job area / function. Once all the benchmarks were created, they started to match every applicant that was provided by the staffing agency to the benchmark profile of the top performers in each specific job function. Where the call centre previously employed all candidates provided by the staffing agency, they now started to match them against the shadows in Shadowmatch and they only placed those candidates that were a good match to one of the shadows. The applicants that didn't match were turned away and sent back to the agency.

Shadowmatch immediately enabled them to employ people that were a match to the successful performers in one of the divisions. By having the luxury of almost

60 specific benchmarks and not just one generic call centre profile, they could now precision place people in the team / department where they were best suited.

This process produced three distinct results:

- 1) It allowed the call centre management to recruit and place people that had similar habits to the top performers in a specific area of the business. This resulted in the new recruits also becoming top performing individuals in a short space of time.
- 2) The ability to precision place people shortened their training time. Why? Because of the fact that the new employees shared the habits of the top performers, they immediately fitted into the team and learned the technical competencies and skills much easier and quicker. Upon interviewing some of these new employees and questioning them about their early successes, they said: "These are my kind of people. I feel comfortable working in this environment and in this team."
- 3) The call centre was able to reduce the annual staff turnover by almost 50%. In a period of 10 months they had dropped from close to 70% staff turnover to a staff turnover of about 26%. The precision capabilities of Shadowmatch immediately allowed them to retain their staff for a longer period.

Why is Shadowmatch more effective than a Generic Call Centre Assessment Instrument?

Our research and many call centre case studies have indicated that the Generic Call Centre Assessment Instrument, only measures the people aspects of a call centre agent. What does this mean? The individuals that were selected by using the Generic Call Centre Assessment Instrument have also been assessed by using Shadowmatch. It became clear that they all share the habits of People Positive Behaviour, Altruism, Conflict Handling and Team Inclination. It seems as if the Generic Call Centre Assessment Instrument has been developed to identify specific attributes that would be fit for any type of call centre. It doesn't assess a lot of other important habits necessary to be successful at the job, for example time management, conceptual application, resilience, propensity to own and propensity to hand-off.

It must be kept in mind that call centres are not the same. Specialists distinguish between different levels of complexity in call centres. In some call centres the job is very linear, in other words the call centre agent needs to do very simple and straight forward things in order to provide customer service. Example: Give a customer a balance on his account.

In other call centres the job is more lateral. This would mean that the call centre agent needs to take an action in order to provide service to the customer. Example: Transfer funds from one account to another account for the customer.

The third type of call centre in terms of complexity is a conceptual call centre. This is the most complex type of call centre to work in. In these call centres the service agent needs to interpret what the client says, provide advice and take action in order to provide customer service. Example: Give a customer investment advice on money that he has inherited. Take action in doing the necessary investments.

By just taking the above facts into consideration, one can understand that a generic approach towards assessing whether someone is suited for a call centre environment would not work. Firstly because no call centre environment is the same as the next and secondly, besides the different complexity levels, one also needs to remember that each call centre has a different culture, leadership style, level of technology sophistication and so on. It is therefore important to take a holistic and specific approach when assessing whether an individual would be suited for a specific job in a specific call centre. The only way to currently do this successfully is by means of Shadowmatch. Shadowmatch takes the job, the person, as well, as the environment or context (which includes culture, leadership style, all the different aspects of the working environment, the team dynamics, etc.) into consideration when mapping the habits of the successful performers in order to draw a map of what is necessary to be successful in that specific job.

In one of the call centres where we mapped the habits of the top performers, the following came out as important habits to be successful in the job:

- Propensity to hand-off (this was very interesting as we usually assume that a successful call centre agent needs to have a habit of taking ownership. In this call

centre one of the most critical habits was the propensity to hand-off).

- The habit of discipline. This refers to the habit of working in an environment that is regulated by policies, procedures, rules and regulations.
- Team inclination.
- The habit of working positively with other people.
- The habit of handling conflict.
- The habit of working in a routine environment.
- The top performers indicated that it is necessary to apply ones conceptual ability 30%. To explain: The top performers scored 3/10 for the conceptual questions. This is an important indicator. Anyone scoring way less or way more would not be successful in this job.
- The top performers completed the Shadowmatch worksheet in an average time of 46 minutes and 40 seconds.
- The top performers also indicated that their dominant approach to their world is one of being involved. They have a tendency to read the situation and be unaggressively involved when necessary and aggressively involved when the situation asks for it.

All staff members appointed in this call centre were assessed by the Generic Call Centre Assessment Instrument. They all showed strong habits in the behaviour of being positive towards people, having a strong team inclination and most of them had a propensity towards taking ownership (please remember that the top performers showed a habit of handing things off!) We assessed a fair sample of staff through Shadowmatch in order to draw a proper comparison as to who will really be successful in this call centre.

The following became clear through the Shadowmatch results:

- The call centre agents' habits ranged from a propensity of taking ownership through to a propensity of handing off.
- The conceptual application ranged from a score of 0/10 through to 7/10.
- Some of the staff displayed a very defined habit of solving problems as well as a very deeply embedded habit of acting immediately and quickly (responsiveness). The shadow of the top performers indicated that these were not important habits towards success in this call centre.
- The time in which the worksheet was completed ranged from much quicker

compared to the top performers (shadow) to much slower compared to the shadow. The top performers completed the Shadowmatch worksheet in an average time of 46 minutes and 40 seconds. The time it took the other call centre agents to complete the worksheet ranged from 35 minutes and 26 seconds (shortest) to 106 minutes and 45 seconds (longest).

- The agents' attitude (approach to their world) was very diverse. Some staff displayed an attitude of being dominantly uninvolved whilst the top performers displayed an attitude of being dominantly involved and unaggressive.

We then asked the management team to jot down the names of the average to poor performers. We used Shadowmatch to rank the staff from the best match to the shadow right through to the poorest match. It turned out that only 8 of the 32 staff were really a match to the top performers. More than 15 of the staff members could, according to Shadowmatch, not be successful in this specific call centre. Upon checking with the management, the names of the average and poor performers that they had jotted down were, with the exception of one name, exactly the same as the poor matches on Shadowmatch. We also learnt that some of the staff members that weren't a good match to the shadow, had already resigned within their first month of employment. Keep in mind that all these staff members were successfully assessed by the Generic Call Centre Assessment Instrument and employed with a prediction to be successful in the call centre.

Conclusion

Through this exercise it became clear that one cannot recruit successfully by means of a generic assessment. The assessment used must be specific to the job and the environment. The top performers in an environment need to indicate which habits are necessary to be successful in the specific job. This is the very reason why Shadowmatch has again and again proved to be the best way to precision employ and precision develop people.

Shadowmatching The Team to the Trophy:

A Case Study

**By Theo Bezuidenhout
(Sport and Counselling Psychologist)**

INTRODUCTION

Shadowmatch has proven its worth as being a tool that assesses individuals in terms of their habits and how to best use and develop these habits to the benefit of the individual and the organisation. The interesting fact is, long gone are the days where individuals work on their own, in isolation.

As a tool, Shadowmatch recognizes this and has measures such as team inclination vs individual inclination and attitude scales that indicate the propensity of employees to act as contributing members of a team. After having read some of the other case studies in this publication, no-one will be under any misconception as to how Shadowmatch can contribute to the success of teams.

In this light, it is interesting to note that the recent focus of industrial psychology has been on how to maximize the potential of work teams and how to put together these teams in a more productive and efficient manner. Although not commonplace in industrial psychology, teams and team-work have been studied in sport psychology for quite some time. This is also often one of the most important tasks sport psychologists are given when working with teams in sport.

With this in mind, it has been the aim of the Shadowmatch team to not only prove the usefulness of the tool in teams within a working environment, but also within the related field of sports. Thus when presented with the opportunity to get involved in the sport psychological testing of an under 19 golf side we "jumped" at the chance.

The golf team under the guidance of its manager had the ultimate goal of becoming the national champions. After having seen the Shadowmatch system, the manager and executive committee of the Golf foundation felt that Shadowmatch would be the secret weapon that would differentiate them from some stiff competition. At the end of the process, this thinking proved right and the team did in fact become the National under 19 Golf Champions.

However, getting to that point was slightly more intricate and detailed as explained in the case-study below.

Case Study

The team involved in the testing was an interesting mix of age groups, experience levels and personalities. The team would be made up of nine players, eight of whom would play on each day. These players would compete against 11 other teams over five days for the title of National Junior Champions. To put the importance and strength of this tournament into perspective, one needs to look at the names that have competed for their provinces in this format of the game. These include Ernie Els, Retief Goosen, Trevor Immelman and recent Sunshine Tour winners such as George Coetzee.

Five players from this side had competed internationally for South Africa. However, all the other players from the pool of possible selections had not played international junior golf and this presented the team manager with an interesting challenge. Excluding the obvious factors of skill level and form, how do you match five players of immense experience with four players of very limited experience at the same level?

Shadowmatch came to the fore as a way of comparing these players of differing experience levels in an equitable way. In sport this is often referred to as getting the mix right between youth and experience. By incorporating Shadowmatch into the team selection process, the manager got this mix right, not only in an intuitive way but also by using science and having valid and reliable results. How was Shadowmatch used and in which way did it contribute to the team's ultimate success?

Testing process

The group of golfers was made up of nine members who were all teenagers and who ranged in age from 16 to 19. Any form of analysis or testing on subjects from this age group is generally met by some apprehension and resistance. To break this resistance each player was given his Shadowmatch code to complete the worksheet over the Internet at home.

The reason for this was twofold. Firstly by not doing a centralized assessment players would not have the opportunity to “compare notes” and in this way feel inferior at all if they felt they may have got a question wrong. Secondly, by completing the worksheet at home, players would be in a comfortable environment that would decrease anxiety whilst increasing ease of use. The reasoning for this is that players would do Shadowmatch on their own computers and this related to very few administrative glitches in the testing phase.

The group of players selected was also an ideal team for computer and web-based testing. All of the players either have their own personal computers or have a family computer at home and are thus very comfortable with using a computer. Once again this decreased much of the normal anxiety experienced in testing in that players were using a medium they knew very well.

Once the worksheets were complete, each player received his two-page report back on the system. This report indirectly also helped in creating an early positive self-regard within each player. The reason for this being that each player’s strengths were highlighted to them and their parents, and this already put each player in a positive frame of mind not only towards the test, but to the whole sport psychology process that was to follow.

Results

After having gone through the process of testing the players and after having studied their results the following patterns became apparent. The five top habits of golfers in this group proved to be responsiveness or the ability to react quickly, self-confidence, resilience, discipline and the habit of simplification.

In many conversations with the manager of the side as well as the Shadowmatch team, it was interesting to note that two of the most important qualities of these golfers were “thinking” habits, or seen differently by the manager of these players and other golfing experts, as Golf course management skills.

Critical Habits

The habits of responsiveness and the ability to simplify bare direct resemblance to the most important abilities of the most successful golfers of all time. How can one make such a statement? Upon close study of not only this team but also successful golfers over the last three years, it was easy to see how responsiveness could be a critical skill for success on the golf course.

Responsiveness looks at the ability of a person to think on their feet and to react quickly. This often happens on the course where conditions can change in a matter of minutes and even more during the six hours it takes to play a round. So to adjust and to respond to a changing environment successfully is possibly a large key to success.

Secondly, in being able to simplify successful golfers avoid the propensity of some less successful golfers to suffer from what is jokingly referred to in golfing circles as "paralysis by analysis". Simply put, this is what happens when a golfer has so many conflicting ideas in his or her head that they never come to the conclusion of hitting the ball.

In being able to simplify a problem or challenge, these successful junior golfers are better able to deal with them and to get better results. The reason for this is that they tend to not over-think the information presented to them by yardage books, caddies, their own experience as well as sensory input.

They have developed the habits of thinking and reacting quickly due to time constraints and they do this by only working with what they perceive the essence of the problem to be. A good example of this came to the fore in discussing the mental routines this group followed when faced with very long putts. The consensus amongst the group was that when faced with this tricky situation they only focused on two things, the pace of the putt and to get it as close to the hole as possible.

The reason ventured for this by the manager and our team is that on a 30m putt there are too many factors to take into consideration to get the ball in the hole.

This includes slope, speed of the green, pin placement, input from the caddy, type of putting stroke needed, power on the stroke, visualization and a myriad of other data. Thus players have learnt to cope by using the habit of simplifying this whole process by focusing on only two of the most important aspects.

Whereas responsiveness and simplification are course directed habits the other three critical habits in this group proved to be more internally directed.

Self confidence is probably one of the most important skills any person who is trying to perform in any environment and at any level can have. In this group it resulted in a team dynamic that was self-assured without being arrogant and a belief that no matter how tough the situation, the team could rise above the challenge.

This proved to be the case when the team lost one of its games on the second day of the tournament. Instead of the team disintegrating or a negative vibe developing in the team, all the players pulled together with a sense of confidence and made a promise to one another to not lose one more game. Something they achieved quite easily.

This tournament also tapped into the teams combined habit of resilience, something that is not only imperative in a tournament environment such as this but also in golf in general. The reason for the importance of resilience in golf is that one is faced with more disappointment than you are faced with success. Tiger Woods, the world's number one player wins only roughly every four tournaments he enters. A very poor success rate if one takes into account that this is the way he makes his living.

Thus from a young age players have learnt the ability to bounce back after disappointments on the course. Something that is needed if one is to play top amateur golf or even just return for a next round after the disappointments of a bad round.

Lastly, discipline. If one looks at the sport of golf from the outside, such as I have done for the better part of the last three years, one is struck by the discipline one

needs to compete at the top level. This does not only include discipline to practice the various important skills of the game, but also the mental discipline needed to put together a successful round after having played badly the day before.

Discipline is also a bed-rock of the rules of the game. Players will often mark their own score cards and if a player is not disciplined or honest in his scoring he or she can be a detriment to the game and to their team.

Conceptual application and attitude scale

On conceptual application this group of junior golfers achieved a combined score of six out of ten. This is a high score for a group of young people and it is postulated that this is due to the nature of the game of golf. When these players engage in a game of golf, their conceptual application is tested and developed.

This is due to the fact that various forms of information is put to the golfer on the course before playing certain shots. This information includes score card information on how long the hole is in meters and yards, how far the player is from the green, which club will allow the player to hit the best shot, what external influences such as wind are present and how this will affect the shot.

The player needs to take all of this into account before selecting a club and playing a certain shot. This equates very well to conceptual application which asks the person to look at data, re-work it using their own frame of reference and then solve the problem to the best of their ability using the information provided. Success on the course also compares very well to players who have a higher conceptual application as this allows them to make better informed decisions, and better execute their preferred solution.

On the attitude scale, players tested predominantly on the first quadrant of the attitude scale. This implies that this group of golfers is predominantly involved and unaggressive in their approach to their world and relationships. All the players involved, interacted predominantly in this way and there were very few altercations during the week of the tournament and in the weeks leading up to the competition.

This made the task of being the sport psychologist much easier and also made the interaction of the manager with the players a lot less strained. This also allowed the players to cope more successfully with disappointments and to work together when challenged.

Teambuilding

In the lead up to the tournament, time was also spent in analyzing the combined Shadow of the team. This was done to show the team its strong habits and areas where they don't display such strong habits. This made them aware of how they looked as a team. At this stage no individual results were made available.

This was done to ensure that the players did not face criticism from team mates if they did not match the Shadow, or that players who were a good fit to the Shadow looked down on teammates. It was purely a teambuilding exercise where all the players were made aware of strong habits and behavioural areas where they didn't display strong habit patterns.

A lot of hard work was put into the testing and the development phase of this teams existence, but the question still remained: What would the players do in the heat of battle? They did exactly what Shadowmatch had predicted and what they set out to do.

Results in the tournament

Statistics on this tournament indicate that the team involved won 92,5 out of a possible 132 points against 11 other provinces over five days of competition. That equates to a win ratio of 70% in one of the toughest inter-provincial tournaments on the SA golfing calendar. The team had six of its players chosen for national squads at the end of the tournament and this team had only lost to one other team by the slim margin of one point. Statistics however can be misleading.

What differentiated this team from the rest was how they dealt with disappointments and challenges throughout the week. This became very apparent

when the team lost on the second day. This loss was only by one point but it could have been the end of the tournament. However true to the predicted habits on Shadowmatch, the team did two things that ultimately ensured success. They pulled together as a team and they kept their involvement un-aggressive.

The golfers in this team were tested as predominantly team-inclined and this shone through on the day they lost. The evening after the loss the team and their captain set the target of not losing one more game. This they achieved with distinction. At no stage did any of the players become problematic in their behaviour and it was extremely interesting to see how, after the loss, the team seemed to gel even better and performed to their true potential.

Conclusion

Shadowmatch has been used in many industrial settings that include many different teams and groups. It has now however crossed over into mainstream sport in that it has helped a team of aspiring young golfers win the national championships they had been striving for.

In looking to the future in the golfing industry in South Africa, it would not be surprising to see more teams use this tool to pick teams and to match their teams to the trophy - something that is becoming more and more important in the world of golf and the world of sport.

**Operations Managers
Versus
Project Managers
In the Mining Industry:
A Case Study**

By Erna Gerryts

The success of a project lies heavily on the shoulders of the project manager to deliver a project according to scope, within budget and on time. This depends heavily upon the behaviour of the project manager and not on his intentions or his personality but specifically on what he accomplishes throughout the lifecycle of the project.

'... good communications and the ability to motivate, lead, and enjoy working with a diverse group of people is the foundation of excellence in project management,' according to Stephen Seay, an experienced project manager from Florida in the USA.

Considering this, it was decided to investigate the behavioral habits of project managers in the mining industry. Often in the mining industry, operations managers are used to managing projects because they know the environment well and are adept at managing outcomes. Once the behaviour of the project managers was identified, their habits were compared to the habits of operations managers in the same environment in order to determine which behavioural attributes distinguished project managers from operations managers in mining, if any.

Shadowmatch was used firstly to map the behavioural habits of 5 top performing operations managers within the gold and platinum mining industry into one combined profile or shadow. Secondly, the behavioural habits of 7 successful project managers within the same gold and platinum mines were mapped via Shadowmatch and also portrayed as one profile. These results were compared with one another and are presented in Fig 1.

Seven of the twenty five habits measured by Shadowmatch have shown a 10% or higher difference between the two combined profiles. Habits which had differences of less than 10% are either insignificant or will only be present when individuals experience high levels of stress.

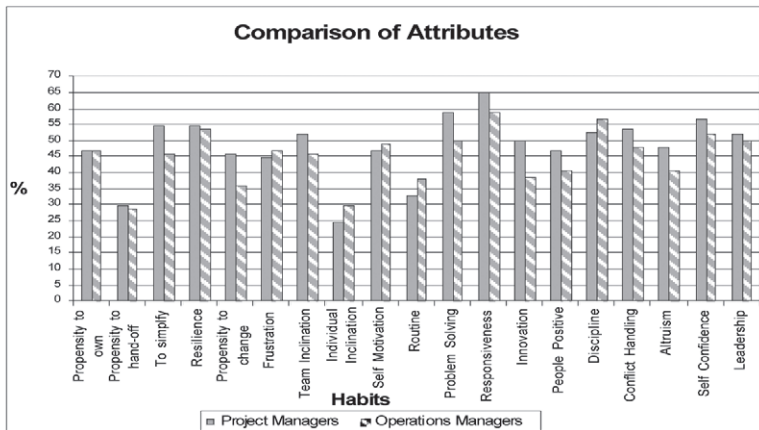


Fig 1. Comparison of Behavioural Attributes

The significant differences in the comparison between the habits of the operations and project managers lead to some conclusions in the given environment.

The Project Managers participate actively in changing situations and will probably drive towards change if necessary whereas the operations managers will be more reluctant to change. The Project Managers deal much easier with change and will probably prefer working in changing environments. There is a 28% difference between the groups in respect of their overall propensity to change.

Team & Individual inclination are pairing habits and have shown a distinct difference between the average combined profiles. The project managers have shown a 33% higher propensity towards team inclination compared to that of the operations managers. The Operations managers tend to work more on their own and prefer individual tasks to team tasks.

The group of Project managers showed a 28% higher preference towards finding new and creative ways to perform tasks or to identify new processes whereas the Operations managers in the same environment preferred to stay with the way things were done in the past, rather than looking at innovative ways to approach tasks and processes. Finding innovative ways was often regarded as a time-waster for the operations managers.

The Project Managers had a 33% greater propensity of finding the correct solution to a problem than that of the Operations Managers. It took the Project Managers longer to resolve the conceptual problems, though. This is a critical difference and indicates that it is of more importance for the Project Managers to solve problems in their entirety even if it takes more time to do so. The Operations Managers were more time-efficient but less successful in resolving problems. The habit of successfully applying conceptual ability and the habit of simplifying are linked. Both of these attributes were more embedded habits in the behaviour of the project managers.

Altruism and Conflict Handling forms a habit pair and combine together in a single behavioural preference. The group of Project Managers displayed a 13% stronger habit in their willingness to help others without expecting anything in return. They also showed a 17% stronger habit in their ability to handle conflict between people in a constructive way as compared to the Operations Managers. When it comes to more people-intensive tasks, the project managers showed stronger developed habits in this area.

Critical Profiles

Shadowmatch creates a critical profile per benchmark group. The critical profile consists of the 5 strongest habits portrayed by the group from which the combined/average profile has been developed. The critical profiles of these two groups consist predominantly of the same attributes but in a different ranking order. It means that the way in which the two groups prioritise their behaviour differs (see fig2). Only one attribute between the two groups is totally different. Operations managers displayed 'Discipline' as a critical habit i.e. they are comfortable to work in a highly disciplined working environment where structure and timeframes are imperative whereas Project managers displayed 'To simplify' as a critical habit. They automatically make complicated concepts easier to understand and enjoy simplifying and resolving problems.

The scores in the critical profile of the Project Managers are higher throughout. This means that their habits are overall more strongly embedded.

Operations Managers		Project Managers	
Attributes	%	Attributes	%
Responsiveness	59	Responsiveness	65
Discipline	57	Problem solving	59
Resilience	54	Self Confidence	57
Self Confidence	52	Resilience	55
Problem solving	50	To Simplify	55

Fig 2. Critical Profiles comparison

Attitude

The two groups did not display significant differences in attitude. Both groups are predominantly participative and unaggressive in their approach towards life and work. Both of the groups become more aggressive when placed in situations where they experience high levels of stress.

What does this all imply?

There are significant differences in the behaviour of successful project managers and operations managers in the mining environment. Project managers have the habit of adapting to change, are team players and are willing to help others and handle conflict as part of their every day life. If the Operations managers were to handle project teams, the project would probably be delivered on time, according to scope and within budget, but there would be more conflict between the team members because they tend to be less adaptive to change, more individually inclined, less positive towards others and less effective in handling conflict situations.

Seeking Talent – An Elusive Effort?

Article

By Dr Christiaan Mostert

Many companies will boast that their employees are their most important asset. However, if you look more closely, you will often find that these companies have a very loose way in employing new recruits, let alone retaining them. Very few have a strategy in place to attract and retain talented people.

In a landmark study, McKinsey Quarterlyⁱ concluded in 1997 that there is an imminent shortage of not only executives, but also skilled and especially talented employees. Ten years later, this warning has become a major reality for many organisations. A large pool of “baby boomers” are about to retire and question marks are abound about the appropriateness of the skills of younger generations to take over.

Companies that are successful mostly understand the importance of building their competitive advantage around the talented people that they employ rather than their specific standing of product offering in the market. There are increasing indications that in a modern and knowledge-based business environment, intangible assets (i.e. skills and relationships) can create considerably higher value than traditional assets (i.e. physical products).

Business leaders are also becoming concerned, judging by global surveys done by McKinsey Quarterly. The first studyⁱⁱ, in 1997, indicated that finding talented people has become one of the most important management focus areas for the remainder of this decade. This conclusion is fast gaining new meaning as the world is facing tough economic times, as we are currently experiencing, where there may be a general increase in available skills in the market, but no easy way to identify and attract these individuals.

The second studyⁱⁱⁱ was done in late 2007 (with 1,300 executives) where it was also identified that competition for skilled and talented people will increase drastically over the next five years.

Talented People – Only the limited few?

There is a fairly widespread belief that most companies do indeed try to recruit employees that will become successful. Companies often invest heavily into human resources processes and even systems to address these problems^{iv}.

However, we often also find that efforts to attract people that are likely to perform at the top end of the performance scale is at best insufficient and superficial, and often ineffective, random and even wasteful at worst.

To truly develop top performing people in organisations we require a few solid fundamentals to be in place:

- A specific approach to finding and approaching the right people
- Recruiting or promoting them into the right area of the business (organisational fit) where they will have the opportunity to excel.
- Empowering HR and line managers with additional capabilities to develop these individuals.

Although the notion of talented people is often meant or implying a few, radically successful people, the realisation is dawning that companies actually need a wide base of talented people that can generate radically higher value and returns for these companies.

We believe that it is possible for organisations to use precision recruitment as a strategic level approach to place people in such a way that they are likely to be successful to the same level as top performers in the organisation. After a certain period of time the whole team will consist of successful people, enabling a positive spiral of success leading to more success. This can allow companies to start generating their own talented people.

Growing Challenges

As the number of so-called Generation Y-people (those born after 1980) become more important as part of a workforce (already > 15% of the workforce), traditional managers will find it increasingly difficult to understand these youngsters in the workplace. They are characterised by living for the moment with relative short planning horizons and little desire to work for many years in any single organisation.

They are therefore not only harder to manage (at least for traditional managers), but recruiting them correctly will be an even bigger challenge. Their willingness

to explore and take risks will see them becoming mobile internationally, again bringing even bigger diversity into the equation when recruiting staff. Recruiting this new generation workforce is becoming a major challenge, let alone identifying and developing their talent.

In many countries there are unfortunately increasing indications that HR departments are focused mainly on administrative functions (payroll, leave, etc) and to manage legislative and legal issues (industrial relations, occupational health), etc. Recruitment is also often seen as a mere administrative procedure. These approaches will undoubtedly not allow these organisations to recruit precisely, let alone develop any talent.

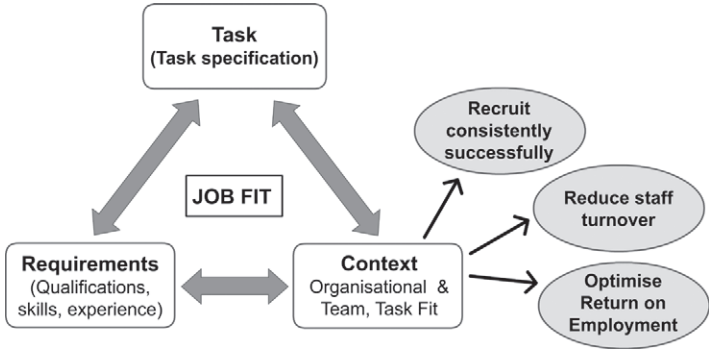
A method to place employees more scientifically

A recent Harvard Business Review study has concluded that the effectiveness and validity of traditional recruitment practices have come under pressure in recent years. It is expected to become even more so as the study shows for instance that men and woman increasingly perform at the same level in organisations. Likewise age, race or ethnic background have as such little bearing on being successful in job performance. It was concluded that "It's not experience that counts or college degrees or other aspected factors – success ultimately hinges on fit with the job".

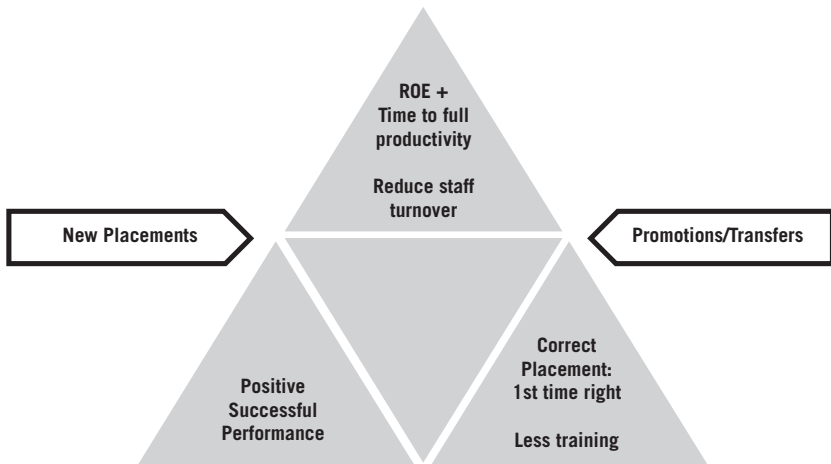
To consistently recruit people successfully, a precise and scientific method will be required to understand, prior to the appointment, whether the person is likely to fit into the position.

It is also important to realise that success is only achieved when the task is aligned to the capabilities and behavioural preferences of the individual. Most companies can determine the task specifications in detail and then attempt to recruit individuals that have the necessary qualifications and work experience to match the task. The problem however lies with the context in which the individual will have to work. Not only are there behavioural aspects and preferences of the individual to consider, but he or she will have to fit into a team of sorts.

Shadowmatch has been developed to specifically address the contextual aspects of the recruitment process. It can scientifically determine the common habits and traits that successful people in a specific business area share (the “Shadow”) and that can be used as a benchmark to compare and/or recruit applicants against.



Shadowmatch facilitates the precise recruitment and placement of new and existing employees, radically increasing organisational fit, increased performance, reduced time to become fully productive, reduced staff turnover, happier people and, overall higher Return on Employment.



Shadowmatch utilises a non-psychometric, web-based questionnaire to create a profile of the individual’s habits and traits. The combined profiles of the group of successful people then become the “shadow” and is statistically verified to ensure that these people do indeed all share certain habits and traits in a congruent manner.

Shadowmatch provides precision insight into the level of fit that you can expect from applicants when placed in a specific work area.

- Precision and scientifically based recruitment of all graduate and non-graduate staff
- Precision placing, transfer or promotion of existing employees
- Precision consideration of temporary or contract staff against your organisation's success attributes
- Precision interviewing of new appointees (a unique interview pack is generated based on the Shadow attributes)

When an organisation takes the decision to view their recruitment process as a strategic activity, the foundation is laid to enhance the success of all employees dramatically. Traditional methods of recruiting are however not suitable to deal with the changing workforce for one, and secondly to recruit talented people to enhance success even further.

Conclusion

Although attracting talent can be viewed in a narrow sense to only attract the highly talented few, most companies can actually engage in a process to increase the general level of talent throughout the organisation. By ensuring that teams become highly successful through general recruitment of people that are not only qualified, but that would fit the team exceedingly well, organisations can start to generate an upward spiral of success leading to more success. Learning and leadership interventions can also be maximised in this way.

Shadowmatch has been proven in numerous companies as a strategic-level recruitment tool to radically enhance the potential for employing people who are likely to succeed company-wide. In these organisations, talent can therefore become a wide pool rather than just a narrow few.

ⁱ *McKinsey Quarterly (1997). The War for Talent. www.mckinsey.com*

ⁱⁱ *McKinsey Quarterly (1997). The War for Talent. www.mckinsey.com*

ⁱⁱⁱ *McKinsey Global Survey (December 2007). www.mckinsey.com*

^{iv} *Guthridge, Komm, Lawson (2008). McKinsey Quarterly Jan 2008.*

STATISTICS
Visualising the Data:
Interesting
Shadowmatch Statistics

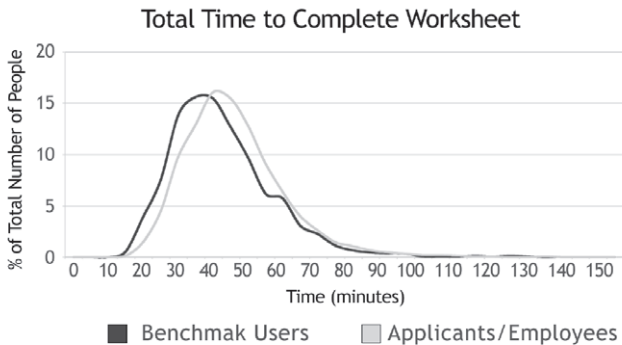
By Timothy Solomon

The power of Shadowmatch lies in its ability to display complex information in a way that makes it easy to see trends and relationships between different groups of people. As the Lead Programmer on Shadowmatch I get to dig through the rich store of information to reveal the most important pieces of data and to visualise that information in a way that is simple to understand, and helpful in the decision making process. It's an intriguing challenge, and one that we keep refining to try and find the most useful way of displaying the data for our clients.

With well over 10 000 worksheets done to date, there is a wealth of information in our databases. In this chapter I will share some of the interesting statistics and trends of Shadowmatch, and try and identify what makes a person successful. (This is not meant to be taken as a scientific measurement but rather a sneak peek into the fascinating world of Shadowmatch).

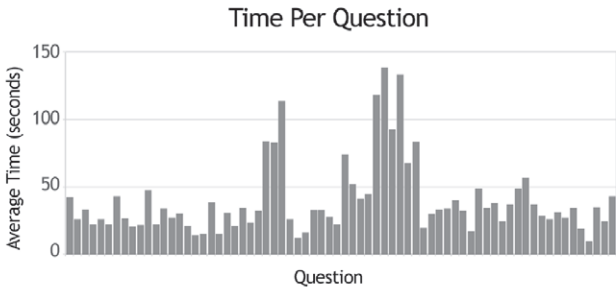
Time

A Shadowmatch worksheet doesn't have time limit, but the applicants are recommended to keep 1 hour open to complete the worksheet. This graph shows the range of how long it actually takes most people to complete the worksheet:



The graph has been split between Benchmark users and the Applicant/Employee users. The graph shows an average time of about 40 minutes to complete the worksheet, with a few people taking a lot longer. The shift in time taken between the two groups is probably due to the difference in environment, expectation, and familiarity with working on computers.

A quick look at how long the average user spends on each question is also interesting:



The top 10 longest-to-answer questions happen to be the 10 conceptual questions in the worksheet.

Conceptual Questions

Conceptual questions measure the habit to apply one’s mind to working through an abstract problem towards finding the correct solution. For the rest of the questions there are no right or wrong answers, but the conceptual questions have one correct answer.

Fewer than 100 people have achieved 10/10 for the conceptual questions...The quickest time to answer all 10 conceptual questions correctly is 10min.

The question most people spend the longest on (on average 02:21 min) is:

“You have to deliver a parcel. All the streets in the suburb where the delivery must be done are straight from end to end. The person directing you to the delivery address tells you that the building is to the south of Kumba Road. Which one of the following doesn’t make sense?”

Due to the nature of the question, and the long answers, and the fact that you have to go through all of them to find the incorrect answer, makes this the longest-to-answer question.

Most people get this question right; the following question, however, is the most incorrectly-answered conceptual question:

Most Incorrectly Answered Question:

“You are fifteen minutes early for an appointment. In the waiting room you face a large mirror against the wall opposite you. You can see the image of a round wall clock in the mirror. The clock has no numbers and the hands of the clock (as you see it in the mirror) indicate that the time is 07H45. This time doesn’t make sense to you. Then you realise that the real clock hangs upside down. What is the correct time of your appointment?”

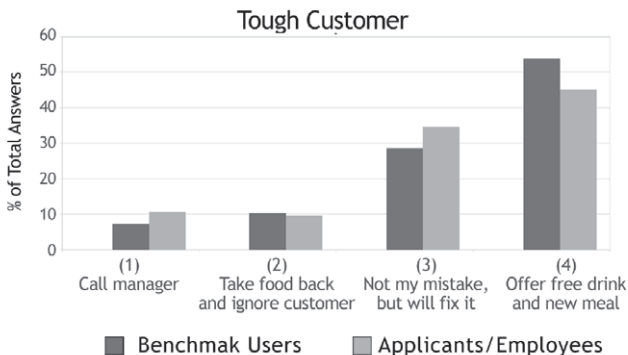
Only 18% get this one right. It’s a challenging question that measures a conceptual application of bending space and time!

Longest Non-Conceptual Question:

After the 10 conceptual questions, the next longest-to-answer question is:

“Imagine being a waiter at one of the top three restaurants in your country. A customer orders a meal and you place the order with the kitchen. You serve the meal to your customer and he asks you to check the order. You check it and confirm it with the customer. The customer later says that the meat is well-done and he asked for rare. He then starts an argument. It is not your mistake, what do you do?”

It’s evidently a question that people can relate to and takes, on average, 56 seconds to answer.



The full answers are:

1. Call the manager to help you handle the customer.
2. Take the food back to the kitchen to be replaced and ignore the customer.
3. Try to convince the customer that it is not your mistake but you will fix it.
4. Offer the customer a free drink and a freshly made meal to defuse the situation.

Interesting to note that the Benchmark users usually responded that they would take things into their own hands and “defuse the situation” (4) more than the Applicant/Employees, who were slightly more likely to “call the manager” (1).

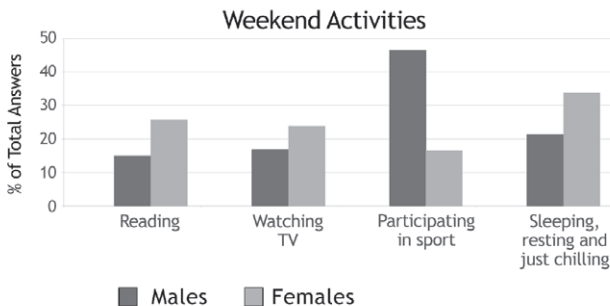
This question shows some of the variation between Benchmark users and Applicant/Employee users and seems to hint at what makes one person more successful than another. This is only one question in isolation though and not too many conclusions should be drawn from it; Shadowmatch always looks at the bigger picture to give a fair and balanced perspective.

Variations Based on Gender:

There are other ways the user base could be segmented such as age, race or nationality. However, research and history have shown that these have little indication as to the habits of a person, so aren’t collected by Shadowmatch. The user’s gender is recorded, but it is not used for measuring or comparing habits. It is interesting to look at the statistics though: Overall Shadowmatch has an almost exact 50:50 percentage split between male and female users. Comparing their answers also shows very little difference in answering patterns or time taken.

The question that has the largest gender-difference is:

“What do you prefer doing over weekends?”



(Apparently 50% of men spend their weekends participating in sport... Does watching sport on TV count as participating in sport? Perhaps women are just more honest!)

Habits

The top 6 strongest habits of Benchmark users are, in order of rank:

1. Responsiveness
2. Discipline
3. Conflict Handling
4. Self Confidence
5. Team Inclination
6. Altruism

(see the other chapters in this book for explanations of the different habits)

Benchmark users are chosen as the most successful individuals in a business/position, so one might think that these 6 habits represent the habits of highly successful people. But when compared with the Applicant/Employee's top strongest habits, they are very similar (The two group's top 6 are both the same, just the ranking is slightly different).

This is because, as explained elsewhere in the book, there is no "ideal" person or set of habits that produces success. Each job/company/environment is unique and will have its own unique conditions, expectations and behavioural requirements.

Conclusion

The only thing these stats have proven is that it is very difficult to measure what creates a successful person. This is one of the concepts that makes Shadowmatch so amazing and sets it apart from its competitors; it doesn't look for the "average" good employee, but rather it looks for the "unique" individual who will fit best into an environment where they have the greatest chance of success.

Validation of Shadowmatch

Shadowmatch Introduced: *Shadowmatch is a 'Black-box' type tool that presents an individual with a list of tasks in order to determine habits in the behaviour of the individual. It simulates tasks for the individual to indicate how he/she will act by selecting from a list of multiple answers. The system then identifies trends in the way an individual has indicated how he/she will act in the specified circumstances and calculates the consistency with which answers were selected. The end result is a graph that indicates the level to which these habits are embedded in the behaviour of the individual as per a set of behaviour definitions. A high score indicates that the individual has consistently selected answers that indicate a strong preference towards behaving in a specific manner. A low score indicates that the individual didn't consistently select answers that would represent congruent behavioural patterns of the specific nature calculated as a habit. On the list of 19 habits, the score can even be less than zero. This indicates an anti habit also referred to as a counter habit. The person then indicated a habit against the habit being calculated.*

Statement of Experiment:

Assertion: Shadowmatch asserts that by having an individual complete a list of tasks (in the format of a questionnaire based worksheet) Shadowmatch can discriminate the level or degree to which habits are embedded in the behaviour of an individual as per a set of defined behaviour categories.

The requirement is to design an experiment by means of which the above assertion can be tested with a view towards validation. Our experiment consists of the following:

1. Inviting eight 'experts' to complete a total of 36 Shadowmatch worksheets profiling 18 separate behaviour categories such that 18 result in a score of 70 or more (demonstrating the presence of a habit imbedded in the behaviour of an individual) and such that 18 result in a score of 10 or less (demonstrating the absence of a habit embedded in the behaviour of the individual).
2. The eight experts were not told in advance which behaviour pattern they would profile. Once seated, each was provided with access codes to complete a Shadowmatch worksheet and each was randomly assigned a separate behaviour category with a definition of that behaviour category.

3. For each behaviour category, an expert was tasked to complete two Shadowmatch worksheets.
 - a. One: complete a worksheet, consistently selecting for each question the answer that they (the tasked expert) felt best described behaviour that was consistent with the behaviour definition supplied, and,
 - b. Two: complete another worksheet, consistently selecting for each question the answer they felt was most anti / contra the behaviour as per the behaviour definition.

Interpretation and Its Reasoned Basis

In considering the appropriateness of the above experimental design, it is needful to forecast all possible results of the experiment and to have decided without ambiguity what interpretation shall be placed upon each result. In this instance, we set out the possibilities as per the mathematics of permutations and combinations for the 18 results out of 36 total tests that targeted a score of 70 or more. In determining the full set of possible permutations, it is noted the order does not matter and a particular result can only be used once. Consequently, the number of possible combinations is the binomial coefficient:

$$\binom{n}{k} = \frac{n!}{k!(n-k)!} \quad \text{where for e.g. } 3! = 3 \times 2 \times 1 = 6; [! \text{ stands for factorial }].$$

For our calculation, $n = 36$ and $k = 18$. There are a total of 9,075,135,300 (just over 9 billion) possible sets of answers ranging from all 18 targeted behaviour categories scoring 70 or more to all 18 targeted behaviour categories scoring less than 70. At best, the experts can complete the worksheets so consistently as per the behaviour definitions that all 18 targeted behaviour categories result in a score of 70 or more. In terms of probability, experts without any faculty of discrimination against the definitions would emulate this result (all 18 scoring 70 or more) in one trial out of 9,075,135,300. The complete set of probabilities is enumerated in the table 1 following:

Table 1: Full set of possible results (normal distribution curve):

Behaviours Scoring 70+ out of 18	Behaviours Scoring less than 70	Frequency	Significance	Confidence
18	0	1	0.00000001%	99.99999999%
17	1	324	0.00000357%	99.99999643%
16	2	23,409	0.00025795%	99.99974205%
15	3	665,856	0.00733715%	99.99266285%
14	4	9,363,600	0.10317863%	99.89682137%
13	5	73,410,624	0.80892044%	99.19107956%
12	6	344,622,096	3.79743204%	96.20256796%
11	7	1,012,766,976	11.15980030%	88.84019970%
10	8	1,914,762,564	21.09899743%	78.90100257%
9	9	2,363,904,400	26.04814498%	73.95185502%
8	10	1,914,762,564	21.09899743%	78.90100257%
7	11	1,012,766,976	11.15980030%	88.84019970%
6	12	344,622,096	3.79743204%	96.20256796%
5	13	73,410,624	0.80892044%	99.19107956%
4	14	9,363,600	0.10317863%	99.89682137%
3	15	665,856	0.00733715%	99.99266285%
2	16	23,409	0.00025795%	99.99974205%
1	17	324	0.00000357%	99.99999643%
0	18	1	0.00000001%	99.99999999%

The Test of Significance

In relation to test of significance, we can conclude that something is demonstrated experimentally when we can conduct an experiment in such a way that it will rarely fail to give us a result that can be interpreted against a statistical significance score. Table 1 above details all the possible results of the experiment as pertains to demonstrating a habit embedded in the behaviour of an individual (that is a score of 70 or more resulted for the behaviour category targeted). It is noted that the sum of the frequency above equals the total number of possible combinations

of 9,075,135,300. The significance score is calculated as: [frequency divided by 9,075,135,300]. In deciding the level of significance to use, we want to avoid high degrees of success that can result from mere chance. Hence we target a level of significance of 0.01 for a 99% plus confidence index in our results.

The Null Hypothesis

Our exploration of the full set of possible results of the experiment has resulted in a statistical test of significance by which the actual results can be divided into two classes of opposed interpretation. The two classes of results which can be distinguished by our test of significance are one (forthwith referenced as the 'null hypothesis'): *the hypothesis that the experts' collective efforts to discriminate the presence of a strong habit as well as the absence of a habit embedded in an individual's behaviour as per a set of behaviour definitions are not enabled by the Shadowmatch worksheet*, and two (forthwith referenced as the alternative hypothesis): *the hypothesis that the experts' collective efforts to discriminate the presence of habits (strong and absent) embedded in an individual's behaviour as per behaviour definitions are enabled by the Shadowmatch worksheet*. It is noted that this experiment ('validation of Shadowmatch') has been created to give the evidence a chance to disprove the null hypothesis and not to prove or establish it.

It is tempting to argue that if the validation of Shadowmatch (the experiment) can disprove the null hypothesis, we must consequently be able to prove the opposite hypothesis namely that experts can discriminate the presence of habits embedded in an individual's behaviour as per a set of definitions using the Shadowmatch worksheet. However, this opposite hypothesis is ineligible as a 'null hypothesis' because it is inexact. If we would add the words '**always** be able to discriminate the presence of a habit embedded', we would then have an exact hypothesis that can operate as a 'null hypothesis'. But it is easy to see that this hypothesis can be disproved by a single failure whilst never being proved by any finite number of experiments. From this example, it is clear that the 'null hypothesis' must be precise and unambiguous in order for it to supply the basis of the 'problem of distribution', for which the 'test of significance' is the solution.

Randomisation: The Physical Basis of the Validity of Shadowmatch

We have discussed that the validation of Shadowmatch involves testing the null hypothesis that the Shadowmatch worksheet does not enable experts to discriminate the presence of an embedded habit. We have also assigned, as appropriate to this hypothesis, a frequency distribution of occurrences, based on the equal frequency of the 9,075,135,300 possible ways of assigning the results of 36 Shadowmatch worksheets to two habit sets (embedded and absent) of 18 behaviour areas each. This is in fact the frequency distribution for a classification by pure chance.

We have now to consider the physical conditions of the experimental design required to substantiate the assumption that, if the link between experts being able to use the Shadowmatch worksheet and behaviour definitions to model the degree of habits embedded in an individual's behaviour is absent, the results of the experiment conducted will be completely controlled by the laws of chance. It is easy to see how the physical conditions of the experiment can deliver results not completely controlled by the laws of chance. For example, if, for each question in the Shadowmatch worksheet, an expert had a choice between two answers highlighted in different colours to consistently indicate the absence or presence of a habit embedded in the behaviour set under modelling, then the obvious difference in the format of the question answers would ensure that a set of both high scores and low scores result. This would happen in 50% of all trials and the sets would either be all right or all wrong and the test of significance would be meaningless.

In this particular instance, we needed to take the precaution of randomisation to guarantee the validity of the test of significance against which to decide the experiment results. This was done through behaviour sets being randomly assigned to each of the eight experts. For each specific behaviour area the expert was required to complete a Shadowmatch worksheet to model both the presence and absence of a habit embedded in an individual's behaviour as per the behaviour definition. The worksheet targeting a specific behaviour could only be completed

once by the expert in question. Second attempts at modelling the behaviour are not a part of the experiment results – first attempts only have been included.

With respect to any additional refinements that can be made to increase the sensitivity of the experiment, we now have in place the description of a valid experiment as well as the test of significance by which to determine its result. It remains for us to translate the hypotheses into numerical constructs, to present the actual results of the experiment and to conclude on the validity of Shadowmatch.

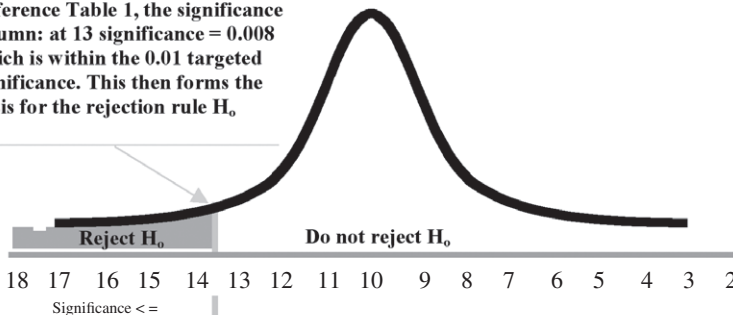
Hypotheses H_0 and H_a and Rejection Rule H_0

Null Hypothesis:	H_0 : Shadowmatch does not discriminate the presence of habits embedded in an individual's behaviour.
Alternate Hypothesis:	H_a : Shadowmatch does discriminate the presence of habits embedded in an individual's behaviour.

We want a 99% chance of discriminating the presence of habits embedded in an individual's behaviour. Hence, the level of significance for the hypothesis test is 0.01 (or 1%). If you reference Table 1 earlier, you will see that the significance scores for a total of 13 to 18 tests scoring greater than or equal to 70 are all less than 0.01 (1%) and thus within the 0.01 significance level. This band thus forms the basis for our rejection rule H_0 detailed below.

Scores over 70: Left tail of significance as per Table 1

Reference Table 1, the significance column: at 13 significance = 0.008 which is within the 0.01 targeted significance. This then forms the basis for the rejection rule H_0



Given Table 1, a significance level of 0.01, the above visual and the fact that the same logic applies to the results targeting scores of 10 or less, we can establish the following rejection rule:

Reject H_0 :	If 13 or more of the 18 worksheets completed to show the presence of a strong habit embedded in an individual's behaviour score greater than or equal to 70.
	OR
	If 13 or more of the 18 worksheets completed to show the absence of a habit embedded in an individual's behaviour score less than or equal to 10.

The Experiment Results

The expert group of eight could successfully replicate the presence /absence of behavioural habits as is presented in table 2 below. (Manipulating the results equal to or above 70% should be seen as 100% successful and creating a result of less than or equal to 10% in order to anticipate the absence of a behavioural habit, that should also be seen as 100% successful).

Table 2: Experiment Results (36 results made up of two sets of 18)

No	Habit.	Forced High	Count of Successful	Forced Low	Count of Successful
1	Propensity to own	71%	1	19%	
2	Propensity to hand-off	64%		13%	
3	To Simplify	70%	2	9%	1
4	Resilience	83%	3	-23%	2
5	Propensity to Change	70%	4	3%	3
6	Frustration Handling	73%	5	-6%	4
7	Team Inclination	96%	6	4%	5
8	Individual Inclination	72%	7	6%	6
9	Self Motivation	81%	8	-2%	7
10	Routine	55%		12%	
11	Problem Solving	79%	9	-6%	8
12	Responsiveness	88%	10	3%	9
13	Innovation	83%	11	-14%	10
14	People Positive	85%	12	-14%	11
15	Discipline	69%		12%	
16	Conflict Handling	67%		3%	12
17	Altruism	80%	13	-10%	13
18	Self Confidence	78%	14	-9%	14

Conclusion

Set one produced 14 scores of 70 or more and set two also produced 14 scores of 10 or less. As this is greater than the 13 limit as specified in rejection rule H_0 , we reject the null hypothesis that Shadowmatch does not discriminate the presence of habits embedded in an individual's behaviour and accept the alternate hypothesis (H_a) that Shadowmatch does discriminate the presence of habits embedded in an

individual's behaviour with a significance of 0.01. This means that Shadowmatch gives a user of Shadowmatch a 99% probability of discriminating the presence of habits embedded in an individual's behaviour as per Shadowmatch's behaviour definitions.

Participants

1. Guy Krige: Independent Business Consultant
2. Erna Gerryts: Independent Control Group Participant
3. Theo Bezuidenhout: Independent Sport and Counselling Psychologist
4. Madi du Toit: Deloitte
5. Nelius Volschenk: Deloitte
6. Pieter de Villiers: Shadowmatch Representative
7. Lizette Bester: Shadowmatch Representative
8. Hestie Byles: Psychologist University of Pretoria (partial participant)

Appendix A:

Habits Interpreted against a Point Scale

The calculator in Shadowmatch is such that the relative score can vary from the extreme low – even a minus score in the extreme instances – to a very high score. The following framework of points is an indication of what a low and a high score will be:

Less than 10 points is a very low result.

Between 10 points and 30 points is a low result but not radically low.

Between 30 and 50 points indicates a non radical but strong result.

Between 50 and 75 points is a strong to radically strong result.

More than 75 points is a radically strong result.

Although the purpose of this validation is not to interpret these results, it is important to indicate how these points are interpreted as a relative indicator of the behavioural habits and the level to which the specific habit are defined.

The example will be Problem Solving as a habit. Shadowmatch defines Problem Solving as follows:

Problem Solving: This is the habit of engaging with challenges on a conceptual, social and practical level and successfully managing these difficulties/challenges towards resolving them. People with a strong embedded habit of problem solving easily becomes intrigued by challenges and riddles to be resolved.

The results on problem solving will indicate the following problem solving behavioural preferences:

Less than 10 points: This result will indicate that the individual has a low inclination towards problem solving. He/she will rather find alternative ways of dealing with the problem, this might vary from handing it to somebody else to resolve, ignoring it, solving it when he/she is part of a team or even living with the problem without ever resolving it. The individual will only engage with problems under very specific circumstances.

Between 10 and 30 points: This indicates that the individual will engage with a problem, not as a personal adventure and a choice, but when necessary. It might even be that the individual will engage with the problem if it is easy to resolve or if it presents something of special interest or even if it is related to a unique skill that the person has.

Between 30 and 50 points: This individual will engage with problems with relative ease. He/she will be selective in the type of problems he/she prefers to resolve but for the majority of day to day problems the individual will engage with the problem with relative comfort.

Between 50 and 75 points: This individual – for whatever reason – finds meaning in tackling and resolving problems. Although he/she might still be selective in the type of problem he/she prefers to resolve, he/she will engage with the majority of problems in life with the purpose of resolving them. These individuals might even find some form of personal fulfilment in solving problems. It is a habit for them to engage with challenges in order to get a solution.

More than 75 points: These individuals find it difficult to walk away from any problem. In the extreme they tend to become so involved with a problem that it might even influence their normal day to day lives. They can become hooked on a problem and engage with it over long periods of time in order to resolve it. They have a very prominent habit towards engaging with problems, they might even feel frustrated if they are faced with a problem that cannot be resolved. In the extreme, these people might become so intrigued with problems and problem solving that they will start a hobby that entails problem solving.

All the habits tracked by Shadowmatch are more or less in the same weighting framework as indicated above with regards to Problem Solving. The cut-off points are not absolute, they are soft borders. It must also be emphasised that Shadowmatch doesn't measure the way people think, their feelings, temperaments, tastes, moral character, beliefs, expectations, desires, values, or their personalities. It identifies behavioural patterns or habits that could best be described as follow:

A **habit** is an action that repeats itself with no (or minimal) conscious planning. It repeats itself when the situation is conducive to such behaviour and the person has a goal of fulfilling his/her need in some way by doing what he/she normally does. This action can then become a habit.

Appendix B:

When is Behaviour a Habit?

Any behavioural pattern can become a habit. When is behaviour a habit? What else do we need to know about habits?

- Any behaviour that repeats with minimal/no planning can be a habit.
- Habits are learnt behaviour.
- Habits are associated with some meaningful goal/purpose.
- Habits are formed through repetition.
- Habits are very predictable.
- Any behaviour can become a habit. (Getting up early, solving problems, working alone, disengaging when frustrated, etc).
- Habits are extremely difficult to break.
- When an individual cannot freely live by his/her habits, he/she finds it extremely difficult to function properly.
- People living their lives along well established habits show highly predictable behaviour. The opposite is also true.
- All habits are not equally well established.
- Habits can transcend contextual boundaries. (A habit developed in one context can manifest in another context without a clear link to the environment where the habit has been developed).
- Habits are always attached to some kind of meaningful purpose for the individual. This purpose might be something like avoiding discomfort, being successful, being efficient, etc.
- Habits can form pairs or tandem habits. This happens when two or more behavioural types that are related to each other are well developed. E.g. People Positive Behaviour and Altruism. When these two habits are strong, they contribute to each other and the behaviour becomes more prominent.